

## Development of Green Business as an Approach to Financing the Greening of Economy



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**Abstract.** The issues of green economy development are in the focus of attention of Russian and foreign scientists. Its formation was influenced by environmental activities financing sources. The article presents the description of budgetary and extra-budgetary environmental protection financing. Special attention is paid to the need to strengthen private financial support of environmentally determined activities, which can be implemented as part of development of ecopreneurship. The purpose of this article is to identify the trends in budgetary and extra-budgetary environmental protection financing and resource conservation in the Russian Federation and to rationalize theoretically the necessity of business participation in financing of environment-related business ideas, which is aimed at supporting the greening of economic

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activity at the regional level. The methods of empirical and statistical research, systematization and generalization of information have been used. SWOT analysis has identified the strengths and weaknesses of green business, as well as the opportunities for and threats to its development. The study systematizes the information on the sources of financing of environment-related activities, identifies their strengths and weaknesses, and analyzes statistical data on financial aspects of environmental protection. It has been established that the financing of environmental activities in the regions is carried out according to the residual principle; most of the sources of environment financing are unavailable to economic entities; indirect assistance in the implementation of environment-related management finds absolutely no application. The material presented in this paper can be used by public authorities in the development of measures to facilitate the transition to green economy and may also be applicable in the educational process. The authors conclude that the successful transition of Russian regions to the path of sustainable economic development depends on the development in their territories of small and medium enterprises investing in activities focused on environment-related production revenues, environmental services and environmental management.

**Key words:** financing, environmental protection, green economy, green business.

**Introduction.** The recent global economic crisis has formed an additional incentive for the transition of the domestic economy to an innovative, environmentally sustainable path of development which implies evasion from the development model based on the export of raw materials. Strategic objectives set by the government are related to the rational consumption of natural resources and are not fully implemented. The severity of environmental problems, natural and man-induced disasters in the Russian Federation is not reduced. These problems are complemented by economic and social issues affecting the population's standard of living and quality of life. These facts indicate a significant depletion of the current model of economic development. In

order to achieve development and preserve favorable environment it is necessary to introduce a new economic model focused on improving the population's well-being and reducing environmental risks.

The term "green economy" used in recent years is no longer questionable among Russian and foreign scientists and politicians searching for ways out of a systemic crisis for world powers. Green economy aims to become a new vector of economic development of all countries, including Russia. This implies structural changes in economic systems of the country towards the development of eco-friendly activities, including the recycling of production and consumption wastes, the development of organic farming, sustainable forest exploitation, promotion

of eco-tourism, extensive use of alternative energy sources, etc. One of the main fundamental sources focusing on key issues of green economy is the study of well-known English economists, D. Pearce, A. Markandia and E. Barbier called “the Project of Green Economy” (1989) [22]. Among the works of modern researchers, the most noteworthy is the one that connects the ideas of green economy, natural capital and neoliberalism [12]. A group of Belgian scientists analyzes the concept of “bio-economy” and concludes that its development through innovation is under the influence of some specific factors [24]. The work of M.I. Aceleanu demonstrates that “green” jobs assume primary role in “green” economy and “green” jobs creation contributes to sustainable development [11]. Finally, the example of the Chinese experience shows the correlation of crisis phenomena in the financial market and environmental problems [18].

The term “green” economy currently does not have a full and indisputable definition. The corresponding concept is still at an early stage of development and have not yet received clear public assessment. In simple terms, “green” economy is the low-carbon economy adapted to public interests which effectively and efficiently uses natural resources. This ecological-economic model will help save, enhance and restore the Earth’s natural capital.

It is also worth noting that the concept of “green” economy does not replace the ideas of sustainable development, but rather complements them. Rational choice of economic priorities<sup>1</sup> is required for achieving sustainability, environmental in particular.

For the transition to a “green” economy it is highly important to ensure financial provision of costs associated with the implementation of resource-saving and ecologically oriented investment projects in all economic spheres. Reliable sources of financing the transition to “green” economy will accelerate the process of reducing energy and natural resource intensity in constituent entities of the Russian Federation. Full financial support is an immediate need of “green” economy formation and one of the most important and difficult issues in achieving sustainable regional development. Moreover, there is a concept of sustainable growth of financial markets which has been forming recently, as well as the concepts of “green” financial markets closely related to it [17]. All this determines the relevance of issues reviewed in this paper.

The purpose for this research is to identify trends in budgetary and extra-budgetary financing of environmental protection and resource conservation in

<sup>1</sup> UNEP report “Towards “green economy”: ways of achieving sustainable development and poverty eradication”, 2011. Available at: [http://www.unepcom.ru/wdownloads/ger\\_synthesis\\_ru.pdf](http://www.unepcom.ru/wdownloads/ger_synthesis_ru.pdf).

the Russian Federation and to theoretically justify the involvement of small and medium enterprises in financing environment-related business ideas in support of the greening of economic activity at the regional level.

**Sources of financing for environmental protection.** In the framework of the research, the sources of financing for environmental protection are defined as stable ways and streams of receiving funds for the implementation of measures related to the greening of economic activities. Currently, there is a sufficient number of budgetary and non-budgetary sources of financing for ecological and economic development. Each has its own peculiarities, advantages and disadvantages.

Aggregate environmental costs include direct investments in fixed capital, current expenditures, thorough repairs of fixed assets, expenditures of executive authorities for the maintenance of the system of environmental protection, costs for scientific research and development, as well as the cost of environmental education. In recent years, according to the Federal State Statistics Service of the Russian Federation, aggregate costs in absolute terms for programs and activities related to atmosphere protection, climate change prevention, wastewater treatment and collection, waste management, land, surface and groundwater protection and

rehabilitation, biodiversity conservation and protection of natural areas increase every year. However, there is a negative trend in relative terms towards gross domestic product (GDP). Thus, the share of costs for environmental protection towards GDP amounted to 1.6% in 2000, and in 2015 – 0.7% (*table 1*).

National financial policy for rational exploitation of natural resources began to emerge in the late 1980s in the USSR period when state extra-budgetary environmental funds for central capital investments financing in the sphere of environmental protection were established. The funds were established at three levels – federal, regional and municipal. The main funds – fees and payments for environmental pollution, fines for violating environmental laws – were spent for the intended purpose. It is worth noting that such an optimistic situation for financing environmental protection did not remain long. At the beginning of the 21st century, all environmental funds in the Russian Federation were abolished. After the elimination of the system of environmental funds, funds from fees for negative impact on the environment began to flow to the federal budget and budgets of the RF constituent entities where they were redistributed and directed for addressing state objectives, including those not associated with environmental activities.

Table 1. Environmental protection costs in the Russian Federation implemented at the expense of all sources of financing

Indicators	Year										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Costs of environmental protection at then-current prices, billion rubles	233.9	259.2	295.2	368.6	343.4	372.4	412.0	445.8	479.4	536.3	562.4
Including											
of atmosphere protection and climate change prevention	53.8	60.7	64.1	76.8	60.1	80.1	88.4	89.2	93.3	112.4	104.0
of wastewater treatment and collection	105.4	111.7	126.8	159.3	162.2	169.2	197.1	186.4	204.4	223.4	234.1
of waste management	22.7	26.1	28.2	40.3	38.8	41.5	44.2	41.0	51.6	61.8	68.5
of land, surface and groundwater protection and rehabilitation	13.4	16.8	21.6	27.3	18.7	17.2	23.4	36.5	33.5	36.1	38.0
of biodiversity conservation and protection of natural areas	12.5	16.1	21.7	26.6	21.5	23.0	13.4	28.1	28.1	34.2	45.9
Other expenditures	26.1	27.9	32.8	38.3	42.1	41.5	45.6	64.5	68.6	68.3	72.1
Environmental protection costs as % of GDP	1.1	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.8	0.7
Compiled from: Official website of the Federal State Statistics Service of the Russian Federation. Available at: <a href="http://www.gks.ru">http://www.gks.ru</a> ; Annual state reports "On the state and protection of environment in the Russian Federation". Available at: <a href="http://www.mnr.gov.ru/regulatory/list.php">http://www.mnr.gov.ru/regulatory/list.php</a> .											

Currently, according to Article 162 of the Budget Code of the Russian Federation, the main recipients of budget funds are budget organizations or other organizations financed by funds allocated from the Federal budget, budget of an RF constituent entity, local budget or the budget of a state extra-budgetary fund. Budgetary funds can be granted either within federal national projects or in the framework of competitive allocation of investment resources. Target programs are considered one of the most effective mechanisms of financing of budget investment. Targeted funding helps link particular goals and objectives with financial support of budget program in periods, implementation spheres and executors. In Russia, budgetary investments in environmental protection

at the expense of the federal budget are carried out in accordance with the state programs. Basic environment-related state programs which are simultaneously being implemented in the country's regions are presented in *table 2*.

According to analytical data of the Ministry of Finance of the Russian Federation engaged in the execution of federal budget and budgets of the country's budgetary system, the dynamics of the share of expenditures on environmental protection in the total costs of consolidated budget during the period from 2005 to 2015 did not exceed 0.2 percentage points.

The benefits of budgetary allocations for environmental purposes include: the application of the principle of target approach; accounting for the priority

Table 2. Main list of programs and sub-programs on the greening of the Russian economy

Program's objectives	Sub-programs
<p align="center">“Environment protection” for 2012–2020 (approved by the decree of the Government of the Russian Federation no. 326, dated April 15th, 2014). Budget allocation – 289 billion rubles</p>	
<p>Decrease in total man-induced load on the environment based on environmental efficiency of the economy Biodiversity conservation and restoration in Russia Increase in efficient functioning of the system of hydrometeorology and environmental monitoring</p>	<p>Regulation of environmental quality Biological diversity of Russia Hydrometeorology and environmental monitoring Federal Target Program “Protection of Lake Baikal and socio-economic development of the Baikal natural area in 2012–2020”</p>
<p align="center">“Energy efficiency and energy development” (approved by the decree of the Government of the Russian Federation no. 512-p , dated April 3rd, 2013). Budget allocation – 28 659 billion rubles</p>	
<p>Development of energy saving and improvement of energy efficiency Ensuring the needs of the domestic market for safe high-quality and economically sound electricity and heat supply</p>	<p>Energy saving and improvement of energy efficiency Development of renewable energy sources</p>
<p align="center">“Natural resources reproduction and management” (approved by the decree of the Government of the Russian Federation no. 322, dated April 15th, 2014). Budget allocation – 595 billion rubles</p>	
<p>Ensuring the reproduction of mineral resources Ensuring rational use of mineral resources Provision of socio-economic needs for water resources, protection and restoration of water bodies Security of water management systems and hydraulic engineering structures Protecting the population and economic facilities from adverse impact of water Achieving and maintaining population balances of hunting resources in ecosystems along with increasing resource potential.</p>	<p>Reproduction of mineral resources base, geological study of mineral resources Water resource management Development of water utilization system of the Russian Federation in 2012–2020</p>
<p align="center">“Forestry development” for 2013–2020 (approved by the decree of the Government of the Russian Federation no. 318, dated April 15th, 2014) Budget allocation – 262 billion rubles</p>	
<p>Reduction of forest cover losses from fires, pests and illegal logging Creating conditions for rational and intensive forest use while preserving its environmental functions and biological diversity, improving control efficiency over forest use and reproduction Ensuring balance between forest loss and restoration. improving forest productivity and quality Improving forest management efficiency.</p>	<p>Forest protection Ensuring forest use; Forest reproduction; Implementation of the state program of the Russian Federation “Forestry Development for 2013–2020”.</p>
<p>Compiled from: Section “State Programs” at the website of the Government of the Russian Federation. Available at: <a href="http://government.ru/programs/">http://government.ru/programs/</a></p>	

of objectives when selecting program solutions; exclusively target use of budgetary funds; provision of funds from budgets of different levels of budgetary system of the Russian Federation on a pro bono, non-repayable basis; transparency of target program financing of expenditures on environmentally significant projects; achievement of quantitative indicators in order to identify the effective use of budgetary funds; minimization of corruption in terms of budget spending.

It is also important to note the disadvantages of direct budgetary funding including the labor-intensive process of raising budget allocations; incoherence of budget expenditures on the implementation of target programs and budgets capacity at all levels (this may result in the decline in funding of state programs); absence of strict obligations for the state customer under financing target programs at the expense of budgetary allocations, which does not guarantee the availability of financial resources; maximum allowable shifts in terms and adjustments of volumes of budgetary financing, which help partially achieve target indicators of state programs; imperfect procedures for the evaluation of the effectiveness of budget-funded target programs due to absence of a unified methodology.

Direct, target financing for environmental activities is also carried out at the expense of budget subsidies. In

case of their application to the RF constituent entities one should consider that the subsidies for environment-related purposes can function inefficiently. A subsidy for environmental activities should have a specific purpose, be limited in terms of financing volumes and terms. In other cases, this method of financing may enhance the development of polluting activities. For example, subsidies in agriculture may contribute to increased consumption of ecosystem services. This negative practice developed at the beginning of the 21st century in the countries of the Organization for Economic Cooperation and Development. The result of allocation of state subsidies of more than 320 billion dollars a year to agriculture was the accelerating ecosystem degradation due to excessive use of pesticides, fertilizers, poor water management [1]. Another example of the negative impact of environmental subsidies is the experience of Sweden as the leading country in selling eco-cars. A considerable amount of "green" subsidies allocated by this state in the form of tax benefits, discounts on vehicle insurance, cash bonuses for the consumers significantly increased sales volume of vehicles that use ethanol. However, choosing a more economical vehicle, the country's population became more and more likely to travel by car, which, in its turn, increased carbon dioxide emissions [5].

Moreover, considering environmental aspects of economic activity in the process of management decision-making or, speaking more generally, the greening of management not only create benefits (the main of them being the possibility of a more favorable position on the market), but also act as a sort of a challenge. It is possible to respond to the latter, however, it requires sufficient flexibility of the entire management structure [8]. Finally, the results of economic modelling undertaken by a well-known Canadian scientist R. Winter are also noteworthy [25]. He has clearly demonstrated that investing in the development of the so-called “clean” technology really has quite the opposite effect. In particular, oddly enough, this is the way the intensification of the so-called “global warming” takes place, rather than the slowing-down of the same process. It is extremely important to take this fact into consideration regarding Russia, as the expected impacts of “global warming” are very significant in this very country’s territory, which is a significant risk for sustainable development.

Direct budgetary funding for environmental management is undoubtedly a sought after but at the same time scarce financial resource. At the present stage, enterprises which use natural resources participate directly in financing environmental and resource-saving activities. In order to obtain

Environment Management System ISO 14001 certification which helps improve the company’s image, work closely with foreign partners, expand the presence of the products in foreign markets, business entities are required to implement the environmental management system. In the framework of this system, the companies implement investment commitments of financing environmental protection activities while developing environmentally responsible business. It is worth noting that the owners of industrial companies perceive resource-saving technologies as economically irrational, so the renewal process of environment-related fixed assets carried out by enterprises is extremely slow. *Table 3*, compiled from data of the Federal State Statistics Service of the Russian Federation, presents information on environment-related investment.

There is a gradual decrease in the already small share of environment-related investments in the total amount of investments in fixed assets. This ratio between total capital investments and investments in environment protection demonstrates that economic entities are not interested in improving the environmental situation in the RF constituent entities.

A financially stable enterprise’s own funds are one of the most reliable sources of investments in environment protection. However, it should be noted that in business or other need, the company’s owner can

Table 3. Environment-related investments in the Russian Federation (in then-current prices)

Indicators	Year										
	2000	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Environment-related investments, billion rubles	22.3	68.2	76.9	102.4	81.9	89.1	95.7	116.4	123.8	158.6	151.8
Cumulative value of investments in fixed assets, billion rubles	1165	4730	6716	8782	7976	9152	11035	12569	13256	13903	14556
Share of environment-related investments in the cumulative value of investments in fixed assets, %	1.9	1.4	1.1	1.2	1.0	0.9	0.9	0.9	0.9	1.1	1.0

Compiled from: official website of the Federal State Statistics Service of the Russian Federation. Available at: <http://www.gks.ru>.

adjust strategic goals and objectives of the company by themselves, thereby cutting the budget for environment-related programs.

The main source of “long” money for environmentally significant projects in world’s leading countries is commercial banks. In our country, the situation with crediting is the opposite: loans are provided in small amounts and mainly for financing reliable and fast-payback (within 2–3 years) investment projects. As a rule, environmental projects have a long period of payback of initial investment due to the fact that they do not return substantial profits right after their implementation. As a result, it becomes rather difficult for enterprises to obtain a loan for environmental purposes. Russian banks also have high interest rates, that is why

not every economic entity can pay the accumulated debt. Domestic commercial banks are absolutely not aimed at the development and promotion of “green” loans.

Foreign banking practice (Germany, USA, UK, Australia) demonstrates the opening of private “green” banks, including investment banks, in order to increase private investments in environment-related infrastructure [6]. Employee of the London School of Economics, E. Campiglio notes that banking sector needs adjustment, a kind of “tuning” on financing of eco-business; it is required to implement the specific monetary policy, the implementation of which in countries with significant state’s participation in the economy is a simple task due to a wider range of available management tools [13].

Russian enterprises can solve the problem of financial support for environmental protection and resource saving with the help of international credit and financial organizations. Among the most well-known are: International Bank for Reconstruction and Development; European Bank for Reconstruction and Development; EIB (European Investment Bank); International Finance Corporation. International environmental funds such as Global Environment Facility, Global Climate Partnership Fund, NEFCO (Nordic Environment Finance Corporation), Green for Growth fund provide grant support for the countries and soft loans for financing environment-related projects. The advantages of financing from the funds of international organizations are: the possibility of obtaining investment resources on concessional terms (longer period, low interest rates, large sums) and strict control over the use of funds. Attracting international sources of financing in the RF constituent entities is currently hindered by political and economic risks [4].

In addition to the above mentioned sources of financing of environment-related activities, indirect economic assistance should also be mentioned as it is carried out by means of various privileges and preferences. In the authors' opinion, indirect financing for environmental

protection should be called financial stimulation. As a rule, the methods of indirect state stimulation include various tax incentives, investment tax credit, tax holiday, accelerated capita; allowances, customs privileges (customs duties, fees) and other measures. Non-tax measures of supporting the greening of economic activity may include issue of guarantees and warranties to finance resource-saving in the RF constituent entities, privileged lease of state or municipal property, provision of land for ecologically relevant enterprises (for example, a solid waste treatment plant).

It is worth noting that tax and customs legislation of the Russian Federation to a small extent takes into account the environmental factor when specifying the system of customs and tax benefits. For instance, Russian customs policy in terms of foreign equipment does not create enabling conditions for solving environmental management problems. When considering tax incentives, special attention should be paid to the accelerated capital allowances which helps a taxpayer write off specific cost of capital investments to production costs within a shorter period of time in comparison with the standard rules. The use of accelerated capital allowances provides an opportunity to accelerate the process of raising capital to replace obsolete technologies with waste-free energy-saving equipment. The main

advantage of capital allowances over other sources of environmental financing is that the deprecation fund is always available among business entities and is at the disposal of business owners.

Having considered the financing of environmental activities, the authors made the following conclusions. First, financing of environment-related activities in the country's regions is conducted according to the residual principle. Second, a significant share of environmental financing sources is unavailable to business entities. Third, indirect support in the implementation of environment-related management has absolutely no use.

Unfortunately, such a situation in environmental financing in the Russian Federation already lasts for more than a quarter of a century and, in the authors' opinion, there is no point in waiting for significant improvements in this process in coming years. Amid economic crisis the problems of protecting forests, water reservoirs, atmosphere, lands, etc. are considered insignificant. Addressing acute national issues in the economy and national security requires attention to not only environment itself, but also to the greening of economic processes and the development of environment-related activities. In the authors' opinion, a special role in financing the greening of the national economy should be given to small and medium businesses.

### **Participation of businesses in financing environment-related economic projects.**

Small and medium businesses, due to their rapid response to the ongoing economic changes, as a rule, contribute to the acceleration of innovative processes in the national economy. In the authors' opinion, environment-related or "green" business may become a priority area for sustainable regional development and address simultaneously environmental, social and economic issues. It is important to note that fundamental changes in the understanding of key approaches to business management take place. In particular, American experts E.E. Lawler and C.G. Worley [21] demonstrate that environmental judgment together with economic (financial) and social ones should play an important role in modern management (including management of business entities). The same problem is the focus of attention of other works [7, 10]. In international and domestic practice, eco-business is becoming more and more competitive and popular every day due to the fact that consumers gradually give preference to eco-friendly high-quality products. As a rule, "green" business is not only aimed at generating revenue from manufacturing eco-friendly products and environmental services, but also at preserving the environment and preserving natural resources. Examples of this are the following: environmental education,

land improvement taking into account its environmental characteristics, use of alternative energy sources, manufacturing of resource-saving equipment, “green” construction, eco-tourism, etc.

In recent years, ideas about ecopreneurship are gradually developing. Initially, they were represented in the works of Australian [23] and American [16] scientists and later substantially expanded [14, 15, 19, 20]. The above mentioned scientists develop the idea that business community is a catalyst for the greening of the economy simultaneously being its tools.

Basic principles of environment-related business were registered in 1990 in the ICC Business Charter for Sustainable Development [2]. In the 1990s, small businesses in Russia were established mainly for running one’s own business. At present, the situation is changing dramatically. Large business entities set up small businesses which are branches of the parent organization performing the functions of sub-contractors or sub-suppliers. Article 4 of the Federal Law no. 209-FZ “On the development of small and medium business in the Russian Federation” specifies the attributes according to which a business entity is classified as a small or medium business entity. They include the total proportion of business participants in the authorized capital stock, the number of employees in the organization, the limit value of

revenues from selling products (works, services).

For a long time in the RF constituent entities small businesses associated with the development of retail trade “prospered”. However, in recent years this type of activity is significantly reduced. Small retail businesses are replaced by big retail chains. Business is slowly shifting from trade and service sector towards production sector. Manufacturing entrepreneurship is the most sought-after but at the same time it is quite risky and complicated; therefore, for its successful development it is necessary to search for new business ideas. In the authors’ view, special attention in this process should be given to environment-related projects.

Ecopreneurship is focused on the implementation of environmental (environment protection, resource saving) and economic activity. In the RF constituent entities the opportunities for running eco-business are not fully exploited. Small manufacturing eco-business is mostly focused on scientific and technical developments, “green” products output, provision of eco-services. The example is cultivation of organic agricultural products, making biofuels, production of bio-fertilizers, solid waste recycling. Let us consider these aspects in detail.

1. *Production of organic agricultural products.* Russian regions have great potential for organic farming which is

becoming increasingly popular every year. Eco-friendly products are becoming sought-after among people keeping a healthy lifestyle. The prefix “eco-“ is more common in labelling of both food and non-foods. However, it is worth noting that Russia has not yet produced any clear legislative criteria for eco-products. A consumer is forced to either believe or not to believe the products’ manufacturer who, for advertising purposes uses elements of eco-marketing.

The main problem of domestic producers of organic agricultural products is absence of an individual regulatory framework for organic farming. In Russia, a bill on manufacturing of organic agricultural products is currently making its way through Parliament; this bill gives an idea of organic agricultural products, considers the system of its control and certification and proposes measures of state support of this type of activity.

Some Russian regions have developed their own regulatory framework. In particular, in the Ulyanovsk Oblast there is a regional law no. 106–ZO “On the measures of state support of organic products manufacturers”, dated July 5th, 2013. According to this law, the status of organic products manufactures is accorded to an economic entity which produced at least 50% of products certified in accordance with the required standards for the preceding calendar year. In this situation, the region bears half of costs

associated with the manufacturer’s certification, provides property tax exemptions to the business and free training to manufacture organic products, etc.

A little later, Krasnodar Krai adopted law no. 2826-KZ “On manufacturing of organic agricultural products in Krasnodar Krai”, dated November 1st, 2013. The regulation act states that organic products manufacturing must be based on the principles of prevention and minimization of environmental pollution, elimination of genetically modified organisms, conservation and maintenance of soil fertility. Manufacturers of organic products can receive state support including methodology, information and consulting support, as well as manufacturing risk insurance.

The example of business of manufacturing bio-organic agricultural products are private farms such as “Vkusnyatina iz Derevni” (Ryazan Oblast), “Andreevskoe podvor’e” (Orenburg Oblast), “Kartoshino” (Tver Oblast), “Pervaya Ekoferma Kubani” (Krasnodar), “Alekhovshchina” (Leningrad Oblast), “Zhivoe pole” (Leningrad Oblast), “DIK” (Kaluga Oblast), etc. Most of the farmers try to create small processing enterprises.

2. *The production of fuel pellets, briquettes and chippers.* In recent years, there is a worldwide rapid development of bioenergy – energy industry based on the use of biofuels. Eco-friendly business of

manufacturing of fuel pellets is becoming increasingly popular. As a rule, fuel pellets are produced by using wood industry waste. Another source of raw materials for eco-business are sunflower husk, cereal waste, straw and other wastes. Eco-business of producing alternative fuels has significant chances of succeeding because the solid fuel pellets have a wide scope of application – space heating for the needs of housing and communal services, power generation at power plants.

The fuel pellet market in Russia is predominantly export-oriented, 70–80% of production is exported to European countries. The main fuel pellet producing enterprises are located in the Northwestern Federal District and Krasnoyarsk Krai. The most famous are: “Bioexpert” LLC (Arkhangelsk), “Vologdabioexport” (Veliky Ustyug, Vologda Oblast), “Vyborgskaya lesopromyshlennaya kompaniya” LLC (Leningrad Oblast), “Green Energy” LLC (Novgorod Oblast), etc.

It should be noted that eco-business of manufacturing fuel pellets, briquettes and chippers is the most cost-effective if certain conditions exist such as proximity of a business entity to the sources of raw materials, markets and transport routes. These factors significantly reduce transport costs.

3. *Production of bio-fertilizers.* Another promising “green” business, especially in rural areas, is production of organic

fertilizers. There is no strong competition in this type of ecopreneurship in Russia. Highly effective eco-friendly fertilizers can be produced on the basis of domestic animals and birds droppings, sawdust, crop residues, silt, lake sapropels, peat, oil sludge, etc. The demand for bio-fertilizers depends on eco-farming development rates. The famous manufacturers of organic fertilizers in Russia are “NPO Green-PIK” LLC (Vladimir Oblast), “Biogen” LLC (Vladivostok), “Dubrava lyuks” LLC (Krasnodar Krai), “Biogran” LLC (Kaluga Oblast), “Organic Farming” LLC (Tula Oblast).

4. *Solid waste recycling.* The traditional approach to waste disposal (trash container – trash dump – soil reclamation) is inefficient. Toxic wastes have adverse impact on human health and environment. For the past few years Russian entrepreneurs have demonstrated considerable interest in collecting and recycling secondary raw materials (plastic, glass, aluminum cans, paper and textile waste, electronic waste). For example, second hand plastic containers are raw materials for the production of flex which is further used for producing chemical fiber. Waste paper is a good basis for producing construction and heat-insulating materials. Aluminum cans recycling technology helps obtain pure aluminum. Various electronic wastes serve a source of iron, copper, aluminum, glass.

It should be noted that the volume of solid waste is increasing every year [3]. The amount of household waste per one inhabitant in Russia is more than 300 kg. That is why waste processing businesses are positively treated by public authorities and local administrations. One of the difficulties in this type of “green” business is connected with waste sorting. The population is hardly interested in sorting household wastes; therefore it is necessary to build sorting facilities.

For the implementation of measures to increase financing and development of “green” business it is necessary to identify and analyze the main factors influencing the development of ecopreneurship in the RF constituent entities. In foreign and

domestic practice, the method of strategic planning – SWOT analysis – is frequently used for assessing factors in internal and external business environment. The use of this method helps evaluate the strengths, weaknesses, opportunities and threats of a particular type of activity. The authors denote the main advantages and disadvantages of ecopreneurship based on SWOT analysis (*Table 4*). It can be used to identify the most promising actions for public authorities in terms of “green” business intensification.

The factors in eco-business development can be divided into two large groups: positive and negative impacts. Taking into account the identified strengths, weaknesses, opportunities and threats, the

Table 4. Eco-business SWOT-analysis matrix

<b>Strengths</b>	<b>Opportunities</b>
Small initial capital Direct contacts with partners High degree of job motivation A more flexible response to scientific and technological advances Support from regional and local authorities Small competition Possibility of implementing a simplified system of taxation Availability of “green” image	Growth potential to a big business entity Promotion of environment protecting activities Strengthening of scientific developments in eco-innovation technologies Possibility if having leading positions in global manufacturing of organic products Compliance with international environment standards Implementation of federal, regional and local programs related to rational management of natural resources.
<b>Weaknesses</b>	<b>Threats</b>
Lack of qualified staff for business management Lack of material and financial resources for starting a business Difficulties in drafting design and estimate documentation for enterprise construction Limited opportunities for business diversification Problem of product certification Difficulties in addressing institutional issues Low effectiveness of state innovation policy Absence of a unifies statistical and information base on ecopreneurship	High risk of bankruptcy Administrative barriers Unstable economic situation Problem of marketing in small shipments Higher product costs compared to traditional technology
Source: compiled by the authors.	

authors offer a number of recommendations to stimulate the development of “green” business in Russia:

1. Economic measures (a pricing mechanism of organic products and services, financial support of “green” economic activities, the greening of taxation policy, etc.).

2. Institutional measures (development and implementation of regulation acts on “green” business, state support of ecopreneurship, increasing eco-business investment appeal, addressing the problem of qualified personnel shortage, offering municipal property for a long-term lease, etc.).

3. Administrative measures (consent to build environment facilities, utility connection, etc.).

Almost any industrial business, including eco-business, requires initial capital. Many years of experience in holding training courses on business planning and new enterprise creation in Russian universities make it possible for the authors to conclude that most of beginning and current entrepreneurs are not familiar with the programs aimed at supporting small businesses in the Russian regions. The students often demonstrate their unawareness and even ignorance in terms of alternative sources of financing for small businesses, existing benefits and preferences for small businesses, opportunities of appealing to state

authorities with own legislative initiatives. It also appears that many businessmen are not aware of the opportunities of public-private partnerships (PPPs), although, in the authors’ opinion, this form of interaction between business and government can significantly enhance the development of eco-business in the RF constituent entities. For example, high-tech recycling facilities became the object of PPP in the Yaroslavl Oblast. In Stavropol Krai the problem of unauthorized dumps will be solved through the establishment in the framework of PPP of about 18 waste transfer stations for primary waste processing. Two waste treatment plants are being built on the PPP basis in the Novosibirsk Oblast. Krasnodar Krai, the Republic of Crimea and other Russian regions<sup>2</sup> assume a pro-active approach to the construction of municipal solid waste landfills (MSW landfills) in the framework of concession agreements.

It seems particularly important to point out the fact that the perceived need to implement eco-initiatives by the representatives of small and medium businesses and public authorities is directly determined by environmental culture and environmental education of society (the study of the so-called “public awareness” and “business awareness” in particular

<sup>2</sup> Unified Information System of Public-Private Partnership in the Russian Federation. Available at: <http://www.pppi.ru/otrasl/zhkh-utilizaciya-othodov>

in relation to the environment is one of the most dynamic areas of global socio-economic research). In particular, this issue is reviewed in detail in the works of a Russian scientist A.V. Yachmenev [9]. Thus, stimulating the expansion of eco-business is largely determined by investments (primarily, government) in relevant educational (including in the form of media promotion) projects. This is especially important for Russia where the level of the population's interest in environmental issues appears to be low and limited to rather superficial judgments.

**Conclusion.** In recent years, significant changes are observed in terms of understanding the "nature" of the environment and its role for society. Many countries are beginning to develop a comprehensive environmental policy implemented by the government in all spheres of economic activity and activate the transition to the "green" economy. Innovative environment-oriented path

of sustainable development is, in the authors' opinion, one of the main ways of overcoming the systemic crisis in Russia. "Green" economy should be based on innovation because without innovative resource-saving technologies it is impossible to improve the efficiency of natural resources distribution and consumption. Large Russian companies ("Gazprom", "Lukoil", "Rosneft", "RusHydro", "Severstal", "Mechel", etc.) while introducing the developed economic strategies also implement environmental programs and corporate standards of environmental management. However, for most of them environmental protection is not the main purpose and source of profit. Therefore, the main catalysts for creating environmental, or "green", economic sector, in the authors' opinion, should be small and medium business enterprises. Without their involvement in the financing and implementation of eco-business ideas it is impossible to shift from resource-based to resource-saving economy.

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