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CURRENT TRENDS IN THE DEVELOPMENT OF A GREEN FINANCE SYSTEM: METHODOLOGY AND PRACTICE

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The concept of green growth and sustainable development is turning into a global ideology guiding the transformation of national economies. The focus is shifting from quantitative assessments of performance to rational choice conditions. Rationality is becoming the decisive factor behind sustainable green growth, and a change in the financial model that supports such growth may be needed. Therefore, the most urgent problems relating to sustainable growth are the transformation of the finance system, on the one hand, and the creation of a new financial paradigm based on the principles of responsible investment and corporate social responsibility, on the other. This study aims to consider the theoretical and practical aspects of creating a national green finance model ensuring sustainable growth in the Russian Federation. The development of a green finance mechanism and a green bond market in the Baltic Sea countries is analysed to determine national features and explore the possibility of translating the Baltic experience into practices usable in Russia. The research uses economic observations, economic description, structural and logical analysis, and systems analysis. Perhaps the most significant finding is the description of a methodological framework for sustainable development theory, as seen by major schools of economic thought. Studying the experience of the Baltic Sea countries in creating a new finance model of responsible investment helped detect national features and development priorities that can be used in Russia in devising the ideology, principles, and mechanism of green growth and sustainable growth financing.

Keywords:

sustainable development, green finance, responsible investment, socially responsible business, financial model for a sustainable economy, green growth

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Introduction

Sustainable growth and green development may fall off the agenda in a pandemic economy when business activity is shrinking everywhere, even in developed countries. Today's economic situation may help outline a new management concept at a national and global level. This concept will shift from quantitative parameters of economic recovery to qualitative characteristics, very much in line with the theory and practice of sustainable development. A shift like this will require the economic ecosystem to transform. It will also demand a new financial and investment model at the level of individual economies and countries [1].

The green growth and sustainable development discourse, which originated in the 20th century, has received attention worldwide. As early as 1987, the UN's World Commission for Environment and Development proposed a principle of sustainability — 'meet [ing] the needs of the present without compromising the ability of future generations to meet their own needs'.¹ Sustainable development means bringing global prosperity through sustainable consumption and production and achieving social and technological progress through sustainable innovations [2, p.341 — 342].

The 2015 UN resolution, signed by heads of over 160 states, identified 17 primary sustainable development goals to be achieved by 2030². The resultant Transforming Our World agenda focuses on equitable quality education, gender equality, good health and well-being, reduced inequality, sustainable consumption and production, zero hunger, life below water, life on land, sustainable cities and communities, and innovative growth.³ The economic policy of signatory states must seek to meet these goals by altering the principles and tools of state regulation.

The green economy concept, which conforms with sustainable development principles, calls for an extensive revision of national policies on social, economic, and environmental issues, prosperity, and equality. New policies will require reducing environmental risks and ensuring a healthy development of ecosystems and thus disagree with the current principles of market economy organisation.

¹ Adopted at the Meeting of the Council at Ministerial Level on 25 June 2009, 2009, *Declaration on Green Growth*, available at: <http://www.oecd.org/env/44077822.pdf> (accessed 28.12.2020)

² Sustainable development goals, 2020, *Sustainable Development Agenda*, available at: un.org/sustainabledevelopment/ru/about/development-agenda/ (accessed 29.12.2020).

³ In 2020, the analytical centre under the Government of the Russian Federation published the first Voluntary National Review of the 2030 Agenda Implementation.

Therefore, the transition to a green economy amid a pandemic demands a thorough theoretical and practical examination.⁴ It is vital to study mechanisms for funding green initiatives since financing predetermines the achievement of goals and the success of actions.

The *Concept of a Russian Methodological Framework to Advance Green Financial Instruments and the Responsible Financing*⁵ stresses that the UN estimates the cost of measures to attain the sustainable development goals (SDG) at USD 30tn. Spending on this scale needs a change in the current financial investment model and a new global finance ecosystem — a system for responsible and green finance, which might be underpinned by the three ESG factors (environmental, social, and governance).

Both experts and the general public are debating green finance technology and its transformation. The most advanced economies create a new ecosystem for capital investment — one prioritising green investment and other equity instruments.⁶

The sustainable growth and green economy paradigm are becoming a fundamental management concept. It reaffirms the need for a new finance ecosystem to ensure the gradual development of the world economy towards green growth.

The Russian Federation has given serious attention to sustainable growth projects. In 2020, the first national review came out. It highlighted steps made towards each of the goals in 2019.⁷ By that time, most SDGs had already been included in the programme documents of the Russian Federation. Twelve national projects focused on demography, healthcare, education, residential development and urban environment, environmental protection, safe and quality motorways, labour productivity and employment, science, a digital economy, culture, small and medium entrepreneurship and support for business initiative, international cooperation, and exports. Overall, 107 of 169 SDG objectives had been covered.

⁴ *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication—A Synthesis for Policy Makers*, 2011, UNEP, available at: https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf (accessed 04.01.2021).

⁵ *Concept of Building a Methodological Framework in Russia to Advance Green Financial Instruments and the Responsible Financing Projects*, 2019, Expert Council on Long-term Investments under the Central Bank of Russia (ESG-finance Group), Moscow.

⁶ *Green Economy Developing Countries Success Stories*, 2010, United Nations Environment Programme, p. 6

⁷ *Green finance: an agenda for Russia. A diagnostic review*, 2018, Expert Council on Long-term Investments under the Central Bank of Russia (ESG-finance Group), Moscow.

However, the national framework for a new finance ecosystem and responsible investment is not yet fully developed. Therefore, there is a need for further studies in the area, both theoretical and concentrating on Russian and international practices.

Green economy and green finance evolve very differently across the world. European countries outperform all other nations in achieving SDGs and serve as methodological centres for disseminating institutions, including green investment.

A study of the current state of green finance helped identify what countries were the most successful in this respect. Among the leaders are the Baltic region states — Denmark, Sweden, Germany, Finland, and Estonia. The experience of these countries merits particular attention when considering a possible Russian model of sustainable finance. This article examines the experience of the Baltic region states — front runners in the race for a green finance market and responsible investment. The investigation may aid in producing practical economic recommendations for Russia and its Kaliningrad exclave.

Materials, methods, and theoretical discussion

Theoretical groundwork for sustainable growth and a green economy was laid by the fathers of economic science and benefited humanity even when environmental problems were much less acute.

The founder of classical economic theory, Adam Smith, distinguished the moral, civic, and economic components in a human being. The moral and civil elements were believed to lead to responsible decision-making, rationality, and economic efficiency. These principles extended to one's attitude to factors of production, such as natural resources. Smith's views laid the foundation for the theory and practice of sustainable growth. He argued that 'every prodigal appears to be a public enemy, and every frugal man a public benefactor' [3, p.654]. Other classical economists — Turgot, Petty, Ricardo, Quesnay, and *Boisguillebert* — maintained that land, the ultimate natural resource, was the principal factor behind the wealth of nations. Agricultural labour was considered the most productive because of the qualitative characteristics of the land. The classical notion of land rent reflected these characteristics and reflected the problem of measuring the quality and cost of land [4, p.117].

Classical economists contributed enormously to sustainable development theory, which focuses on food quality, food security, zero hunger, greater agricultural productivity, and technological advances in agriculture.

The Malthusian theory of population, which appeared at the turn of the 19th century, can be considered another precursor of sustainable growth theory in terms of social equality. Malthus argued that the scarcity of natural resources and the effects of the law of diminishing returns might lead to long-term stagnation — the situation that was later called the Malthusian trap [5, p. 388–390]. If placed in the context of SDGs, this theory lends urgency to the reduction in inequality, sustainable cities and towns, industrialisation, increase in productivity, and innovations [6, p. 206–208]

Pigou's theory of externalities is the immediate forerunner of the sustainable development concept. It views externalities as resulting from interactions between two economic agents influencing the environment. This idea is concomitant with emission markets and government interventions remedying market failures through adjustment taxes, subsidies, and production quotas [7, p. 551].

Coase's alternative theory, particularly the idea of voluntary agreements, is another conceptual pillar of sustainable development and socially responsible businesses. These theoretical parallels help identify green growth priorities by balancing public costs and benefits [8, p. 21–23].

Among contemporary schools of economic thought, new institutional economics seems to have contributed the most to sustainable development theory. Buchanan, Tullock, and Brennan (their works precluded the creation of the International Society for New Institutional Economics in 1997) examined extractive and inclusive institutional aspects through the lens of economic growth rate factors. They concluded that sustainable growth was impossible without pluralist institutions [9, p. 34–36; 10, p. 154–155].

Environmental economics, which originated in the 1970s, is rightfully considered a backbone of the sustainable development concept. Exponents of this school of thought were the first to define environmental costs as repercussions of economic growth and distinguish between brown and green growth. William Nordhaus, the 2018 Nobel Prize winner in economic sci-

ence, is called the father of economics of climate change, and deservedly so. He was among the first to regard climate change as an economic problem. He also proposed a mechanism for state regulation in the emission market [9, p. 26–27].

Sustainable development and the practical implementation of green growth have not escaped the attention of Russian researchers. Yakovleva, Kabir, Nikulina, and Rakova examine the green finance mechanism and the formation of a finance ecosystem [12, p. 15–17]. Shkiperov, Kurilo, and Prokopyeva study green economy principles at a regional level, emphasising industry-specific environmental projects run in Russia's North-west [3].

Semenova, Eremina, and Skvortsova focus on the sources and mechanism of sustainable development and stress the need for a national system for green growth financing [14].

Nevertheless, previous studies have not provided a theoretical framework for green transformation in Russian conditions. Therefore, there is a need for a thorough examination of the experience of Russian companies. It is also essential to develop and systematise methodological approaches and principles of green finance and socially responsible investment [15, p. 11–12].

Thus, a theoretical and methodological framework for sustainable development has yet to be finalised. Work is being done in this area, but there is room for further theoretical and practical research.

Successes in attaining SDGs vary from country to country. The Sustainable Development Goals Index (SDG Index)⁸ was developed To measure how participating states perform in this respect. According to the index, the front runners are Denmark, Sweden, Finland, France, Austria, and Germany, which have done a lot to reduce inequality and provide equal access to cheap energy and quality education.⁹

⁸ The Sustainable Development Goals Index covers 162 countries and 100 indicators of the implementation of 17 SDGs. 100 points are awarded for the complete achievement of a goal, and 0 points if nothing has been done to attain it. The final score reflects the average performance of a country on all SDGs.

⁹ The EU Green Deal—a roadmap to sustainable economies, 2020, *The EU Green Deal*, available at: <https://www.switchtogreen.eu/the-eu-green-deal-promoting-a-green-notable-circular-economy/> (accessed 21.12.2020).

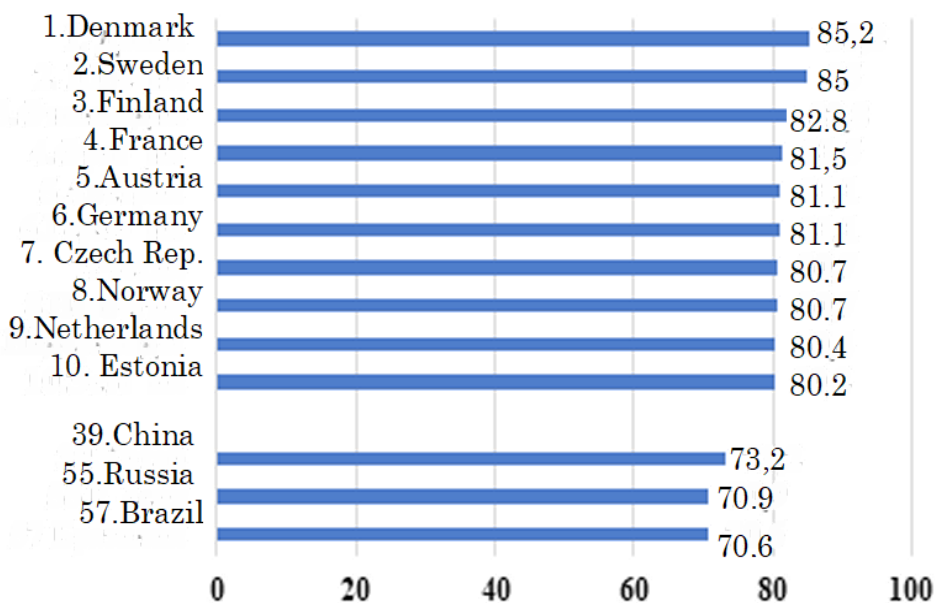


Fig.1 Sustainable development ranking of countries (2019)

Source: SDG Index Sustainable Development Report 2020. The Sustainable Development Goals and Covid-19 Jun 30, 2020 URL: <https://www.sdgindex.org/> (accessed 20.12.2020)¹⁰

Despite the evident successes of some states, no country can boast the achievement of all 17 goals (Fig.1). Russia ranked 55th in 2019, having scored 100 points on goals 1 and 4.¹¹

Russia scored the highest on the ‘no poverty’ goal. There is, however, an important qualification: the effect of the pandemic could not be measured at the time. Moreover, the country performed very well on the education goal. International experts awarded Russia the fewest points for marine ecosystem preservation. Other problematic areas are the promotion of peaceful and inclusive societies and the provision of access to justice.

¹⁰ The Sustainable Development Goals and Covid-19 Jun 30, 2020, *Sustainable Development Report 2020*, available at: <https://www.sdgindex.org/> (accessed 20.12.2020).

¹¹ National Review of the 2030 Agenda implementation, 2020, *Analytical Centre under the Government of the Russian Federation*. Voluntary, available at: <https://ac.gov.ru/projects/project/dobrovolnyj-nacionalnyj-obzor-dostizhenia-celej-ustojcivogo-razvitiya-10> (accessed 24.12.2020).

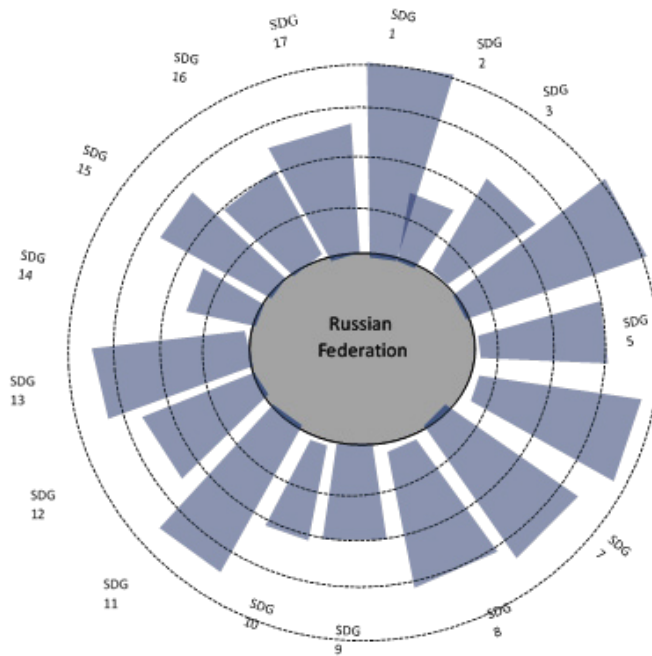


Fig.2. Russia's ranking on SDG implementation, 2019

Source: Sustainable Development Report 2020. The Sustainable Development Goals and Covid-19 Jun 30, 2020 URL: <https://www.sdgindex.org/> (accessed 20.12.2020).

Trends towards a new management ideology and social development paradigm are closely linked to sustainable development goals, the green growth concept, and, as a result, the principles of responsible investment, which create the financial framework for global change. Without a corresponding finance ecosystem, a green investment market, and a national model for environmental financing, a gradual transition and the achievement of SDGs will be impossible. A green transformation of debt and equity investment relationships in Russia requires a particular methodological and financial framework.

It is crucial to understand the terminology of the green bond market to grasp its essence. The term *green bonds* refers to a debt instrument, where the money borrowed from governments, banks, municipalities, or corporations can be spent only on climate conservation, renewable energy, ecosystem preservation,

energy conservation, low-carbon economies, green transport, and similar projects. *Green bonds* are an umbrella term encompassing environmental bonds and climate bonds — debt instruments used to finance sustainable projects with an environmental edge [16, p. 40–41].

The green bond terminology and infrastructure are developing simultaneously. For example, the Climate Bonds Initiative (CBI),¹² established in 2008, mobilises the USD 100 trillion bond market for climate action. The non-profit also reports on the evolution of the green bond market, aids in climate certification, and provides green bond rating services based on the listing, environmental impact, and yields [17, p. 26–27].

Another outlet for green investment and social responsibility is the Institutional Investors Group on Climate Change (IIGCC). The group seeks to mobilise investment for the transition to a low-carbon economy and ensure the resiliency of investments and markets in the face of climate change. The IIGCC was established in October 2006, when 21 institutional investors with total assets of over 1.4tn euros applied for membership.¹³ Among the members are about 20 private pension funds. In 2020, Denmark's pension industry invested over USD 8bn in green projects expediting the low-carbon transition in production. In our opinion, the visibility of private pension funds in the IIGCC is explained by the high social responsibility of these organisations and their commitment to sustainable growth. The members of the group report annually on their contribution to climate action. The EU uses data from these reports when coordinating the policies of member states. In Europe, IIGCC promotes green solutions at the highest level [18, p. 36–37].

Today, the group has 270 members from 16 countries, with 35tn euros worth of assets under management. Its aim is national policies, investment practices, and corporate behaviour focused on minimising long-term risks associated with climate change. The group takes part in creating a legal framework for green

¹² Green Bonds Global State of the Market 2019, 2019, *Climate Bonds Initiative*, available at: <https://www.climatebonds.net/resources/reports/green-bonds-global-state-market-2019> (accessed 02.03.2021).

¹³ Year in Review, 2020, *The Institutional Investors Group on Climate Change*, available at: <https://www.iigcc.org/about-us/our-members/> (accessed 10.03.2021).

transformations and emissions reductions. In November 2020, over 40 investors with total assets of 6tn euros used the IIGCC as a platform to call for EU leaders to expedite zero-emission goals [19].

The institutional framework for green investment provides for a broad scope of research and offers a wide range of financial tools. As the responsible investment market develops, countries embrace the concept of social bonds — an instrument used to finance projects with positive social outcomes. These initiatives are aimed at water quality, affordable housing, and social infrastructure development — all for a better quality of life and reduction in social inequality as a sustainable development goal. Blue bonds support coastal zones, marine biodiversity, sustainable fishing, and environmental control.¹⁴

In 2020, the pandemic drew attention to humanitarian obligations financing the struggle against pandemics and migration-related problems. Some issuers, such as the International Finance Facility for Immunisation, specialise in humanitarian bonds. We are witnessing today the golden age of innovative securities and new investment structures [20, p. 39—41].

The green investment market emerged with the first issues of bonds of the European Investment Bank and the World Bank, rated AAA, in 2007 [21].

The next landmark in green market development occurred in March 2013 when the International Finance Corporation (IFC) sold its first USD 1bn bond within the first hour after the issue. At the end of 2014, the Swedish property company Vasakronan issued the first corporate green bond. Apple, Engie, ICBC, Credit Agricole, and Tesla followed this example and became full-fledged issuers and participants in the market.

Experts emphasise rapid growth in the green investment market. For example, USD 167.3bn worth of green bonds were issued in 2018, whilst in 2020 the CBI estimated the market at over USD 829 bn. The investment priorities are energy, construction, transport, and water resources (Fig. 3).

¹⁴ European Regional Development Fund, 2020, *European Commission*, available at: http://ec.europa.eu/regional_policy/en/funding/erdf (accessed 06.01.2021).

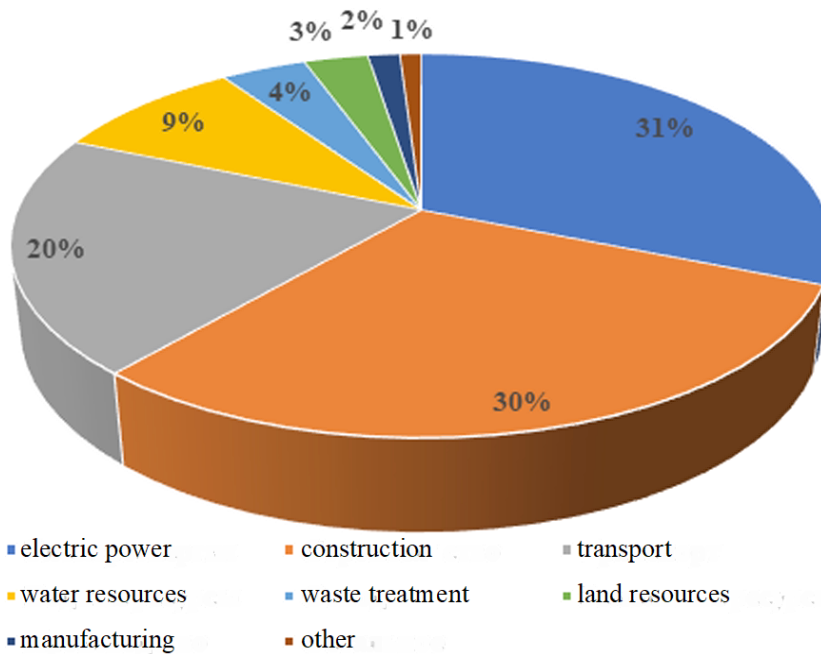


Fig. 3. Green bonds by industry, 2019

Source: Sustainable Debt: Global State of the Market 2020. URL: <https://www.climatebonds.net/resources/reports/sustainable-debt-global-state-market-2020> (accessed 21.12.2020).

The young social and green investment market is growing fast. The number of participating countries is increasing yearly. The leaders in the market are Germany, Finland, Denmark, and Sweden, all the Baltic Sea region states. They not only excel at SDG implementation but also attract public and private funds to environmental projects.

Investigating the problem at a regional level shows that commitment to sustainable development and green growth differs from country to country. Denmark, Finland, Sweden, Germany, and Estonia were in the top ten countries in SDG implementation in 2019 (Fig. 1). Lithuania, Latvia, Poland, and Russia are just on their way to create a sustainable development platform. They are building an institutional framework for sustainable growth and accumulating experience.¹⁵

¹⁵ Sustainable finance: Commission's Action Plan for a greener and cleaner economy. Brussels, 2018, *European Commission*, 8 March, Press Release Database, available at: https://europa.eu/rapid/press-release_IP-18-1404_en.htm?locale=en (accessed 27.12.2020).

An examination of the green bond market in the selected Baltic region states has revealed its national features. Sweden's green bond market is dominated by corporate green finance instruments, as local companies *put social responsibility* at the heart of their businesses. Active participants in the market are municipalities issuing green bonds. In 2013, Sweden's Gothenburg was the first city in the world to issue green bonds. In Europe, the country ranks second to France in green bond issue. In 2019, Sweden and Finland were in the top fifteen countries in terms of green bond issue, ranked 6th and 14th respectively by the CBI.

Finland's green bond market concentrates on property, development, and banking. Overall, organisations specialising in financing public sector projects are prevalent among financial institutions in the Baltic region states. These include *Kommuninvest i Sverige* (Sweden), *MuniFin* (Finland), and *KommuneKredit* (Denmark), which account for 23% of the Nordic green bond issue, or 4.5bn euros. Overall the Nordic green bond market is estimated at 19.2bn euros [22, p. 44–44].

Denmark, Sweden, Germany, Finland, and Estonia use the green bond market to invest in low-carbon construction and renewable energy. The Swedish financial group SEB, which manages assets in over 20 countries, including Lithuania, Latvia, Estonia, Germany, and Russia, has allocated the proceeds of green bonds to the Baltics since 2016, giving businesses from the three countries an opportunity to apply for loans and support green projects.¹⁶

In May 2018, Lithuania asserted itself as the pioneer in energy-efficient residential development, having raised funds in the green bond market. Renewable sources comprise over a fourth of all energy resources in the country, and this proportion is above the EU average. The government of the country successfully issued green bonds in April 2018. Moody's Investors Service assigned GB1 (excellent) assessment to the issue. Proceeds from the bonds were allocated to modernising housing blocks and increasing their energy efficiency.

In Latvia, green bonds are issued by Latvenergo, which has affirmed its commitment to achieving EU climate goals. It has become one of Europe's greenest energy utility companies. In 2017, Latvenergo issued 205m euro worth of bonds in two tranches. In the same year, the Latvian finance institution ALTUM issued 20 million euros in green bonds, repayable on Oct 17 2024. Remarkably, the demand for the bonds from investors, such as asset management funds, insurance

¹⁶ Sustainable finance: Commission's Action Plan for a greener and cleaner economy, Brussels, 2018, *European Commission*, 8 March, Press Release Database, available at: http://europa.eu/rapid/press-release_IP-18-1404_en.htm?locale=en (accessed 04.01.2021).

associations, and banks, was 6.5 times the planned issue.¹⁷ Lithuania accounted for 43.5 per cent of the total issue; Latvia, for 31 per cent; Estonia, for 19 per cent; Sweden and Germany, for 6.5 per cent [23, pp. 759–771].

Proceeds from the issue were allocated to the energy efficiency of central heating systems, renewable energy, reduction in energy intensity, energy-efficient buildings, and renewable energy (*wind power*, *solar power*, and *biomass energy*), etc. [24, pp. 16–17].

An influential actor in green finance is the European Bank for Reconstruction and Development (EBRD), which supports, among other things, sustainable economies in the Baltics. It assisted in the establishment of the first Baltic green building finance organisation. The EBRD made a 30m euro equity investment in the *Usaldusfond EfTEN* real estate fund, which provides capital for commercial property development in Latvia, Lithuania, and Estonia. The fund was the first in the three countries to work towards green goals and solutions to climate problems within their operations mandate. The EBRD invested 11.7m euros worth of zlotys in green mortgage bonds of the Polish bank PKO Bank Hipoteczny. This investment made it possible to construct low-emission buildings, grant green mortgage loans, and diversify the investor base.¹⁸

Another industry receiving green investment is clean transport. A 250m euro loan will allow the chemical company LG Chem to finance the construction of a production facility in Western Poland, which will manufacture lithium-ion batteries sufficient for powering up to 1m electro cars over a year. Using these batteries is expected to reduce CO₂ emissions by 155,000 t annually. In December 2016, Poland became the first issuer of sovereign green bonds (750m euros with a five year maturity period). The demand was three times the issue.¹⁹

Estonia is also an adherent to sustainable development. In 2021, the country's second-largest city, Tartu, will complete its transition to renewable energy derived from the sun, wind, and biomass. All street lighting in Tartu has 'gone green', and all the bulbs used for this purpose are energy saving. All electric bicycles from the municipal bike rental service are powered by renewable energy. Moreover, 85 per cent of the electric power used by city-owned buildings comes from renewables.

¹⁷ Modus Asset Management buys solar power plants in Poland, 2020, *The Baltic Course*, available at: http://www.baltic-course.com/rus/good_for_business/?doc=161288 (accessed 10.01.2021).

¹⁸ Financing Credible Transitions: 4 Page Summary Note, 2020, *Climate Bonds Initiative*, available at: https://www.climatebonds.net/certification/pko_bank_hipoteczny (accessed 15.12.2020).

¹⁹ Promoting responsible lending in the banking sector: The next frontier for sustainable finance, 2020, *OECD iLibrary*, available at: <https://www.oecd-ilibrary.org/sites/d5c54bd6-en/index.html?itemId=/content/component/d5c54bd6-en> (accessed 04.01.2021).

After the transition to green electricity, the municipal authorities intend to embrace green transport. Municipal buses are already running on recycled biofuel, whilst carbon-based fuel is still used by municipal fleet vehicles.

Germany made headlines in September 2020, when it entered the sovereign green bond market. The country issued 6.5bn euros worth of bonds with a ten-year maturity period, well above the 4bn euro target. By 2050 Germany will be climate neutral, having reduced emissions by 90% compared to 1990 [25, p. 16–17]. Kreditanstalt für Wiederaufbau (KfW), a German state-owned bank, issued USD 9.02bn in bonds in 2019, ranking second to the US mortgage company Fannie Mae with USD 22.4bn.²⁰

The principles of substantial development are firmly entrenched in these Baltic region countries, some of which are undisputed leaders in the green arena. Denmark, Sweden, Finland, and Germany are unrivalled in sustainable goal implementation and green investment market development.

Lithuania, Latvia, Estonia, and Poland go to great lengths to achieve SDGs. Nevertheless, their financial ecosystems are not sufficiently developed: their economic capacity is limited, as is the social responsibility of national businesses.

In Russia, the green bond market and responsible investment date back to Aug 12 2019, when a sustainable development sector was launched on the Moscow Exchange.²¹

The first Russian green bond issuer was RSB KHMAO, part of a group of companies engaged in municipal solid waste management.

Russia's green bond pioneer in gaining climate certification was Russian Railways. In May 2019, the company issued 500m euros in Eurobonds, priced to yield 2.2 per cent. In March 2020, the company completed its second green Eurobond offering, worth 250m Swiss francs. Russian Railways were successful in green bond issuance because 85 per cent of its operations are electricity-powered, and this fact places the company's services within the green taxonomy.

Russian Railway's offering of green bonds, which sought to finance the purchase of energy-efficient locomotives, was a triumph. It drew 1.8bn euros in bids, and the coupon rate was the lowest in the history of Russian Eurobonds. The green status of Russian Railways was officially acknowledged in the process. This recognition is of cardinal importance for a Russian state-owned company running the risk of sanctions.

²⁰ The European repo market at 2020 year-end An ICMA European Repo & Collateral Council (ERCC) briefing note, 2020, *The International Capital Market Association*, available at: <https://www.icmagroup.org/sustainable-finance/resource-centre/> (accessed 10.01.2021).

²¹ Russia green finance: unlocking opportunities for green investments policy note, 2020, *The World Bank*, available at: <http://documents1.worldbank.org/curated/en/103531540924946297/pdf/131516-PN-P168296-P164837-PUBLIC-Green-finance-Note.pdf> (accessed 10.01.2021).

In November 2019, the commercial bank Tsentr-Invest also issued green bonds, which remain the only ones admitted to the sustainable development segment on the Moscow Exchange. The securities of Garant-invest and Solar-Systems are also listed in the segment.

The Russian green investment market comprises over 50 companies specialising in energy, petrochemicals, construction, metallurgy, utilities, etc. They have issued 7bn roubles worth of bonds listed on the Moscow Exchange.

In Russia, the market and the state are joining green efforts to support the urban economy and the utility industry. State-owned Sberbank and Vnesheconombank, the most active participants in the green finance market, promote investment projects focusing on utilities — water treatment, sewerage, waste sorting, and recycling [26, p. 45—46]. Another promising area is construction, particularly the erection of energy-efficient buildings. Other projects aim at increasing the energy efficiency of city lighting. According to expert estimates, an average project in this area brings about a 50—75, or even 85, per cent increase in energy efficiency. These figures mean a 50—75 per cent reduction in energy consumption and CO₂ emissions.

Of importance are projects aimed to increase the heat efficiency of standard housing blocks through façade and roof insulation (which reduces heat losses by a third) and individual heating schemes. They pay for themselves in five to seven years.

Another major player in the Russian green finance market is Sberbank, which has embraced the green agenda. It is supporting environmental and community-centred projects. With the aid of the bank, the Irkutsk company EkoStep has been recycling tyres to produce flooring for gyms and stadiums since 2016. In 2020, it recycled 3,000 t tyres; the target for 2021 is 6,000 t. The company gets annual loans from the Baikal branch of Sberbank, which is considering now a 20m rouble investment loan to EkoStep.

In 2019, Sberbank announced its plan to issue green bonds to finance the best available technology (BAT) in the forestry industry. The issuance of green bonds is an effective tool to attract low-cost, long-term funds. In collaboration with the state, Sberbank plans to develop green industries in Russia. The bank estimates the national green finance market at 3tn roubles. According to Sber-

bank analysts, industrial ecology will generate at least 1.8–2tn roubles. Loans and bonds that can be described as green account for several hundreds of billions of roubles in the bank's portfolio.

Russia's green bond market has a segment of unlabelled green bonds. Their issuers are green since they finance build-operate-transfer projects in utilities, transport, and energy. However, they have not been admitted to the sustainable segment [26, p. 46–47].

Another essential aspect in the development of the Russian green finance market is infrastructure. In 2020, the Russian Agricultural Bank launched an exchange-traded fund. The investment vehicle is tied to the Sustainable Development Vector Index of the Moscow Exchange. It was the first responsible investment to be assigned an ESG rating. In the middle of 2020, VTB debuted two funds aimed at Russian companies with a high ESG score.

Sberbank Private Banking²² has launched three ESG-centric investment strategies. It estimates the potential of the Russian green bond sector at 3tn roubles until 2023.

The Russian green investment market is rapidly developing. Lacking a conceptual development model, the market requires thorough research and methodological analysis based on the examination of current practices and the systematisation of theoretical approaches.

It seems that the emergence of a new, green paradigm for economic management will incorporate all relevant practices regardless of their stage of development. There is also a need for a single conceptual framework consolidating all current trends and methods [27, p. 143–144].

The mechanism of responsible investment and green finance involves activities across several jurisdictions. Thus, there is an urgent need for a single methodological approach to the level of security. We distinguish three of them: the global-status international level, the regional-status international level, and the national level. The latter relies on existing financial systems and creates a unique system of green finance coordination.

At the global level, the system of methodological support for responsible investment and green finance comprises the groundwork laid by the organisations listed in Table 1.

²² The unit of Sberbank that deals with customers with assets over 100m roubles.

Table 1

**Major international organisations for responsible investment
and green finance instruments**

Principles for Responsible Investment, PRI https://www.unpri.org/pri	Principles for Responsible Investment
	The ESG in Credit Risk and Ratings Initiative
	Shifting perceptions: ESG, credit risk and ratings in three parts
Climate Bonds Initiative, CBI https://www.climatebonds.net/	Climate Bonds Standard
	Green Bonds Register
International Capital Market Association, ICMA https://www.icmagroup.org/	Green Bonds Principles (GBP)
	Suggested Impact Reporting Metrics for Waste Management and Resource Efficiency Projects, Clean Transportation Projects, Green Building Projects
	The Handbook – Harmonised Framework
	Green bond registers and verifiers
Organisation for Economic Co-operation and Development (OECD) https://www.oecd.org	The polluter-pays principle
	Centre on Green Finance and Investment)
	OECD environmental documents include 147 reports and recommendation papers.
Task Force on Climate-related Financial Disclosures, TCFD https://www.fsb-tcfd.org G20 Financial Stability Board	Recommendations of the Task Force on Climate-related Financial Disclosures
Network of Central Banks and Supervisors for Greening the Financial System, NGFS. https://www.banque-france.fr	A Call for Action
The Global Innovation Lab for Climate Finance, GILCF https://www.climatefinancelab.org/	Thirty-five innovative solutions for green growth worldwide. Sustainable Energy Bonds (SEBs) were developed specifically for a project in India.

Source: Expert Council on Long-term Investments under the Central Bank of Russia (ESG-finance Group). Concept of Building a Methodological Framework in Russia to Advance Green Financial Instruments and the Responsible Financing Projects. Moscow, 2019. P. 87.

An established methodological framework for responsible investment principles is impossible without harmonising national guidelines and recommendations on green bonds and other market components. Analysing the best practices of the Baltic region states has shown that the national model of the financial system is the key to methodology. The four major models describing the distribution of financial resources in an economy are Scandinavian, German, Mediterranean, and Asian. Sometimes the Anglo-Saxon and mixed models are distinguished as well. The model determines the organisation of the responsible investment market and the green finance mechanism. In our study, we will consider the Anglo-Saxon, Scandinavian, German, and mixed models.

Several conclusions can be drawn from a systematisation of the financial system organisation models and industry priorities of green investment. The Scandinavian model is associated with green investment in social programmes and quality of life programmes. The German model has infrastructure projects at its core. Large business projects are crucial to the Anglo-Saxon model, whilst the mixed one supports responsible investment across many industries (Table 2).

Therefore, the prevalent type of financial relationship affects the industry priorities of responsible investment.

Methodologically speaking, it is also essential to identify industries eligible for responsible investment; this can be done using a taxonomy for investment. Although the EU taxonomy can be used as a template for a national one, national features should take precedence in the process.

A taxonomy helps investors and companies plan their green activities. The CBI, ICMA, IDFC, and EU taxonomies lay down criteria for a green investment project.

In November 2020, the Government of the Russian Federation appointed VEB responsible for the national green finance methodology. The bank was also charged with devising a mechanism for financial support for green-financed projects. In 2021, the investment portfolio of VEB included 50bn roubles allocated to projects aimed at energy efficiency, water supply and sewerage, and the modernisation of production facilities to reduce emissions.

Table 2

The financial systems and industry priorities of responsible investment in the Baltic region

Financial system model	Model description	Country	Principal issuers	Responsible investment priorities
Scandinavian model (Swedish socialism)	A social focus of funds distribution and a substantial share of the public sector in the economy	Denmark, Sweden, Norway, Finland	Corporations, municipalities (issuer cities), specialised financial institutions, mortgage companies, banking institutions	Low-carbon construction, urban infrastructure
Germany (Rhine model)	Government control combined with social welfare. The banking system has the leading role in financing the economy.	Germany	Federal Ministry of Finance, corporations	Transport; international cooperation in research, development, and innovations; energy; manufacturing; agriculture; forestry
Anglo-Saxon model	The state's financial policy encourages citizens to do business; corporate and private property prevails.	Lithuania, Latvia, Poland, Estonia	Businesses, corporations	Utilities, energy
Mixed model	The state stimulates business activity and initiatives	Russia	Financial institutions, corporations, businesses	Market infrastructure, utilities, energy

Source: prepared by the authors

The taxonomy proposed by the bank covers economic activities such as waste management and recycling, power generation, green building, green mechanical engineering and transport, gas-powered transport, forestry, natural landscape and biodiversity preservation, ICT for energy-efficient transport systems, and efficient, sustainable, and low-emission thermal energy [28, p. 25–26].

VEB envisioned its green finance methodology to provide projects aimed at greener products with low-cost financing options. This way, Russian companies would more easily adapt to the transition to green technology and become more visible in the international financial market to receive low-cost funds.

Yet another problem is the sanctions, which make green investment riskier. Restriction may result in a ban on importing leading-edge technology and unattractiveness to domestic investors. VEB experts believe that a national taxonomy helps minimise these risks by differentiating investment. Moreover, sanctions do not target most technologies needed for the green transition. Restrictions focus mainly on hydrocarbon exploration technology accounting for less than 5 per cent of green debt instruments. Western capital markets do not give a green discount as long as hydrocarbon projects are concerned. Otherwise, the discount is about 20–30 basis points [29; 30]. Green bonds are mainly associated with energy, transport, and construction — the sectors on which restrictions have not been imposed.

The yield of Russian green bonds will be higher than that of their European counterparts. This difference will attract Western investors who pay little heed to sanctions when looking for greater yields. In September 2020, VEB emphasised at a meeting of IDFC members that political restrictions should not stay in the way of environmental projects. The bank also reminded that the international community of development banks had recognised the priority of environmental challenges over national political ambitions.

Despite the short history of green finance, there is sufficient practical and methodological potential for a national green finance system. The Russian practice of transforming green finance principles draws on international methodological recommendations and aims to create a national financial ecosystem.

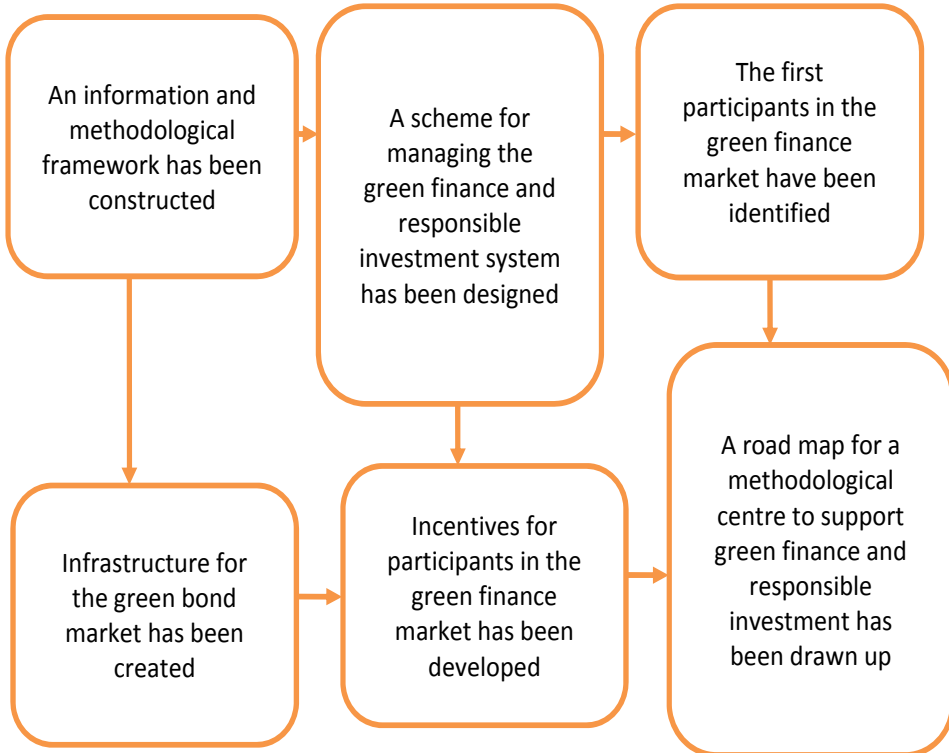


Fig. 4. Steps taken to develop a national system of green finance and responsible investment

Source: Proposed by the authors

A methodological framework has been created for informed decision-making taking into account both best practices and national conditions. A study of green and sustainable investment in 2016–2018, carried out by the National Financial Research Institute, provides a comprehensive picture of how the green finance market is developing worldwide. A task group of the Central Bank of Russia has published *The Diagnostic Overview Green Finance: the Agenda for Russia*.

Research has been conducted into green finance in the BRICS countries. It analyses market drivers and the role of the state in the process.

In January 2019, the WWF and the National Association of Concessionaires and Long-Term Infrastructure Investors (CoLTI) prepared the glossary *A green economy; definitions and concepts*. The document makes it possible to harmonise and unify the theoretical aspects CoLTI releases the quarterly report *Sustainable development; current state and trends*.

The structure of managing a national green finance system may look as follows.

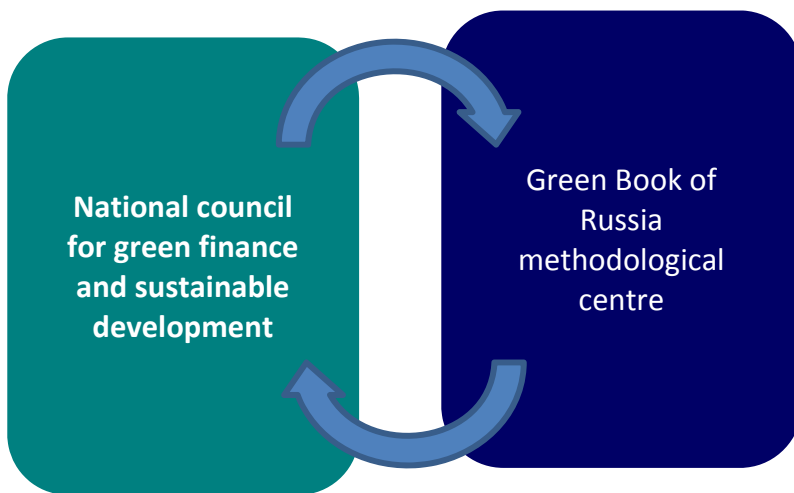


Fig. 5. A scheme for managing a national green finance system

The state also has a role in developing the green bond market. The Ministry of Industry and Trade devised a subsidy programme, which compensates the coupon rates of green securities supporting the industrial transition to BATs²⁵. Keen interest from the state means guaranteed low-risk green instruments that are likely to attract potential investors.

The existing green finance infrastructure is adequate for the necessary preparation, emission, and redemption processes and procedures. The Moscow Exchange and the Russian Union of Industrialists and Entrepreneurs (RUIE) signed an agreement on computing sustainable development indices: the Openness and Responsibility by the Moscow Exchange and the RUIE and the Sustainable Development Vector Index by the same institutions. The RAEX rating agency pre-

²⁵ Subsidies for BAT introduction projects, 2020, *Ministry of Industry and Trade*, available at: <https://minpromtorg.gov.ru/projects/ndt/04/> (accessed 04.01.2021).

pared the first ESG ranking of Russian regions — *Evaluation of ESG risks of Russian regions: first results*²⁴. The RAEX ranking of Russian businesses by environmental spending shows that Nornikel, Ilim, and the Arkhangelsk Pulp and Paper Mill earmark about 3.8 per cent of their revenue for environmental protection, which is twice the European average.²⁵

Analysis of current trends in international and Russian green investment practices shows that this segment is rapidly growing. Both the private and the public sectors are interested in green instruments. The former seek to establish themselves in the public eye as socially responsible businesses, and the former aims to solve structure problems while staying committed to environmental priorities.

Green finance is an urgent issue in the Kaliningrad region because of the territory's close ties with the Baltic Sea states and the need to implement SDGs, particularly Goal 14 (Life below water) and Goal 15 (Life on land). There are bright prospects for green finance in the region. Firstly, developing and supporting regional businesses is a primary focus of federal policy. Furthermore, large and small Kaliningrad businesses can benefit from achieving the six systems transformations outlined by the World Business Council for Sustainable Development. Finally, responsible investment and green finance help solve macroeconomic, infrastructure-related, humanitarian, and socio-cultural problems.

Conclusion

This research has shown that the global community pursues an investment model transformation and seeks new principles of responsible investment. All of this will translate into a new business ideology of shared social responsibility and economic efficiency. Each country has to lay down national criteria that will safeguard the interests of all responsible investment stakeholders.

A distinctive feature of the Russian green finance and responsible investment market is the state's remarkable efforts to encourage businesses to transition to responsible investment. The experience of the Baltic region states helps extrapolate this trend to the municipal level and conclude that municipal participation will contribute to solving social and economic problems at the local and regional levels.

An urgent issue is information dissemination and transparency. It is essential to heighten awareness of the quality of securities, listing, and certification. There is a need for an information centre working in real-time to detail the current state and trends in the responsible investment market.

²⁴ ESG ranking of Russian regions 2020, 2020, RAEX, available at: https://raex-a.ru/rankings/regions/ESG_raiting (accessed 04.01.2021).

²⁵ *Expert Council on Long-term Investments under the Central Bank of Russia (ESG-finance Group)*, Green finance: an agenda for Russia. A diagnostic review, Moscow, 2018, p. 64—65.

Overall, Russia has successfully joined the global ecosystem. The country is embracing ESG standards across various aspects of social life. The primary goal at this stage is building a national model for responsible investment and green finance. Achieving it will create conditions for the sustainable development of Russian society and green growth in the national economy.

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