

# RUSSIA GREEN FINANCE:

UNLOCKING OPPORTUNITIES

FOR GREEN INVESTMENTS

POLICY NOTE



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# Acronyms

AFNOR	Association Française de Normalisation
ASEAN	Association of Southeast Asian Nations
BAT	Best Available Technique
BCA	Benefit-cost analysis
BCB	Banco Central do Brasil
BNDES	Federal Development Bank in Brazil
CAMELS	Capital adequacy, Asset quality, Management, Earnings, Liquidity, and Sensitivity to market risk rating
CBI	Climate Bonds Initiative
CBRC	China Banking Regulatory Commission
CDB	China Development Bank
CEA	Cost-effectiveness analysis
CFCs	Containing chlorofluorocarbons
CISL	Cambridge Institute for Sustainability Leadership
CLTD 2020	Concept for Long-Term Socio-Economic Concept Development by 2020
CO <sub>2</sub>	Carbon Dioxide
COFRAC	French Accreditation Committee
COP	Conference of the Parties
CREB	Clean Renewable Energy Bonds
CSRC	China's Securities Regulator
DDP	Deep Decarbonization Path
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIB	European Investment Bank
EPR	Extended Producer Responsibility
ESG	Environmental, social and governance investing
EU	European Union
EY	Ernst&Young
FEBRABAN	Brazilian Banking Association
FND	Financier Nacional De Desarrollo
GDP	Gross domestic product
GFC	Green Finance Committee of the China Society of Finance and Banking
GHG	Greenhouse Gases
GLP	Green Loan Principles
GRF	Government of the Russian Federation
HCFCs	Halogenated chlorofluorocarbons

IADB	Inter-American Development Bank
ICAAP	Internal Capital Adequacy Assessment Process
ICMA	International Capital Market Association
IDDR	Institute for Sustainable Development and International Relations
IFC	International Finance Corporation
ILG	Investment Leaders Group
LCA	Life Cycle Assessment
LEED	Leadership in Energy and Environmental Design
LULUCF	Land use, land-use change, and forestry
MDB	Multilateral Development Bank
MNRE	Ministry of Natural Resources and Environment
MSCI	Morgan Stanley Capital International
NAFIN	Mexican Development Bank
NDC	Nationally Determined Contribution
NDRC	National Development and Reform Commission
OECD	Organization for Economic Co-operation and Development
PBoC	People's Bank of China
PCRA	Programmatic comparative risk analysis
PPP	Public–private partnership
PRI	Principles for Responsible Investment
QECCB	Qualified Energy Conservation Bonds
SBN	Sustainable Banking Network
SCS	Supply chain sustainability
SDGs	Sustainable Development Goals
SDSN	UN Sustainable Development Solutions Network
SERP	Social and Environmental Responsibility Policies
SMEs	Small and Medium Sized Enterprises
SRI	Socially Responsible Investing
SWF	Sovereign wealth funds
TEEC	Transition Energetique et Ecologique por le Climat
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
US EPA	United States Environmental Protection Agency



# Executive Summary

**Globally, mobilizing the required funding for financing sustainable and green economic growth, a great proportion of which is expected to come from the private sector, calls for re-shaping key parts of the financial system and identifying and setting new international standards for investment.** To attract capital, growing environmental concerns and action on climate change need to be combined with sustainable economic returns. Well-designed green projects would promote green technologies, the reduction of pollution and resource efficiency, and contribute to GHG emission reduction. Governments around the world are taking steps to encourage the development of green finance with a view toward mobilizing the needed resources to support economic transformation and maintain competitiveness.

**Russia's medium- to long-term growth prospects will be greatly affected by how well its policies integrate environmental and natural resource management into economic planning.** Natural resources are critical for Russia's economic development and are an important source of income. Better natural resource management and improvements in environmental sustainability are among the key requisites for economic growth and social progress. Environmental challenges, resulting from climate change and pollution, threaten Russia's competitiveness and productivity and pose risks to economic sustainability and the financial sector. Inefficient uses of natural resources impose large economic and social costs and endanger long-term sustainability. Decarbonizing and greening its economy will help Russia achieve more sustainable growth, create new economic opportunities through better environmental management, maintain global competitiveness, and lower the costs of environmental degradation, including those on the health and well-being of the population.

**Russia would benefit from greening its economy for a number of compelling reasons:** (1) ignoring the environmental costs of the economic growth, particularly climate change and natural resource depletion, can threaten the gains being made, and have significant economic, social and environmental consequences for the country; (2) environmental problems are harming both the health of Russia's citizens and its economy; (3) closing the resource efficiency gap could cause sector and economy-wide benefits and bring about savings for capital expenditures; (4) improvements in energy efficiency could reduce carbon emissions and create opportunities for the Russian economy to increase productivity and competitiveness; (5) as Russia is moving towards implementing structural reforms to advance economic growth, one major effect on the economy from going green is the creation of new jobs and industries; (6) 'Greening' Russia's economy will mean clean and resilient growth, and sustainable use of natural resources, thus extending the economic benefits to the poorest and most vulnerable people. Furthermore, green investments are generally more employment intensive, and have direct benefits in terms of poverty reduction; and (7) Russia no longer has to choose between economic growth and environmental protection; these two goals can be achieved simultaneously, and result in economic prosperity and a preserved environment.

**Trillions of rubles will be needed for the green transformation of the Russian economy.** Investments that have potential for 'greening' and 'decarbonization' of the Russian

economy include infrastructure in the energy, municipal waste, wastewater treatment, transport, and construction sectors and large multipurpose water infrastructure. Implementing BAT is estimated to require funding in the neighborhood of RUB4-8 trillion. Russia's estimated climate-smart investment potential in selected sectors is nearly US\$313 billion from 2016-2030. According to Government estimates, the near-term potential for climate-smart investments by 2020 is US\$9.3 billion in renewables and US\$47 billion in urban infrastructure, including US\$6 billion in transport and US\$22 billion in building retrofits.

**If supporting policies are in place and implemented, Russia's financial system could finance large amounts of bankable green projects.** Together, institutional investors such as private pension funds manage about RUB 4 trillion, while retail deposits reached nearly RUB 25 trillion. Gradually improving macro-economic and financial sector conditions provide a favorable environment for developing green finance. But for financial institutions and private investors to engage in green finance, a need remains for Russian authorities to put the right conditions and incentives in place.

**Futhermore, it is in the interest of the Russian financial sector to develop green finance to enhance resilience and improve financial performance.** The transition to a low-carbon economy may not be a smooth one and could involve a potential rapid fall in the value of carbon-intensive assets. The Russian financial sector is likely to have substantial exposure to "carbon risks," being a carbon-intensive economy and a large producer of fossil-fuels. Green assets could provide a hedge against carbon transition risks in a portfolio that includes emissions-intensive assets. There is also a growing body of academic evidence on the benefits of enhanced investment returns through greening financial systems.

**A variety of factors resulting from fragmented and uncoordinated actions are impeding the development of green finance in Russia. Current roadblocks include:** (i) the absence of a champion public sector agency coordinating all relevant stakeholders; (ii) lack of an ample pipeline of green projects due to modest carbon reduction targets, underdeveloped green procurement and weak enforcement of existing environmental regulations and sector-level targets (e.g. energy efficiency in buildings); (iii) lack of a regulatory framework for green finance instruments, including standards and definitions of what constitutes a green project/asset; (iv) early-stage involvement of domestic development financial institutions in the green agenda and (v) lack of awareness of financial institutions, pension funds and other institutional investors of the risks and return opportunities associated with green finance. Promoting new instruments or platforms requires coordinated action, as illustrated through international experiences in developing green finance markets, and it is important to have an institution assuming leadership and ensuring the cooperation of green project suppliers, investors, and regulators.

**To address existing impediments to green finance development, Russia should consider a more comprehensive, consistent and coordinated approach.** This includes the following key elements, which are essential building blocks for wider action: (i) revisiting climate change commitments, environmental and sector-specific targets and assessing financing needs by sector (e.g. green buildings, clean transport, renewable energy, waste management, sustainable agriculture etc.); (ii) identifying a national green finance champion and establishing a coordination body represented

by the key stakeholders; (iii) developing a green finance roadmap and corresponding action plan; (iv) exploring the potential impact of climate change and the low-carbon transition on macroeconomic and financial stability; (v) incorporating a green agenda in public policy institutions' mandates and public procurement; (vi) establishing an evaluation and measurement system, and tracking progress towards objectives and (vii) raising awareness about green finance and building capacity at all levels (federal and regional policy makers, financial sector participants etc.).

**The Ministry of Natural Resources and Ecology (MNRE) can play a crucial role in supporting generation of bankable green projects in partnership with the ministries of Economic Development and Finance.** Such a partnership, led by MNRE, would stimulate the market for green assets by (i) ensuring that price signals reflect both positive and negative environmental externalities through taxes and subsidies; (ii) developing a technically robust classification system to establish market clarity on what is 'green' or 'sustainable,' in order to promote 'clean, green and resilient' and socially sustainable sector investments; (iii) supporting an R&D platform to green the economy; and (iv) enhancing the capacity of relevant public agencies to develop green infrastructure projects. Besides more effective regulatory levers, it is essential to encourage Russian companies across all sectors (including financial) to voluntarily embrace ESG and sustainability initiatives in their corporate strategies, including the adoption of CSR.

**The Central Bank of Russia could play a prominent role in developing green finance.** As illustrated in experiences around the world, not a single country has developed its green financial system without decisive action from the financial regulator. As an owner of some of the largest banks, the Central Bank of Russia may mobilize and support financial institutions to promote market-led initiatives or issue/endorse voluntary guidelines for green bond issuance, E&S risk management, or general green banking finance guidelines. Market-led initiatives and voluntary guidelines could help to create consensus and build support for the development of green finance. Developing systems and standards to measure the impact of green finance in Russia will be essential to track progress in greening the financial sector. To that end, a methodology to track and measure green finance could be introduced, and figures on green finance reported in the Central Bank Financial Stability Report. The Central Bank could also build in-country capacity as well as capacity of the system players through a program of research and training on green financial issues, including studying the implications of climate change and the low-carbon transition for the financial sector.

**Russia's public financial development institutions could play a catalytic role in supporting the green finance strategy and generating a portfolio of green assets.** VEB could explore the establishment of funds dedicated to supporting green investments either through capital participation or debt acquisition. SME Bank and SME Corporation could incorporate targeted loans and guarantee products for environmental investments by SMEs. The Russia Housing and Urban Development Corporation (RHUDC) could incorporate certain resource and energy efficiency requirements in the rental housing or new construction it supports, as well as introduce retail green mortgages for individuals and loans for home owner associations and housing management companies for energy efficiency improvements of multi-family buildings via its specialized mortgage and construction bank.



1

INTRODUCTION



**1. Environmental challenges, arising from climate change, depletion of natural capital, and pollution threaten Russia's competitiveness and productivity, and pose risks to its economic sustainability.** A number of Government policies, strategies and programs aim to address environmental challenges. The Russian Federation Policy for Economic Development aims to ensure ecologically-oriented economic growth until 2030; the Climate Doctrine acknowledges the effects of global warming on the economy and outlines areas for improvements to energy efficiency and GHG emission reductions. Yet, Russia needs to demonstrate results in the implementation of plans and actions pertaining to environmental and climate policies and the sustainable use of natural resources, as well as increase the availability of environmental information for decision making. There is growing recognition among the public sector and businesses that appropriate policies, supported by innovation, can create economic opportunities that help reconcile environmental and economic development objectives.<sup>1</sup>

**2. In the Intended Nationally Determined Contribution (INDC) submitted in the framework of the Paris Agreement (COP21) Russia made commitments to limit anthropogenic greenhouse gases by 2030 to 70-75% of the 1990 levels, subject to the maximum possible accounting of forests' absorbing capacity.** Russia will need trillions of rubles to meet its NDC targets, specifically in reducing industrial emissions, wider use of renewable energy, energy efficiency, waste management and water treatment, green buildings, urban transport and climate-resilient infrastructure. Many post COP21 countries strive to achieve their climate mitigation commitments and secure the necessary financial resources for transition to low-carbon economies. Numerous governments use the leveraging effects of public resources to overcome investment barriers and attract private investments in 'green' projects. Well designed green projects could potentially contribute to GHG emission reduction and the reversing of environmental degradation. Global developments after COP21 indicate that inevitably "green" will go mainstream in investment and finance, with more jurisdictions mandating sustainability and more investors embedding sustainability principles into their mission statements.

**3. The impacts of climate change and associated risks on the economy and financial system have increasingly been the focus of governments and financial sector regulators around the globe.** Climate change-related physical damages and economic losses could affect the stability of the financial system.

A rapid structural shift to a low-carbon economy could diminish the value of some assets, such as oil, gas and coal reserves, transportation, infrastructure, and other carbon-intensive industries. This in turn could lead not only to economic losses and unemployment, but could also affect the financial conditions of the companies owning these assets, thus negatively impacting their creditors and investors, and potentially triggering cascade effects throughout the interconnected financial system.<sup>2</sup> Russia, being a carbon-intensive economy and a large producer of fossil fuels, is likely to face

<sup>1</sup>World Bank. 2016. Russian Federation – Systematic country diagnostic: pathways to inclusive growth (English). Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/477441484190095052/Russian-Federation-Systematic-country-diagnostic-Pathways-to-inclusive-growth>.

<sup>2</sup> Climate Change Challenges for Central Banks and Financial Regulators. Campiglio, Dafermos, Monnin, Ryan-Collins, Schotten & Tanaka. 2018.

a substantial financial sector exposure to “carbon risks.” Regulators in many European countries have begun evaluating the impact of climate related risks and low carbon transition in the financial sector. Russia’s regulators and financial institutions, dealing with a banking crisis in recent years, have not yet focused on this issue.

**4. 2017 was officially named the Year of Ecology in Russia.** This garnered high-level attention among various stakeholders of environmental protections, green economy and green finance. However, various constraints have kept many economic sectors from being able to pick up the ‘green’ investment momentum. To drive green investments within the country, Russia needs to provide a strong and coherent policy signal followed by a stricter enforcement of environmental regulations and also encourage the development of green financial instruments.

**5. The objective of this policy note is to present the challenges, opportunities and possible avenues for mobilizing finances for greening the Russian economy.**<sup>3</sup> It aims to identify institutional and market barriers to green finance in Russia as well as areas for augmenting the capacity of the financial system to mobilize capital for green investment. The discussion also touches upon the extent to which these investments could support the implementation of Russia’s commitments to protect the environment and address climate change. For the purpose of this note the term ‘green finance’ is defined as “financing of investments that provide environmental and climate benefits<sup>4</sup> in the broader context of environmentally sustainable development.”<sup>5</sup> The note’s contribution to policy discourse in Russia is twofold. First, it provides insights into how Russia would benefit from greening its economy; in that context it also addresses the prerequisites and possible choices of potential policy and financial instruments. Second, it adds to Russia’s ongoing discussion about the role of the financial sector in mobilizing green finance.

**6. The note’s audience is a broad group of Russian stakeholders, specifically economic policy makers and regulators in the environment and natural resources, the financial sector, federal and sub-national governments, and the private sector.** The authors believe that only a coherent and coordinated effort of multiple stakeholders could lead to the development of a well-functioning green finance market to support Russia’s transition to a greener, and more sustainable, economy.

**7. The paper has 9 chapters.** Chapters II and III explain why Russia needs to go “green,” the main environmental challenges and policies that need addressing, and the global context (Sustainable Development Goals and the climate change agenda). Chapter IV covers the supply and demand side of the nascent green finance market in Russia. Chapters V and VI cover the global trends in green finance and an overview of the green finance instruments. Chapter VII looks in detail at what makes a project

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<sup>3</sup> A green economy is defined as resulting in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive (UNEP, 2011).

<sup>4</sup> These environmental benefits include, for example, reductions in air, water, and land pollution; improved energy efficiency; and mitigation of and adaption to climate change. Green finance involves efforts to internalize externalities and adjust risk tolerance in order to boost environmentally friendly investments and reduce those that are environmentally damaging.

<sup>5</sup> G20 Green Finance Group 2016.



“green” and highlights the risks of “greenwashing.” Chapter VIII analyzes international experiences in developing green finance and draws lessons from successful practices that could inform those in Russia, taking an in-depth look at examples from China, Brazil and France – countries which developed a sound top-level approach for green finance to encourage market stakeholders to ‘green’ the financial system and advance the transition towards a green economy. Chapter IX concludes with recommendations and the path forward for green finance in Russia.



# 2

WHY RUSSIA  
NEEDS TO GO  
“GREEN”?



## 8. Russia would benefit from greening its economy for several reasons:

- a) Russia is “blessed” with unique natural capital: 65 percent of its territory is pristine, and practically unaffected by economic activities. Russia has demonstrated steady economic growth in recent years. However, this growth has been achieved at the expense of exploiting its natural capital, a fact that hampers Russia’s ability to preserve land for future generations and puts its long-term sustainability at risk. Ignoring the environmental costs, particularly those related to climate change and natural resource depletion, can threaten the gains being made and has significant economic, social and environmental consequences for Russia.
- b) The economic cost of environmental degradation, pollution and poor management of natural resources has been estimated in the range of 1 to 6 percent of GDP - substantially higher than in developed countries. Environmental problems are harming both the health of Russia’s citizens and the economy. For example, air pollution is a contributing factor to childhood and adult illnesses. Pollution is adding to budgetary strains, reducing labor productivity through illness and absenteeism, and damaging natural resources. Against the background of a shrinking workforce in Russia, reducing the negative environmental impact on the health of the population becomes even more critical.
- c) Closing the resource efficiency gap could generate sector and economy-wide benefits and generate savings for capital expenditures. Russia has tremendous potential for resource and efficiency savings. A study<sup>6</sup> conducted by IFC on the Russian foundry industry, which includes 26 manufacturing units, identified process areas which could be modernized and thus potentially generate savings of US\$3.3 billion annually, while at the same time improving profitability at individual foundries by up to 15 %.
- d) Improvements in energy efficiency could reduce carbon emissions and create opportunities for the Russian economy’s increased productivity and competitiveness.
- e) As one of the most energy-intensive economies in the world, Russia continues to be responsible for a large share of global carbon emissions. Russia’s emissions are in the top 10 world-wide, whether measured by total production or emissions per capita. Russia generates about the same level of CO<sub>2</sub> emissions as the entire Latin America region while producing about a quarter of that region’s GDP and having less than a quarter of its population. High energy intensity greatly diminishes Russia’s competitiveness. Improvements in energy efficiency could reduce energy consumption by 45%, or 300 million tons of oil equivalent per annum, more than the total energy use of France.
- f) As Russia is moving towards implementing structural reforms to advance economic growth, the creation of new jobs and industries is one major effect that going green will have on the economy. The level of constant innovation being achieved in green industries is helping to spur economic growth. Multiple economic opportunities exist related to better environmental management; for example, future large

<sup>6</sup> IFC resource Efficiency in the Ferrous Foundry Industry in Russia. Benchmarking Study 2010.

infrastructure projects and modernization of the transport system are likely to give impetus to urban land development, increasing the value of assets and offering opportunities to address past environmental damage.

- g) Russia no longer must choose between economic growth and environmental protection as it did in the past; these two goals can now be simultaneously achieved, with economic prosperity and a preserved environment. “Grow First and Clean-up later” is an outdated development paradigm and Russia needs to make changes throughout the entire spectrum of its public policy to mobilize private capital and steer financing into greener and more productive directions.
- h) ‘Greening’ Russia’s economy will mean clean and resilient growth, and the sustainable use of natural resources, thus extending the economic benefits to the most vulnerable and poor people. Furthermore, green investments are generally more employment intensive, and have direct benefits in terms of poverty reduction.<sup>7</sup>

**9. Developing green finance markets is important not only for mobilizing financial resources towards meeting Russia’s sustainability goals and necessary investments, but as a way to manage environment and climate-related financial risks and improve financial performance.** It is estimated that greening of the Russian economy will require investments in the order of RUB 3.1-4.1 trillion by 2020<sup>8</sup>. Investment at this scale requires mobilizing financial resources. Furthermore, financial regulators around the world are increasingly assessing the potential impact of climate change and low-carbon transition on financial stability. The transition to a low-carbon economy may not be a smooth one and could involve a potential rapid fall in the value of carbon-intensive assets. A mitigation strategy could include green assets as a hedge against carbon transition risks in a portfolio that includes emissions-intensive assets. Similarly, green bonds and other standardized products could offer attractive risk-adjusted financial returns without time-consuming due diligence on the project’s “greenness” by investors. Recognizing the importance of climate-related risks, leading rating agencies have begun to incorporate environmental considerations into their credit ratings.<sup>9</sup> There is also a body of academic evidence on the benefits of enhanced investment returns through greening financial systems. For example, Gunnar et al (2015) analyzed over 2,200 studies on the effect of ESG on corporate financial performance. Overall, 62.6% of meta-analyses found a positive correlation between ESG and corporate financial performance and 90% of studies a non-negative relation, with a strong correlation between ESG and corporate financial performance in emerging markets. For these reasons, many industrialized and developing countries have developed policies, market infrastructure and products to green their financial systems.

<sup>7</sup> Transition to a green economy: benefits, challenges and risks from a sustainable development perspective. N-DESA ; United Nations Environment Programme ; UNCTAD (2012)

<sup>8</sup> 29.03.2017 / Рабочая группа по экологии и природопользованию Экспертного совета при Правительстве Российской Федерации

<sup>9</sup> Nine rating agencies are signatories of the Statement on ESG in Credit Ratings and have undertaken a consultation process, to be finalized in 2018, to adapt their rating methodologies to the inclusion of ESG parameters.

# 3

## RUSSIA'S “GREENING” STRATEGIES, POLICES AND GOALS





## 3.1. Environmental and Climate Challenges

**10. Environmental challenges threaten Russia's competitiveness and productivity, putting long-term sustainability at risk.** The 2016 Report for the State Ecological Council (2016 State Ecological Council Report) provides a comprehensive overview of the current challenges and environmental issues in Russia (Box 1). Currently, 55 million people, equal to 53% of the Russian urban population, live in cities with poor air quality. About 7% of the population, including 5% of the urban population, and 23% of the rural population do not have access to quality drinking water. Furthermore, 2% of cities, 18% of urban-type cities and 95% of rural populations do not have access to sewage system and wastewater treatment plants. Russia produces 2 times the total waste generated in EC, of which 90% is mineral waste from extractive industries. In 2014, only 13.3 % of municipal waste was treated. Only 8.1% of municipal solid waste was disposed in waste treatment plants. Legacy from past economic activities also creates significant health hazards, reduces the sustainable land and urban development and increases the risk of additional environmental damages.

### Box 1 State of the Environment in 2016

#### Pollution hot spots

There are more than 10,000 potentially toxic sites in Russia.

340 sites characterized as hot spots, for their accumulated environmental damage, pose significant human health risks to 17 million people.

370 million tons of polluted substances cover a territory of 77,000 ha.

DDT was banned in the 70s, but many lands are contaminated by this obsolete insecticide.

#### Air Quality

Emissions from road transport in big cities comprise 50-90% of total air pollution loads

87% of total GHG emissions are generated from extraction, production processing and transportation of mineral resources.

Air quality monitoring systems are only operational in 22 oblasts of Russia (out of 60).

#### Forests

Annual forest loss is estimated at 370,000-760,000 ha.

In 2014 the total forest loss was estimated at 513,000 ha (incl. 239,000 ha. of coniferous stands).

#### Institutional

Environmental norms and standards are outdated and not based on assessment of risks and impacts.

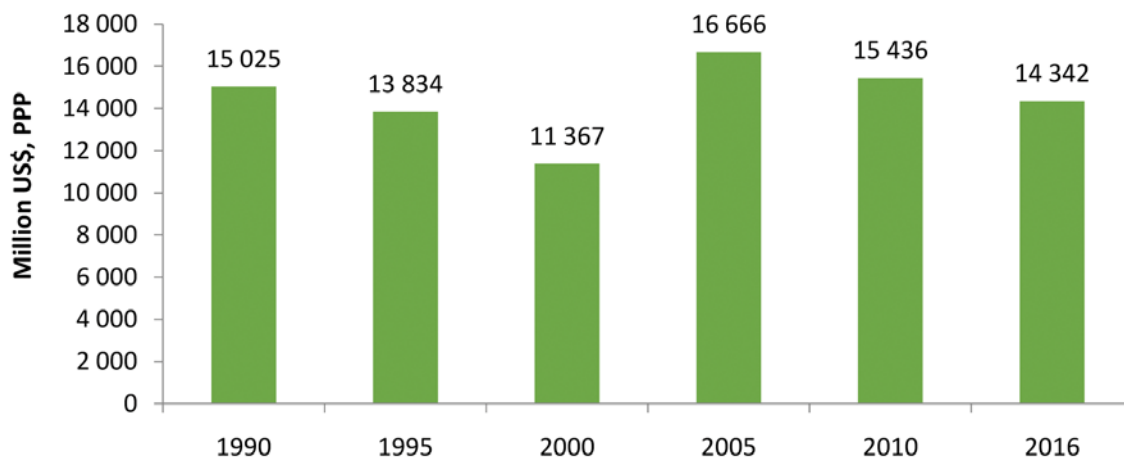
The country's entire team of forest inspectors numbers just 1422 people.

In Kamchatskiy kray one forest inspector is responsible for a total area of 300,000 ha.

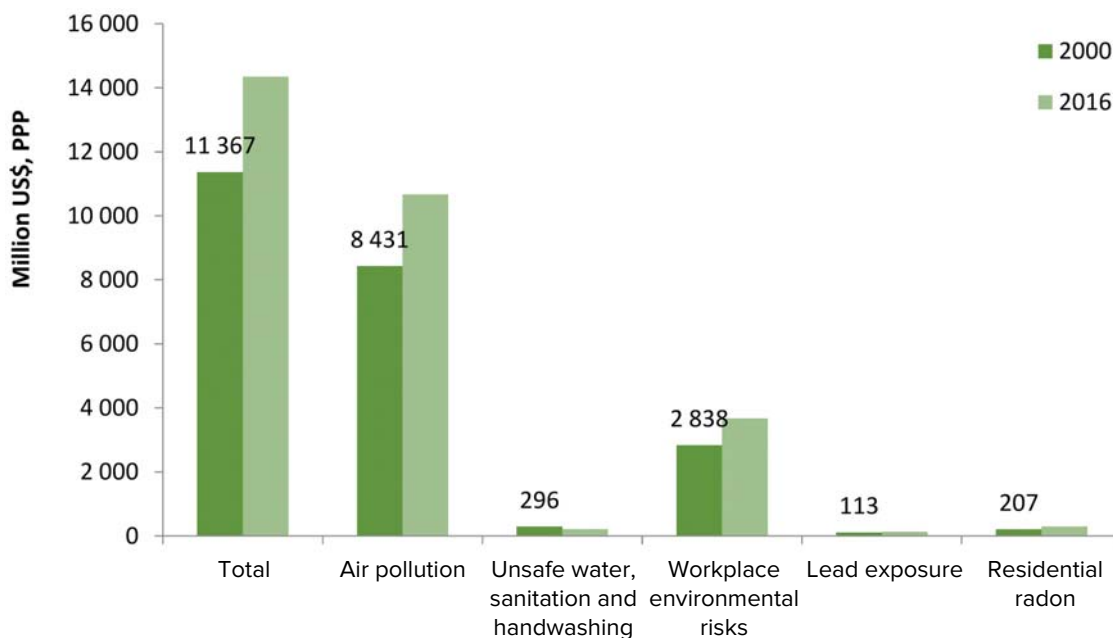
**11. Russia lags behind other industrialized nations in addressing the impacts of deteriorating environmental conditions.** Air, water, soil pollution, chemical exposure, climate change impacts and radiation remain serious health risk factors, and result in lost productivity and wages, and the increased economic health costs disproportionately

affect the poor. While the total environmental health cost decreased in 2016 as compared to 1990, it had risen compared to 2000 (Fig 1). Air pollution is the main contributor to health risks followed by workplace environmental risks (i.e. occupational exposure to carcinogens such as asbestos, arsenic, and benzene; asthmagens; and particulate matter, fumes, and gases), which are on the rise (Figures 2 and 3).

**Figure 1 Total environmental health costs (2011, million US\$, PPP)**

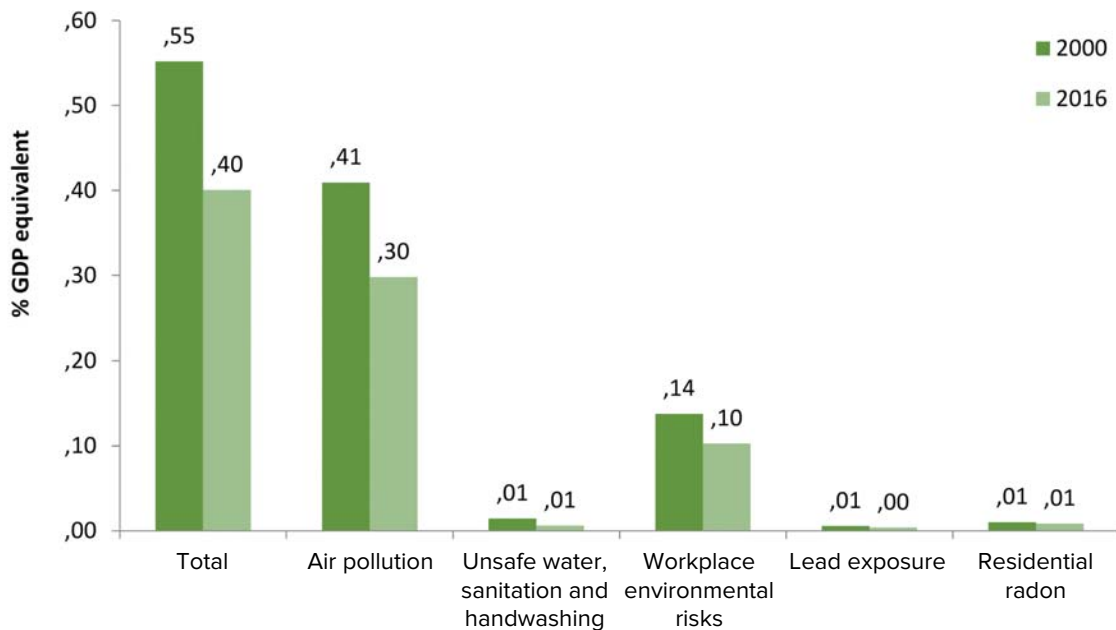


**Figure 2 Damages by health risk in Russia (2011, million US\$, PPP)**



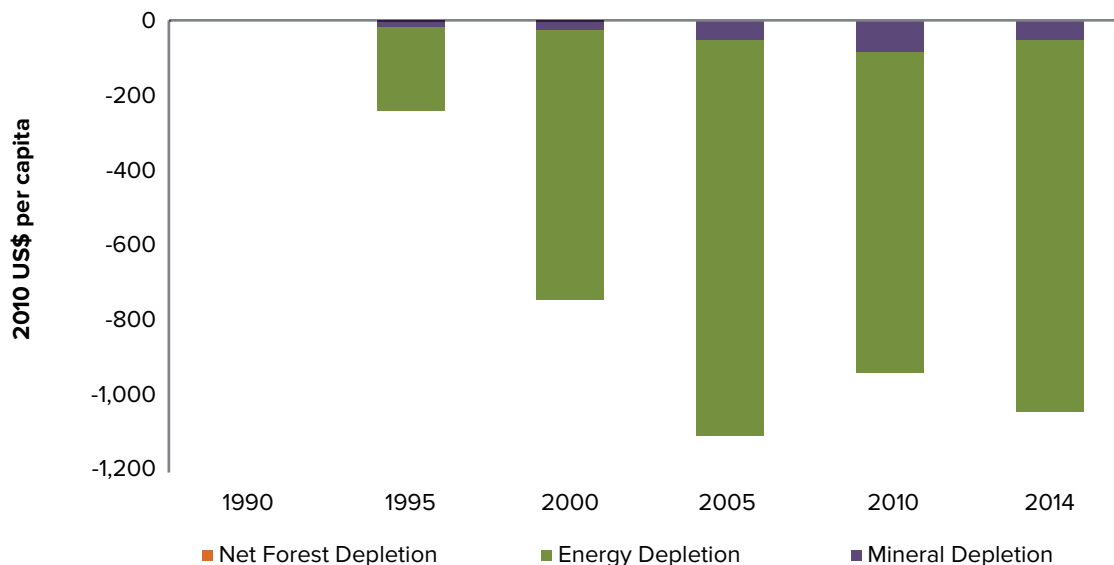
Source: Based on IHME (Institute for Health Metrics and Evaluation), 2016. "GBD Results Tool," Global Health Data Exchange, <http://ghdx.healthdata.org/gbd-results-tool>; World Bank, 2017. World Development Indicators 2017, available at <http://databank.worldbank.org>

**Figure 3 Damages by health risk in Russia (% GDP)**

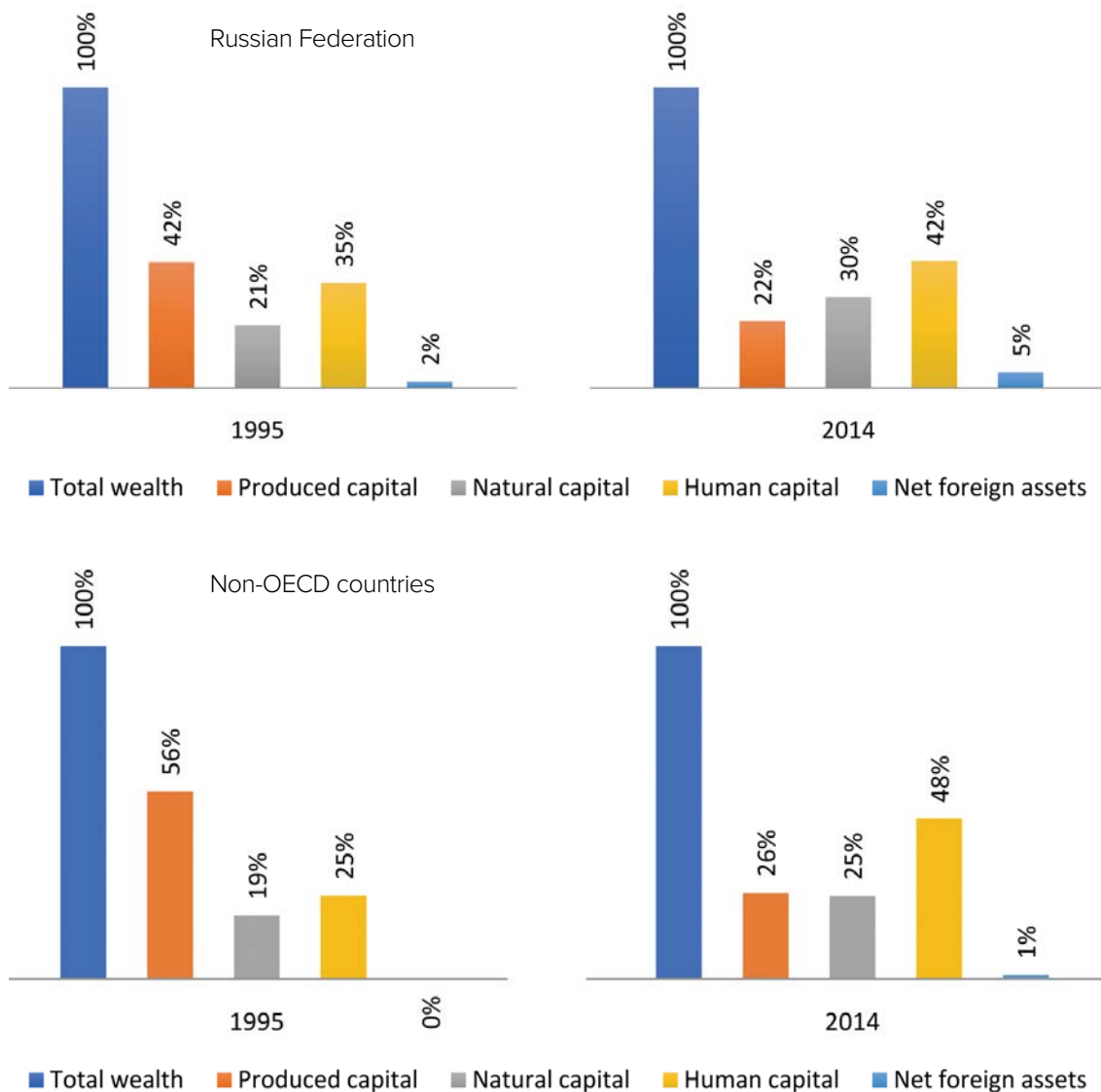


**12. Achieving Russia's national sustainability goals will be challenging in the absence of a system for better regulatory support and incentives for reducing natural capital depletion.** Since 2000, the depletion of natural capital in Russia has followed an upward trend (Figure 4), meaning that natural resources, including subsoil assets, timber and non-timber, crop and pasture land, and protected areas are being used unsustainably and exhausted. Russia's natural capital is a critical asset whose share was around 25% of the nation's total wealth in 2014 (Figures 4 and 5). This is lower than in most non-OECD countries (by around 30%).

**Figure 4 Natural Capital Depletion per Capita, 2010 US\$ per capita**



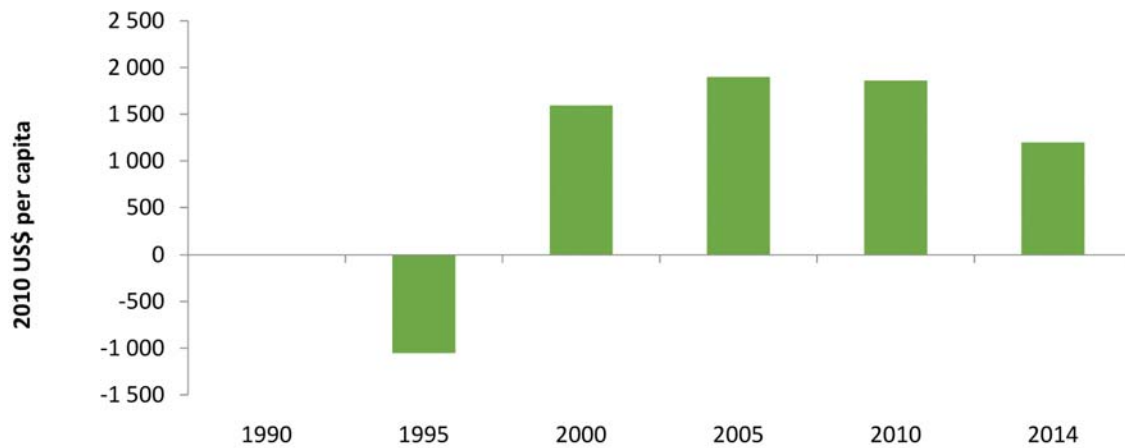
**Figure 5** Total wealth composition in 1995 and 2014 in Russian Federation and in high-income non-OECD countries



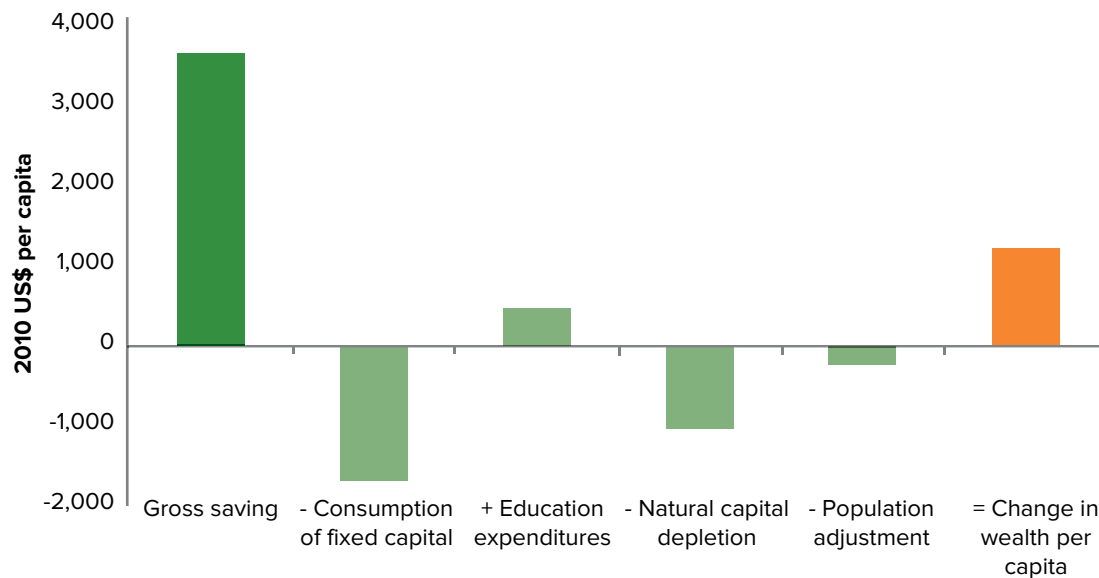
13. **The key to increasing economic well-being in the future lies in building national wealth.** This requires savings to finance investments that generate growth, as well as good institutions and governance to make productive use of assets and knowing how to make the most efficient use of these assets. After a sharp decline in mid-90s, the value of the wealth per capita in Russia has been positive since 2000, although it has declined between 2010 and 2014 (Figures 6 and 7).

14. **Since 2000, Russia has demonstrated a positive adjusted net savings (ANS) – which measures the difference between production and consumption when**

**Figure 6 Total wealth per capita in Russian Federation, 1995-2014**



**Figure 7 Change in wealth per capita in Russian Federation, 2014**

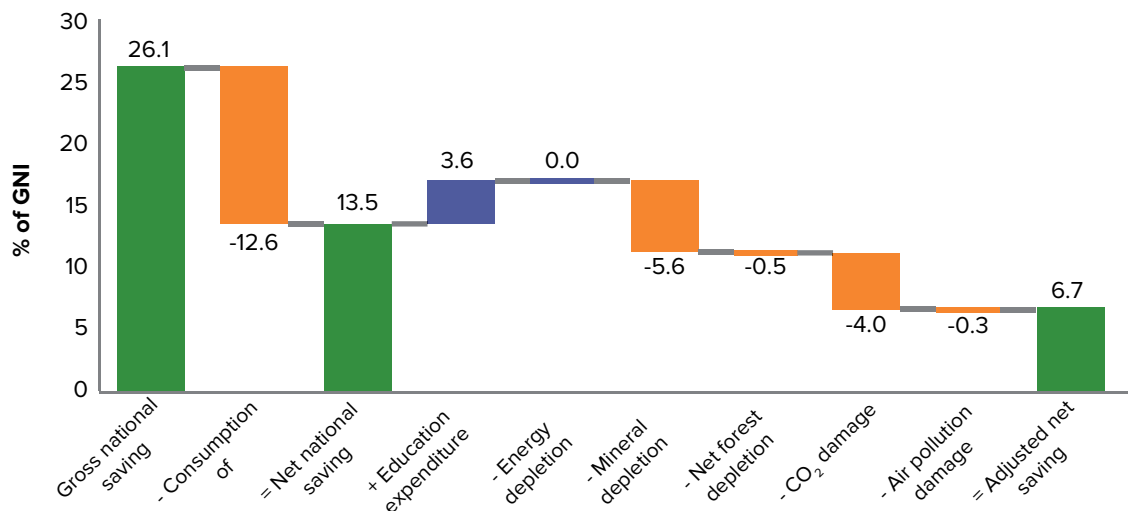


Source: Based on World Bank, *The Changing Wealth of Nation*, (2016). <http://siteresources.worldbank.org/ENVIRONMENT/Resources/ChangingWealthNations.pdf>

**adjusted for the use of natural resources and investment in human capital.**<sup>10</sup> This positive number indicates the addition of wealth and future well-being.<sup>11</sup> However, this

<sup>10</sup> Published annually in the World Development Indicators, the World Bank's adjusted net savings (ANS) indicator is a relatively simple measure of how sustainable a countries' growth policies are. Compared to standard national accounts (SNA), which only consider the value of a limited set of manufactured capital and assets, ANS offers a more inclusive picture by making four types of adjustments: i) Deduction for the depreciation of produced capital, measured by the consumption of fixed capital, which equals net national saving; ii) Addition of investments in human capital, measured by current public expenditures on education; iii) Deduction for the depletion of natural capital, including minerals, energy, and forest resources; and iv) Deduction for the damages from pollution, including carbon emissions and exposure to air pollution (PM2.5 and Ozone).

<sup>11</sup> Lange, Wodon, and Carey 2018

**Figure 8 Adjusted Net Savings in Russia, 2016**

growth has been achieved at the expense of natural capital, hampering the ability to save for future generations and putting long-term sustainability at risk (Fig 8).

**15. Climate change increases the Russian economy's vulnerability to weather-related hazards, including floods, storms and droughts.** A 10-year flood, could cause physical and human losses and generate economy-wide losses close to US\$32 billion, per World Bank estimates, which is equivalent to 2.1 % of Russia's GDP (2014). Other negative effects from the weather-related disasters include the destruction of capital stock assets and reduced labor productivity. With rising temperatures, Russia's forests face serious risks, including an increase in the number of forest fires and large-scale dieback, which could result in carbon release instead of sequestration. In addition, climate change will have a profound environmental impact on the Russian Arctic. While tapping the potential economic benefits of development of the Northern Sea Route, considering climate-resilient development in the Russian Arctic would preserve this area's pristine and fragile environmental assets.

**16. Although the Russian economy demonstrated a remarkable decoupling of growth from carbon emissions, Russia remains one of the largest GHG emitters and the third largest energy consuming country in the world.** Between 1990 and 2012 Russia demonstrated a remarkable decoupling of economic growth from carbon emissions – an increase of just 18% of GHG emissions for an increase of 96% of GDP. GHG emissions per capita declined from 14.69 tCO<sub>2</sub>/y in 1990 to 11.56 tCO<sub>2</sub>/y in 2012. Structural changes in the economy, the growth of sectors less energy-intensive, efficiency improvements in supply and demand, and the emergence of environmentally friendly technologies all contributed to this decoupling. However Russian GHG emissions remain rather large, at 2.6 times the global average.<sup>12</sup> Energy intensity has also decreased since 1990, but

<sup>12</sup> The cumulative emission reduction for the period 1990-2015 reached 43 billion tons of CO<sub>2</sub>-equivalent, which is more than the total global CO<sub>2</sub> emissions of all sectors excluding land use in 2015.

the Russian economy remains among the most energy intensive economies in the world. In 2015 the energy intensity per unit of GDP decreased by only 8 %, instead of the planned 26%.

## 3.2. Strategic Directions and Environmental Management Policies

**17. Overall, Russia's national policy directions on climate change and environmental protection are strategically aligned with economic, environmental and social sustainability principles.** Russia's overarching economic development goals are stipulated in the Concept for Long-Term Socio-Economic Development by 2020, adopted in 2008 (CLTD 2020).<sup>13</sup> Four main lines of action related to environmental protection are identified as key to supporting long-term Socio-Economic Development in Russia. The Climate Doctrine of Russia (2009 and 2016) underlines the importance of factoring in the effects of climate change in economic planning, through mitigation and adaptation in sectors most vulnerable to climate impacts. Natural resource strategies developed at the federal level promote energy efficiency and the use of renewable energy, better management of water resources, clean water, reducing waste generation and improving the air quality in urban areas.<sup>14</sup> Several regions – Murmanskaya and Archangelskaya Oblasts, and Yamalo-Nenetskiy Autonomous Okrug, have developed climate and sustainable development strategies aiming to complement national commitments and address issues of strategic importance.

**18. In 2017, the pillars of Russia's national environmental priorities were outlined in the "Strategy of Ecological and Economic Security till 2025."** That year was the Year of Ecology in Russia and garnered not only attention to the existing environmental challenges a high-level, but also embraced a large variety of Russia's stakeholders – from an active role in the private sector to citizen engagement. A lot of attention was paid to related projects such as the introduction of a new waste management system, and the best available technologies, protection of the Baikal natural territory, conservation of water and forest resources, development of a system of protected areas and the conservation of biodiversity. In 2018, as proof of high-level political commitment to resolve the existing environmental challenges, "ecological transformation" was included as one of 12 national programs under the Presidential Decree "On National Goals and Strategic Development Objectives of the Russian Federation for the Period until 2040" (See Box 2). The Ministry of Natural Resources and Ecology (MNRE) developed a National priority project "Ecology" (further – Project), which is planned to be approved by early October 2018. The Project is planned for the timeframe of 2019-2024 and will include 10 federal level programs in ten areas: "Clean Country," "Integrated Solid Waste Management," "Infrastructure for I and II Hazard Class I," "Clean Air," "Clean Water," "Improvement of the Volga river," "Conservation of Lake Baikal," "Preservation of unique water bodies," «Conservation of biological diversity and development of ecological tourism,» and «Preservation of forests.» In the current edition of the Project, the segment «Implementation of Best Available Technologies»

<sup>13</sup> The Concept of Long-Term Social and Economic Development to 2020, (CLTD 2020), approved by the Decision of the Government of the Russian Federation of November 17, 2008.

<sup>14</sup> See Energy Strategy of Russia till 2030 and Water Strategy of Russia till 2020

**Box 2 Presidential Decree “On National Goals and Strategic Development Objectives of the Russian Federation for the Period until 2040”. The Decree established the following goals:**

- Develop a comprehensive system for residential solid waste management, including elimination of waste disposal sites and reclamation of their locations, provide conditions for recycling all production and consumer waste barred from disposal;
- Establish and efficiently operate a public scrutiny system to identify and eliminate unauthorized waste disposal sites in all constituents of the Russian Federation;
- Establish a modern infrastructure to safely manage waste rated I-st and II-nd hazard and eliminate the most hazardous sites of past environmental liabilities;
- Implement comprehensive plans of action to reduce air pollution in major industrial centers, including the cities of Bratsk, Chelyabinsk, Cherepovetz, Chita, Krasnoyarsk, Lipetzk, Magnitogorsk, Mednogorsk, Nizhny Tagil, Norilsk, Novokuznetsk, and Omsk based on allowable negative environmental impact summary estimates for the cities;
- Use an environmental regulation system based on the best available technologies in all sites that produce substantial negative environmental impacts;
- Improve the quality of drinking water by upgrading water supply systems and using new water treatment technologies, including those developed by the defense industries;
- Clean-up water bodies including a project to ensure a threefold reduction in the volume of contaminated wastewater dumped into the Volga river, sustainable functioning of the Lower Volga water system, and conservation of the Volga-Akhtubinsk flood basin;
- Conserve unique water bodies including implementation of a project to conserve Baikal lake, and waste removal activities at the coasts and offshore strips of the Baikal, Ladozhskoye, Onezhskoye and Teletzkoye lakes and the Amur, Don, Ob, Pechora, Ural, Volga and Yenisei rivers.

(BAT) has been added<sup>15</sup>. As of now, the total project costs are estimated at the level of RUB 6.4 trillion (compared to the previous draft version of the Project the total costs were at the level of RUB1.55 trillion).

**19. National policies transformed from ‘reactive’ to ‘proactive’ to enable environmental management system to function and to transform the economy and society.** Russia’s political leadership embraced concerns about the deteriorating environment and related environmental health risks, and climate impacts on the economy, which are estimated at a 4-6% loss of GDP annually. Climate policies acknowledged that addressing climate change requires more than a single functioning system and that no single policy can guarantee emission mitigation. In addition to CO<sub>2</sub> mitigation commitments, the GORF launched a reform of environmental management systems which initially focused on enhanced environmental regulation in 12 oblasts. Key policy measures<sup>16</sup> include:

- Adoption and implementation of the principle of a producer’s responsibility for a product’s end-of-life (extended producer responsibility – EPR) as a key pillar of Russia’s waste management, recycling and recovery policy.

<sup>15</sup> <https://www.rbc.ru/business/31/08/2018/5b87fef19a7947eafc733778?from=main>

<sup>16</sup> Transcript of the “State Council Meeting on Ecological development of the Russian Federation for future generations” from 27 December 2016.



- Introducing a system for control and monitoring of the liquidation and regeneration of old waste dumps.
- Launching cleanup of 25 legacy hot spots in 20 oblasts for which the required public finance is around RUB 7 billion until 2019.

**20. National environmental management (EM) reform aims to strengthen pollution prevention and control by introducing BATs for industries.** BATs will be gradually implemented until 2025, including through the issuance of integrated pollution prevention permits; mandating impact assessments of industrial processes; reforming the national emission norms and standards, and economic incentives. As early as 2019, 300 highly polluting enterprises, whose negative impacts are equal to or more than 60% on environmental media, will be mandated to implement ecological modernization, including the installation of automated emission monitoring systems. Emission monitoring and control will be strengthened for all industry until 2025, by which time they must retrofit their production processes and become performance compliant in accordance with BAT technical guidance notes. It is estimated that some 6000 industrial enterprises will be preparing to obtain integrated environmental permits, of which at least 1500 – 2000 will have to mobilize significant financial resources for technological retrofitting, modernization and meeting the BAT requirements.

### 3.3. Climate Policies

**21. Russia's climate mitigation policies and priorities are conveyed in the 6th National Communication to UNFCCC** and further elaborated in the Russia Climate Doctrine (2009), and the Presidential Decree on GHG emission reduction from 2013, and the 2014 Implementation Plan. Russia's Climate Doctrine acknowledged the country's climate challenges and estimated the annual cost of damage from weather hazards to RUB60 billion. It also outlined the climate priorities that should be addressed in the future, including: disaster risk reduction, climate adaptation of the agriculture sector and improved management of water resources. Among the priorities conveyed in these documents the ones with the most significant impact on the greening of the economy include: increased share of energy from renewables, increased energy efficiency in the energy sector, expanding the use of energy efficient and environmentally friendly technologies in the oil and gas industries and adopting innovative eco-technologies in power generation and district heating. According to the 6th National Communication to UNFCCC by 2020 Russia aims to reduce energy intensity to GDP by 13.5% compared to its 2007 level, and the total GHG emissions by 393 MtCO<sub>2</sub> equivalent.

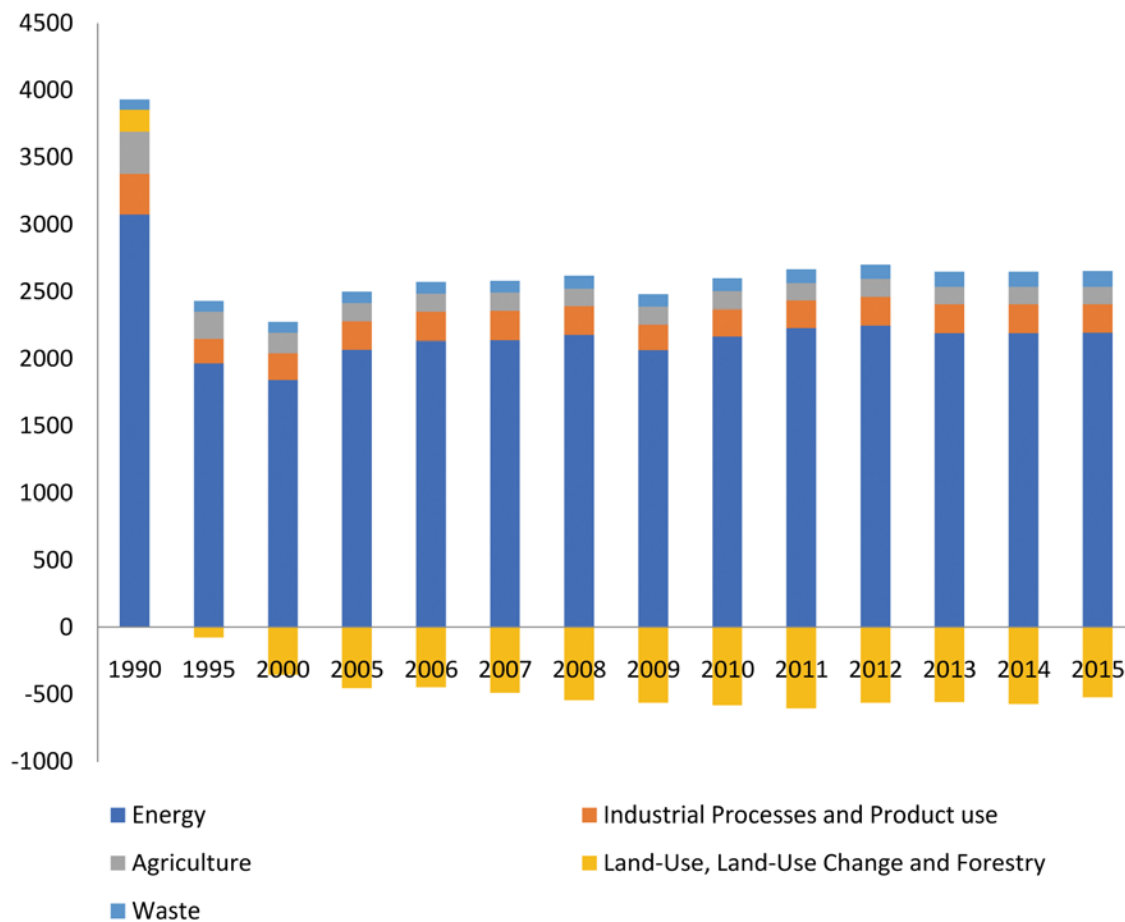
**22. The Paris Agreement became effective in November 2016 and had moved the horizon closer for policy changes and reversing environmental degradation.** By 2030 Russia's goal is to reduce GHG to 70% of its 1990 levels, which is equivalent to 2.76 billion Mt CO<sub>2</sub>, excluding GHGs from LULUCF. At the same time Russia had established a national target for 2020 to reduce GHG emissions to 25% below the 1990 level.<sup>17</sup> Concurrently, Russia aims to get recognition of the global significance of Russia's carbon sequestration capacity. Russia's NDC is aligned with the national

<sup>17</sup> Presidential Decree #752 from September 30, 2013 "On greenhouse gas emission reduction and the plan for its implementation approved by the GRF Decree #504-r from April 2, 2014.

policy priorities and sets an obligation to maintain GHGs in 2030 at 25-30% lower than the 1990 level, and set the country on the path toward low carbon growth. For Russia, the Paris Agreement is an opportunity for a green transformation

**23. Russia significantly increased its contribution to CO<sub>2</sub> sequestration.** Since 1990, the net-sink of GHGs from the land use, land use change and forestry sector (LULUCF) increased to 540 - 570 million tons CO<sub>2</sub> per annum. This was due primarily to carbon sequestration from the world's largest boreal forest in Russia. Russia's greenhouse gas emissions in 2014 stood at 2.6 billion tons (Rosstat 2016), 84% of which are generated by the energy sector, followed by the industry 7.7%, agriculture 4.4% and waste 3.3%. In 2015 greenhouse gas emissions were recorded at 58.5% of the total level in 1990.<sup>18</sup> In 2017, during the last year of inventory, the LULUCF sector remained a significant sink of greenhouse gases, offsetting 19.6% of emissions occurring in other sectors. (Fig 9).

**Figure 9** Dynamics of annual GHG emissions/removals in Russia, 1990-2015 (MtCO<sub>2</sub>-eq)



Source: GHG Inventory Submission by the Russian Federation under UNFCCC (<http://unfccc.int/di/DetailedByParty.do>)

<sup>18</sup> [https://unfccc.int/files/national\\_reports/biennial\\_reports\\_and\\_jar/submitted\\_biennial\\_reports/application/pdf/2br\\_rus.pdf](https://unfccc.int/files/national_reports/biennial_reports_and_jar/submitted_biennial_reports/application/pdf/2br_rus.pdf)

**24. Russia has huge potential for larger contributions to the mitigation of GHG emissions by tapping into the economic benefits of energy efficiency.** According to various estimates, energy losses alone amount to 50% of consumption. Savings to the economy from investing in increased efficiency at generation facilities could be enormous. For instance, 1 kWh of saved energy costs between a quarter and half the price of the same kWh produced by newly built generating facilities (Bobylev et al. 2011). By ignoring the consequences of its CO<sub>2</sub> emissions, Russia risks compromising its international commitment to fighting climate change. Achieving its full energy efficiency potential would require a total of US\$320 billion in investments from private and public organizations and households.<sup>19</sup> This investment would result in end user annual cost savings of about US\$80 billion, and payback over just four years.

**25. Russia is researching bolder options for the "greening" of the economy.** Although there is no formal acknowledgment of plans to set the economy on the path of deep decarbonization (DDP),<sup>20</sup> a few possible scenarios for DD were outlined in the DDP project funded by the UN for 16 countries – all large CO<sub>2</sub> contributors, including Russia. While DDP project recommendations are indicative and general for all participating countries, they state that for "deep decarbonization" of the economy the average gross national investment, including for introducing low-carbon technologies, is approximately 1-2% of the annual GDP. This equals 6-7% of the total annual investments of the participating countries. Evidently, these countries, including Russia, would have to mobilize significant financial resources for improving much of the infrastructure stock, replacing inefficient and carbon-intensive technologies with efficient and low-carbon technologies that provide the same (or better) energy services. The DD path is, in fact, a shift in the investment approach from fossil fuel to low-carbon technologies which, if DDP is adopted, will require a major boost of private sector finance and an enabling investment framework. Box 3 provides highlights of the DDP analysis.

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<sup>19</sup> The IFC, World Bank. Energy Efficiency in Russia: Untapped Reserves, Report 46936

<sup>20</sup> Pathways to Deep Decarbonization 2015 Executive Summary. Published by the Sustainable Development Solutions Network (SDSN) and the Institute for Sustainable Development and International Relations (IDDRI), September 2015. DDPP fills a gap in the climate policy dialogue by providing a more concrete understanding of what is required for countries to reduce emissions consistent with the 2°C limit. The research teams develop "deep decarbonization pathways" (DDPs)—sector-by-sector blueprints of changes over time in physical infrastructure such as power plants, vehicles, buildings, and industrial equipment—that inform decision makers about the technology requirements and costs of different options for reducing emissions. DDPs are not forecasts of future outcomes, but "back-casting" that begin with an emissions target in 2050 and determine the steps required to get there.

### Box 3 Russia's Deep Decarbonization Path

The DDP focuses on several priority sectors including power, transport, building, agriculture land use and forestry, and industry. The DDP project demonstrates that deep decarbonization is compatible with development and economic growth. DDP provides a unique context for understanding the ambition of NDCs, and the measures and investment needs deep decarbonization entails.

DDP supports current policy and investment decisions by making the long-term emissions consequences of these decisions explicit. DDPs can help avoid lock-in to “dead end” investments that produce incremental emissions reductions in the short term but are not compatible with deep decarbonization in the long term, posing the risk of early retirement of equipment or failure to meet emissions targets. DDPs are needed to coordinate policy and investment across jurisdictions, sectors, and levels of government.

DDP analysis demonstrates that reduction of uncontrolled fossil fuel emissions has significant public health benefits, as seen in the China and India cases, since fossil fuel combustion is the major source of air pollution. In China DDP resulted in reductions of 42-79% of primary air pollutants (e.g., SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, VOCs, and NH<sub>3</sub>), sufficient to allow the country's major cities to meet air quality standards. (SDSN – IDDRI 2015). The cost estimates of DDP investment scenarios are based on key low carbon technologies and have three tiers: low carbon power generation; low carbon fuels production and low carbon transport vehicles (passenger and freight). Russia, as part of the DDPP, could eventually benefit from the analysis when projecting the investment needs for technology transformation in carbon intensive sectors.

*Source: Sustainable Development Solutions Network (SDSN) and the Institute for Sustainable Development and International Relations (IDDRI) 2016*

## 3.4. Sustainable Development Goals (SDGs)

26. **Russia is committed to the 2030 Agenda for Sustainable Development and Sustainable Development Goals (SDGs).** In 2016 experts from the Analytical Center under the Government of the Russian Federation interpreted the SDGs for Russia and defined the socio-economic trends in 2016 as a base year for meeting the SDG commitments in 2030 (See Box). In 2000 Russia started measuring sustainable development in regions by using SD indicators and introducing wealth accounting. The governments of the Kemerovo, Kostroma, Samara, and Tomsk Regions, pioneered «genuine savings» by factoring in the social and environmental costs of economic growth. The Interdepartmental Working Group, established in 2016 under the Administration of the President of the Russian Federation on issues related to climate change and sustainable development, launched an assessment of key policy documents adopted from 2007 to 2016 for consistency with SDG goals. As the leading state agency for monitoring the implementation of SDGs, Rosstat,<sup>21</sup> along with federal executive bodies,

<sup>21</sup> Order of the Government of the Russian Federation as of June 6, 2017 No.1170-r).

**Box 4 Russia's Environmental SDGs (SDG #6, 14 and 15)**

Targets	Indicators	Current status in Russia (2016)	Indicative target by 2030
SDG 15/15.1 By 2020, ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with international agreement obligations	15.1.1 Area of forests, certified by internationally recognized schemes and voluntary forest certification	25% of forest area under lease agreement is FSC certified	50%
	15.1.2. Area intact forest territories	15% certified forests in quality of HCVF and excluded from cuttings	30%
SDG15/15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 The territory of protected areas is no less than 17% of the territory of the country by 2020	11.4%	17%
SDG15/15.3 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.	15.3.1 Number of national plans and development processes in which the value of biodiversity and ecosystems is integrated.	Plans are not available	Strategy of socio-economic development takes into account the economic value of biodiversity and ecosystems services

has been charged with developing a roadmap for improving the official statistical data collection methods for SDG reporting. Data is currently collected on 73 indicators from an international list of SDG indicators. Developing Russia's national SDG reporting platform for delivering information to the the UN system is in progress.

**27. Russia's GHG emission reduction goals and commitment to SDGs demonstrate an intent to turn the tide on decades of heavy dependence on resource extraction and fossil fuels.** Russia has been developing national strategic documents and plans pertaining to environmental and climate policies and sustainable use of its natural resources, but still needs to demonstrate implementation results and increase the availability of environmental information for decision making.

**28. Russia needs to emphasize the use of regulatory and economic mechanisms in order to reverse current trends of environmental degradation and depletion of natural capital.** Market-based approaches to environmental management will enhance

the leveraging power of public resources and catalyze private investments in clean and resilient development. According to MNRE if the current levels of emissions (air and water) and waste generation are sustained until 2050, cumulatively Russia will generate: air pollutants in the amount of 925 million tons; untreated waste water - 457 billion cub. m. and waste -190 billion tons, including hazardous waste of 15 billion cub. m. If this trend is sustained, Russia is unlikely to meet its own pollution reduction targets nor curb the economy-wide losses of natural capital. Given the burden of environmental degradation, the current budget resources which equal to 0.7% of GDP (2016) seem inadequate to address the economic losses estimated at 6% of GDP, or 15% of GDP if expressed as an economic cost of health impacts. Russia needs to increase the level of public environmental spending by at least two times—it is currently two times less than that of most developed countries including the USA. Without massive investments supporting environmental and climate policies, addressing domestic environmental problems and honoring international commitments could be increasingly challenging if the only source of financing environmental protection were to remain the public sector. Strategies to mobilize private sector investments in greening and cleaning the economy need to capture as many low-cost opportunities as possible. This is where private investments could play an important role. For this to happen Russia's public policies must define the boundaries of "green" finance markets.

# 4

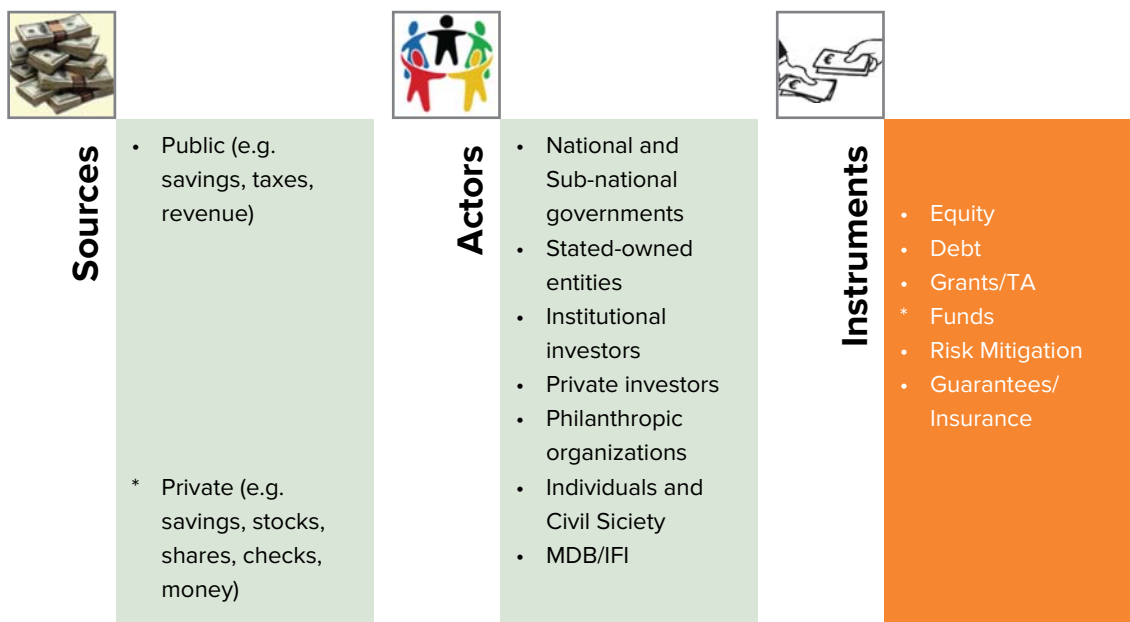
## DEMAND AND SUPPLY SIDE OF FUTURE GREEN FINANCE MARKET





29. On the “demand and supply” side of green projects it’s possible to distinguish two groups of main players: the public and private sector institutions and organizations (see Fig 10). Each of them through their mandates could stimulate development of the green finance market, as well as promote more responsible investing for environmental protection and resource efficiency in sectors which have not been able to pick up the “green investment” paradigm due to various constraints. Public institutions include: Ministry of Finance, Ministry of Economic Development, Central Bank, sectoral ministries (Ministry of Energy, etc), state development banks, etc. On the private sector side, the banking sector (investment banks, commercial banks) leads and involves institutional investors, corporations, and SMEs. Green investments or projects are originated by the government, corporations or individuals. Resources to fund those green projects can be provided by the public sector, financial institutions, institutional investors and multilateral organizations as well as corporations using their own equity and revenues.

**Figure 10** An overview of Public and Private Green Finance

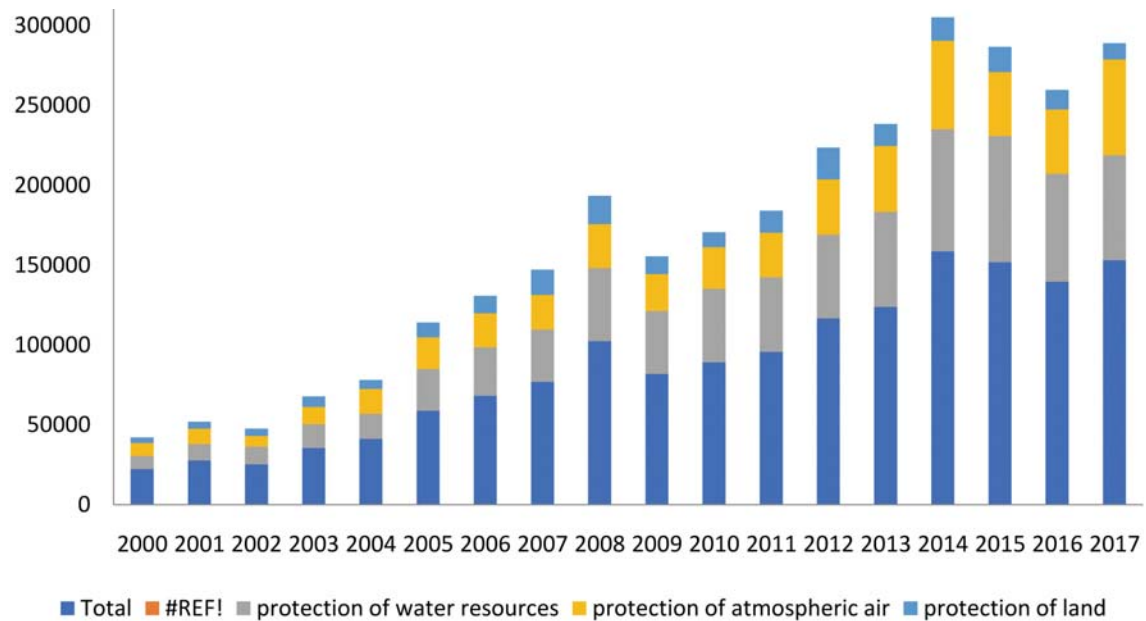


## 4.1. Public sector role in facilitating green finance market development

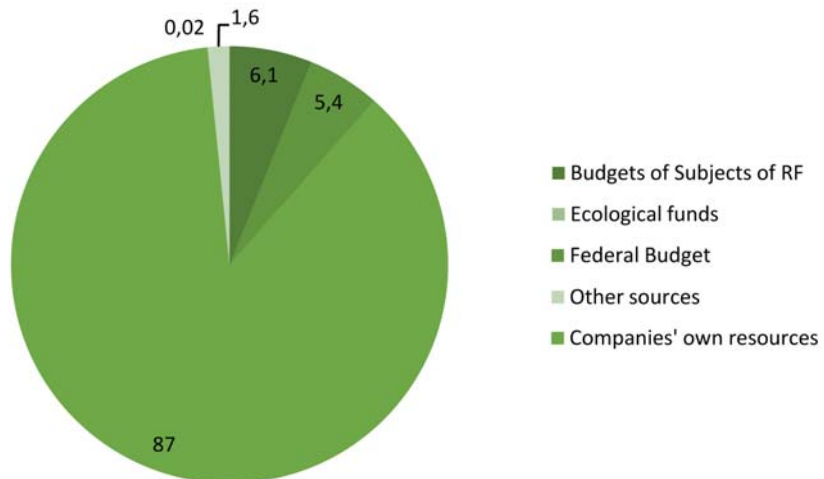
30. On the public side, national sustainability priorities need to be backed by ‘green’ economic drivers and substantial financial resources to reverse the current trend of decreasing public spending on environmental protection. Developed countries spend on average 2-3% of GDP annually on environmental management. Many developing countries spend less than 1% of GDP on environmental protection annually, suggesting that catering to the environment is less of a priority. In 2014, OECD countries reported an average (government) spending on environmental protection in their national accounts of 1.1% of total government expenditure. For example, Poland spends 1%, Germany 1.2%, Hungary 1.3%, Switzerland 1.7%, Greece 2.5%, Slovenia 2.7%, and Latvia 2.6%. Russia’s public environment expenditure is comparable to that of developing

countries. From 2003-15 the share of environmental expenditures as a percentage of GDP decreased from 1.3% to 0.7%. Capital investments in environmental protection had shown a growth trend in actual prices in Rubles since 2010. (Fig 11) However, the majority of these investments are financed by companies (Fig 12). It is estimated that to set Russia on the path of sustainable development, environmental expenditures should be no less than the 2003 level - 1.3% of GDP. Changes are taking place on many fronts, starting with policy changes and public discussion of green finance markets.

**Figure 11** Capital investment in environmental protection in Russia, 2000-2017 in million RUB, actual prices



**Figure 12** Capital investments in environmental protection in 2016, by sources of funding, %



**31. Public investments have significant potential to scale up the ‘greening’ and ‘decabonization’ of the economy.** This includes leveraging private investments in energy, municipal waste, wastewater treatment, and transport infrastructure, construction sectors and large multipurpose water infrastructure. Trillions of rubles will be needed for the green transformation of many industries. For example, it is estimated that implementation of BAT will require funding in the amount of RUB4-8 trillion. The estimated climate-smart investment potential in selected sectors in Russia is nearly US\$313 billion from 2016–2030. According to IFC estimates the near-term potential for climate-smart investments by 2020 is US\$9.3 billion in renewables and US\$47 billion in urban infrastructure, including US\$6 billion in transport and US\$22 billion in building retrofits.<sup>22</sup>

**32. Bridging the green infrastructure gap will require complementary financing from public and private sectors.** Public policies and markets alike should create opportunities for blending public and private finance. Private commercial finance can support investments in private assets, such as factories and machinery, provided they generate a financial return for their owner that is superior to the risk-adjusted cost of capital<sup>23</sup>. Private investors respond to private returns, not to social returns, therefore, when price signals do not reflect social costs and benefits (e.g. because of negative or positive spillovers), private incentives will not align with public incentives.<sup>24</sup> Corrective pricing (e.g. a carbon tax in line with the social cost of carbon) is therefore both necessary and effective in many cases to spur the requisite private investments<sup>25</sup>. The key towards mobilizing the private sector for green investments is to combine public financing, regulation, and private market participation into an effective public-private partnership.

**33. Reducing barriers that prevent industries from actively investing in greening must be incorporated in future green finance strategies of Russia.** Targets include: (i) the predominance of resource-based industries and industries with high amounts of waste; (ii) low level of awareness on the part of business and government about the benefits and opportunities offered by a company’s eco-oriented policy; and (iii) inadequate regulation and the lack of an adequate regulatory framework and vested interests. Measures for augmenting the attractiveness of green projects could complement the green finance instruments discussed in the following sections and enhance the effectiveness of public sector policies in steering up the markets.

**34. Green finance markets need adequate regulatory incentives to promote more green projects.** Businesses are often misaligned with the social objective of sustainable development, exacerbating social exclusion and environmental degradation. Greater attention to promoting environmental and socially responsible production in resource-based industries could change behaviors. There are examples of companies willing to work towards sustainable development, but they lack good interfaces to work with the public sector. Around the world, a variety of tax and subsidy corrections are used to provide incentives for businesses in line with social costs and benefits. Examples include tax credits for investments in new (risky) technologies, feed-in tariffs for renewable

<sup>22</sup> Climate Investment Opportunities in Emerging Markets, An IFC Analysis. 2016

<sup>23</sup> Sachs and Schmidt-Traub (2014)

<sup>24</sup> Ibid 1

<sup>25</sup> Ibid 2

energy, carbon pricing, tobacco taxes, and investment and export guarantees or insurance. Countries with supportive regulatory and tax environments attract more green investors and tend to offer more financing options. Government policies should promote and finance programs for low-impact development projects and green infrastructure, including free technical assistance for green project development.

**35. To leverage the effect of fiscal measures on green finance, Russian authorities could promote green public procurement.** Green public procurement requires that environmental performance considerations be embedded into the government's procurement decision-making process in the same manner as price, performance, quality and availability. Public authorities are major consumers in Russia: they spend trillions of rubbles annually, representing around one third of Russia's GDP. By using their purchasing power to choose goods and services with lower environmental impacts, they can make an important contribution to sustainable consumption and production.

**36. Public sector measures targetting the environmental impacts of small and medium-sized enterprises (SMEs) are among the key factors in greening the economy.** Although the individual environmental footprint of small and medium-sized enterprises (SMEs) may be low, they contribute around 20% to Russia's GDP, and their aggregate impact could be considerable. Improving the environmental performance is also a significant business opportunity for SMEs themselves as suppliers of goods and services along the production chain. A number of countries have developed policy and financial measures to encourage SMEs to improve their environmental performance. For example, the EU Green Action Plan for SMEs aims to (i) improve the resource efficiency of European SMEs; (ii) support green entrepreneurship; (iii) exploit the opportunities of greener value (supply) chains; and (iv) facilitate market access for green SMEs.

**37. Given the vast investment needed to green the economy, Russia's financial system could finance large amounts of bankable green projects if enabling public policies were to be put in place.** Together, institutional investors such as pension funds and insurance companies manage about RUB8 trillion (including nearly RUB4 trillion managed by private pension funds)<sup>26</sup> with continued growth in funds under management occurring in Russia over recent years. Investments in corporate debt dominate asset allocation in pension funds, followed by government securities. Retail deposits reached nearly RUB25 trillion and there is an upward tendency in the increase of individual investment accounts, where private individuals have already invested in assets worth over RUB50 billion.<sup>27</sup> Gradually improving macro-economic and financial sector conditions provide a favorable environment for developing green finance and channeling institutional and retail investor funds into green assets.

**38. The public sector plays a key role in facilitating the development of green finance markets through the creation of a positive "enabling environment."** The financing gap for sustainable infrastructure is in large part the result of poor policies and institutional failures. The fact that sustainable-infrastructure projects typically have higher up-front capital costs makes them even more sensitive to the cost and availability of capital. A

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<sup>26</sup> CBR

<sup>27</sup> CBR

positive “enabling environment” – the policy, regulatory, and market context in which investors operate—makes it easier to mobilize private finance. For example, uncertainty about tariffs, tax and subsidies for green investments raise investors’ concerns about future consumer demand and project returns. Poor contract enforcement also reduces investor confidence in long-term returns. Inefficient bidding and procurement processes also discourage private investment. Providing a sound and stable regulatory and tax policy framework; publishing the pipeline of green projects and adopting a transparent public procurement process with well-defined environmental sustainability criteria are examples of public sector policies that help create an enabling environment.

**39. Integrating a green agenda into capital market development would help stimulate green financing.** Domestic markets provide half of private and PPP financing for infrastructure in middle-income countries. Domestic investors are more knowledgeable about policy risk, and insulated from currency risk. Effective ways to develop capital markets include developing prudent regulations that facilitate the channeling of institutional investors’ funds towards non-sovereign long-term assets; a favorable tax regime for long-term savings, and creating preferences for local players. Developing green finance instruments requires regulations that approve its use and create listing criteria.

**40. Public financial instruments could catalyze and augment the effect of private financing for green investments.** Typical characteristics of green infrastructure finance include high up-front capital costs, long payback periods and greater reliance on regulatory frameworks (e.g. prices on carbon). These features often lead to a greater need for public-sector financing. The public sector and public financial institutions in particular can help mobilize private resources by assuming risks that the private sector is not willing to take. Making efficient use of available risk mitigation instruments is important given its limited availability. Similarly, it is critical to identify important risks that aren’t adequately covered in the country. Both can improve the risk-return profiles of climate-related projects. For example, the public sector can direct resources towards project-preparation facilities. Also, public development institutions can provide partial credit guarantees, participate on loan syndications with private institutions or act as anchor investors on funds investing in green assets. Over time, the experience of public sector development institutions could help other actors, such as private-sector and institutional investors, developers, operators, and governments to get more comfortable with taking on such projects. Section 7 will elaborate on how countries are supporting green finance development using public financial institutions.

**41. Authorities can also outreach institutional investors to educate them on the opportunities to improve performance and diversify risks through investments on green assets.** Investing in green finance products is not only good for the environment but also a way to diversify risks and improve returns. Lack of investor familiarity with greener technologies and projects and the financial benefits of green investments contribute to the green finance investment gap. Institutional investors should ensure that their internal investment teams and external managers are factoring in climate change opportunities and risks, in both listed and unlisted investments. In recent years, for example, pension funds and insurers have shown interest in renewable energy, because these investments can be inflation adjusted, have low correlations to other assets, and provide long-term steady cash flow. Also, investors are increasingly

focused on measuring climate-related risks. Russian institutional investors seem to be relatively unfamiliar with the concept of green finance or with climate-related risks and the public sector could play an important advocacy role.

**42. In Russia, a variety of factors are impeding the development of green finance that can be traced to the absence of a champion public sector agency coordinating and formulating a national green financing roadmap.** Those include (i) lack of an ample pipeline of green projects due to modest carbon reduction targets; (ii) lack of regulatory framework for green finance instruments; (iii) incipient involvement of the domestic development financial institutions in the green agenda; and (iv) lack of awareness of pension funds, and other institutional investors, of the risks and return opportunities associated with green finance. Promoting new instruments or platforms requires coordinated action, as illustrated by experience in developing green bond markets, and is important to having an institution assume leadership and ensure cooperation of developers, investors, and regulators. Many countries have launched National Sustainable Finance Roadmaps over the past year that identify system-wide needs, barriers to private sector capital mobilization and priority actions.

# 5

## GLOBAL TRENDS AND DEVELOPMENTS IN GREEN FINANCE





**43. Green finance is an emerging but rapidly growing segment of financial markets.** Momentum around the role of the financial sector in supporting sustainable development and addressing climate change has been generated by the G20, and further strengthened by the Financial Stability Board and the Paris Agreement and associated NDCs. While some progress has been made in green finance, only a small fraction of bank lending is explicitly classified as green according to national definitions. Less than 1 percent of global bonds are labeled green, and less than 1 percent of the holdings by global institutional investors are green infrastructure assets.<sup>28</sup> It is estimated that green bonds mobilized US\$155.5 billion in 2017 and banks issued US\$164.7 billion in green loans (2014).<sup>29</sup> Yet defining and measuring the size of the market remains a challenge due to a lack of consistency in the definition of green and the diversity of approaches across the countries and financial instruments.

**44. The definition of green financing is still evolving.** The G20 Green Finance Study Group defines green finance as the “financing of investments that provide environmental benefits<sup>30</sup> in the broader context of environmentally sustainable development”.<sup>31</sup> ‘Green finance’ is generally used to convey something broader than climate finance, in that it addresses other environmental objectives and risks. Green finance covers a wide range of financial institutions and asset classes, and includes both public and private finance.

**45. A growing global focus on enhancing the ability of the financial system to mobilize private capital for green investment and to manage climate-related risks has led to increasing international cooperation on green finance.** There is a range of initiatives and networks, globally and nationally, with the aim of promoting policy dialogue, raising awareness, tracking progress, and developing regulations and standards in relation to green finance. Some leading and emerging efforts include:

- G20-led initiatives such as Green Finance Study Group and GreenInvest - the G20 platform for promoting policy dialogue, leadership, and public-private initiatives with and for developing countries in advancing the mobilization and mainstreaming of green finance in the context of broader sustainable development objectives.<sup>32</sup>
- Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures – seeks to develop recommendations for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear, and efficient, and provide decision-useful information to lenders, insurers, and investors.<sup>33</sup>
- IFC-supported Sustainable Banking Network (SBN) – a knowledge and capacity-building platform of financial regulators, banking associations, and environmental regulators from emerging markets committed to developing sustainable finance frameworks based on national context and priorities, as well as international good

<sup>28</sup> G20 Green Finance Study Group (2016), G20 Green Finance Synthesis Report, access at <http://g20.org/English/Documents/Current/201608/PO20160815359441639994.pdf>.

<sup>29</sup> Green Finance A Bottom-up Approach to Track Existing Flows, International Finance Corporation, 2017.

<sup>30</sup> These environmental benefits include, for example, reductions in air, water, and land pollution; improved energy efficiency; and mitigation of and adaptation to climate change.

<sup>31</sup> G20 Green Finance Study Group 2016.

<sup>32</sup> <https://www.green-invest.org/>

<sup>33</sup> <https://www.fsb-tcfd.org/>

practices. IFC acts as the Secretariat of the Network, playing the role of facilitator and technical adviser to SBN.<sup>34</sup> Most recently, the SBN The SBN Green Bond Working Group released a Green Bond Market Development Toolkit.<sup>35</sup>

- OECD Centre on Green Finance and Investment – helps catalyze and support the transition to a green, low-emission and climate resilient economy through the development of effective policies, institutions and instruments for green finance and investment.<sup>36</sup>
- UN Environment-supported Green Digital Finance Alliance – aims to leverage digital technology & innovations to enhance financing for sustainable development.<sup>37</sup>
- The Central Banks and Supervisors Network for Greening the Financial System (NGFS) – a group of central banks and supervisors established to exchange experiences, share best practices, contribute to the development of environment and climate-risk management in the financial sector, and to mobilize mainstream finance to support the transition toward a sustainable economy.<sup>38</sup> Bank de France serves as the NGFS secretariat, and BIS, WBG, OECD and other institutions joined as observers.

**46. While the potential for scaling up green finance is significant, the market uptake is still uncertain and faces a number of challenges.** The challenges limiting development of green finance include both those specific to green projects (e.g. the lack of consistency in the definition of green), and those specific to the general financial sector (e.g. underdeveloped capital markets or maturity mismatch). In the broader context, the key challenges that slow down the development of green finance globally and nationally include (i) lack of strategic policy signals and frameworks at the national level; (ii) lack of consistency in green definitions; (iii) lack of consistency in measurement of green finance flows and associated impacts; (iv) low level of awareness about green finance; and (v) weak capacity of the stakeholders to assess environmental and financial risks associated with underlying projects. A number of approaches have been developed to address these challenges, ranging from mandatory investments to voluntary disclosure; they are discussed in Section 6.

#### *Overview of green finance instruments*

**47. While green finance is an emerging segment of financial markets, a range of financial instruments such as green loans, green bonds, green funds, and green index products has been developing rapidly.**

<sup>34</sup> [www.ifc.org/sbn](http://www.ifc.org/sbn)

<sup>35</sup> Creating Green Bond Markets – Insights, Innovations, and Tools from Emerging Markets; Sustainable Banking Network, 2018

<sup>36</sup> <http://www.oecd.org/cgfi/>

<sup>37</sup> <https://www.sustainabledigitalfinance.org/about-sdfa>

<sup>38</sup> <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system/about-us>

## 5.1. Green bonds

**48. Green bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green projects.**<sup>39</sup>The key fundamental principal of a green bond is the utilization of the proceeds of the bond for green projects. Green projects aim to address key areas of environmental concern such as climate change, natural resources depletion, loss of biodiversity, and air, water or soil pollution. The most common types of projects include renewable energy, energy and resource efficiency, clean transportation, green buildings etc. All designated green projects should provide clear environmental benefits, which will be assessed and, where feasible, quantified by the issuer.<sup>40</sup> The EU Green Bond is any type of listed bond instrument meeting the following requirements:<sup>41</sup>

1. The proceeds will be exclusively used to finance or refinance in part or in full new and/or existing eligible green projects, in line with the future EU Sustainability Taxonomy; and,
2. The issuance documentation of the bond shall confirm the intended alignment of the EU Green Bond with the EU Green Bond Standard; and,
3. The alignment of the bond with the EU Green Bond Standard has been verified by an independent and accredited external reviewer.

An issuer may only use the term 'EU Green Bond' if the above criteria are met.

**49. Many jurisdictions have developed their own national taxonomies of what constitutes eligible projects for a green bond.** Most notably, China's Green Bond Finance Committee has issued a Green Bond Endorsed Project Catalogue. Recently, the EU, under its Financing Sustainable Growth Action Plan, announced plans to establish the unified EU classification (taxonomy) for sustainable activities applicable to all types of assets. Common classification systems will provide detailed information on the relevant sectors and activities, based on screening criteria, thresholds and metrics. This is an essential step in supporting the flow of capital into sustainable sectors in need of financing. An EU taxonomy will be gradually integrated into EU legislation to provide green projects with more legal certainty.<sup>42</sup>

**50. Green bonds are regulated instruments subject to the same capital market and financial regulation as other listed fixed income securities.** However, some jurisdictions, mainly China, started developing specific regulations and guidelines on the issuance of green bonds. For example, in 2017 China's Securities Regulator issued new green bond guidelines. The Guidelines prohibit companies in industries that have high emissions or energy usage rates, or are disfavored by national industrial planning policy, from issuing green bonds. In addition, the Guidelines require detailed environmental disclosures from the issuer both during the application for issuance and

<sup>39</sup> The Green Bond Principles (GBP) 2017, International Capital Market Association

<sup>40</sup> The Green Bond Principles (GBP) 2017, International Capital Market Association

<sup>41</sup> Financing a sustainable European economy, Final Report 2018 by the High-Level Expert Group on Sustainable Finance. EU High-Level Group on Sustainable Finance (HLEG) was established by the European Commission in late 2016 to help to develop an overarching and comprehensive EU roadmap on sustainable finance.

<sup>42</sup> Action Plan: Financing Sustainable Growth. EU

throughout the life of the bonds, as well as submission of a commitment letter to CSRC, confirming the issuer's intention to utilize funds raised through green bonds only for green projects conforming to the Guidelines.<sup>43</sup>

**51. Efficient markets require standardization, transparency, disclosure and evaluation tools to allow for comparison among green investments and financial instruments and their widespread acceptance.** Green bond principles and standards are an important step towards promoting green finance as they provide a standardized set of rules for the issuance of green bonds. They enhance the transparency for issuers of green bonds, reduce due diligence costs and help investors make informed decisions. They also provide guidance to market participants on the use and management of proceeds, processes for project evaluation and selection, and reporting.

**52. The green bond market is the most evolved financial instrument in terms of green finance definitions and tracking.** In 2014, the Green Bond Principles (GBP) were issued under the leadership of the International Capital Market Association. The Principles provide voluntary process guidelines to issuers on the key components involved in launching a credible green bond, ensure the availability of sufficient information to evaluate the environmental impact of a green bond investment, and help underwriters facilitate transactions through standard disclosure processes.<sup>44</sup> The GBP have four core components: (i) use of proceeds; (ii) process for project evaluation and selection; (iii) management of proceeds; and (iv) reporting. They are updated once a year, reflecting the development and growth of the global green bond market. Since the GBP are the internationally recognized voluntary issuance guidelines that promote transparency, disclosure and reporting in the green bond market, several guidelines and regulations issued since then have built on the framework of Green Bond Principles, such as those of China, ASEAN, Indonesia and many others. The most recent initiative by the EU will introduce an official EU Green Bond Standard by 2019, and as a next step develop an EU Green Bond label or certificate to help the market develop fully and maximize its capacity to finance green projects that contribute to wider sustainability objectives.

**53. Evidence of a price premium, or 'greenium' (a term used for green bonds that are heavily oversubscribed and are priced tighter than vanilla bonds) is not well established for green bonds.**<sup>45</sup> Green bonds are in high demand and they are regularly oversubscribed. While some suggest that they may have the potential to attract a pricing premium, or 'greenium' compared to vanilla bonds, especially in liquid global markets such as USD and Euro denominations, no conclusive empirical data exists to confirm this assertion.<sup>46</sup> Sovereign green (and non-sovereign green) bonds typically price on or very near the yield curve of vanilla bonds. Results from some recent studies<sup>47</sup> indicate that green bond issuers on average have borrowed at lower spreads than they have through conventional bonds – the mean difference in spread being around 18 basis points, with the green yield difference greater for riskier borrowers. An 18-basis-point lower credit spread would be significant relative to the potential costs of a green label or rating. The certification fee for the green label of the Climate Bonds

<sup>43</sup> <https://www.latham.london/2017/04/chinas-securities-regulator-issues-new-green-bond-guidelines/>

<sup>44</sup> The GBP have four core components: 1. Use of Proceeds; 2. Process for Project Evaluation and Selection; 3. Management of Proceeds; 4. Reporting

<sup>45</sup> Guidance for sovereign green bond issuers, IFC 2018

<sup>46</sup> <https://www.climatebonds.net/files/files/Greenium%20Q3-Final-20180219.pdf>

<sup>47</sup> BIS Quarterly Review, September 2017

Initiative is a flat 0.1 basis points of the issue value (though the CBI also requires the external engagement of a party that verifies procedures and reports). As for the green assessments of the major rating agencies, even if they were to be as expensive as a normal credit rating (3–5 basis points of the issue volume [White;2002]), the costs would be far less than 18 basis points.

**54. For issuers, green bonds have a favorable reputational effect while fund managers use green assets as a way to hedge carbon risks and to satisfy investors' mandates to invest on sustainable assets.** While it is unclear whether green bonds allow to access cheaper funding, green bond issuance provides additional benefits to issuers. These revolve more around national leadership in the green financing agenda, exposure to a new investor base and solidifying a country's commitment to complying with the Paris Climate Change Agreement. Sovereign green issuances also can create markets for corporate and financial sector issuances by putting in place a well-considered green bonds policy framework, and making a demonstration issuance. The most recent examples of sovereign issuances include those of Belgium, France, Poland, Indonesia, Nigeria and Fiji. Asset managers on the other side have shown eagerness to invest in green assets. Green bonds are seen as a good hedge against carbon-transition related risks. Furthermore, investors are increasingly focused on allocating their savings towards sustainable investments, with over-subscription of green bonds being commonplace in both developed and emerging markets. Green bonds have yields and ratings comparable to other available investments, with the added benefit of proceeds going to assets or projects addressing climate change. There is growing interest in climate-aligned investment from PRI signatories (1,525 to date, with US\$60 trillion under management) and from other investor groups. Institutional investors representing US\$11.2 trillion in assets signed the Paris Green Bonds Statement to scale up investment in green bonds, climate bonds and other bonds financing mitigation of and adaptation to climate change.<sup>48</sup>

**55. The green bond market has witnessed rapid growth since its early days, with over 1500 issuances in 2017 valuing US\$155.5 billion, a 78 percent increase compared to 2016.** The global market is expected to reach US\$250 billion in 2018.<sup>49</sup> There were 239 different issuers, more than half of which were new. The bonds covered 37 different countries across the globe. There are signs of a range of issuers building significant momentum—including the relatively new class of sovereign countries. France, Poland, Fiji and Nigeria are the sovereign pioneers, with more issuances expected in 2018 from countries including Belgium, Ghana, Hong Kong, Indonesia, Kenya, Morocco and Sweden.

## 5.2. Green Loans and Green Lending Principles

**56. Green Loans are defined in the Green Loan Principles as «any type of loan instrument made available exclusively to finance or re-finance, in whole or in part, new and/or existing eligible Green Projects.»** What constitutes an Eligible Green

<sup>48</sup> [https://www.climatebonds.net/files/files/Paris\\_Investor\\_Statement\\_9Dec15.pdf](https://www.climatebonds.net/files/files/Paris_Investor_Statement_9Dec15.pdf)

<sup>49</sup> Source: Climate Bonds Initiative Green Bonds Highlights 2017

Project is outlined in the Green Loan Principles, which is the same indicative list of projects issued by the International Capital Market Association (ICMA) for green bonds. Indicative categories of eligibility for Green Projects include production and transmission of renewable energy, pollution prevention and control, sustainable natural resources management, biodiversity conservation, climate change adaptation and green buildings. The GLP set out a clear framework, enabling all market participants to clearly understand the characteristics of a green loan, based around the following four core components: (i) use of proceeds; (ii) process for project evaluation and selection; (iii) management of proceeds; (iv) reporting.<sup>50</sup> Green lending includes, but is not limited to, personal housing mortgage loans, motor-vehicle loans and green credit card services, along with project financing, construction lending, renewable energy, energy efficiency and equipment leasing for enterprises.

**57. Following the development of the green bond market, the Loan Market Association and the Asia Pacific Loan Market Association issued the Green Loan Principles which establish a framework for green lending across global markets.<sup>51</sup>**

Their aim is to create a high-level framework of market standards and guidelines, providing a consistent methodology for use across the green loan market, while allowing loan products to retain their flexibility, and preserving the integrity of the green loan market as it develops. The GLP are comprised of voluntary recommended guidelines, to be applied by market participants on a deal-by-deal basis depending on the underlying characteristics of the transaction, that seek to promote integrity in the development of the green loan market by clarifying the instances in which a loan may be categorized as “green.” The GLP build on and refer to the Green Bond Principles (GBP), with a view to promoting consistency across financial markets. The GLP are intended for broad use by the market, providing a framework within which the flexibility of the loan product can be maintained, and will be reviewed on a regular basis, in light of the development and growth of the global green loan market.<sup>52</sup>

## 5.3. Green bond indices

**58. Green bond indices identify specific bonds as green via a stated methodology, and allow investors to invest in a portfolio of green bonds to diversify risk.** The green bond index providers effectively act as institutions of certification. At present, global green bond indices are compiled by Bank of America Merrill Lynch, Barclays MSCI, Standard & Poor’s and Solactive.<sup>53</sup> Each has its own methodology for choosing the components of the index. While advertising consistency with the Green Bond Principles, each index also specifies additional factors such as size and liquidity, as well as the specific industry sectors for which the proceeds are used.<sup>54</sup>

<sup>50</sup> [http://www.lma.eu.com/application/files/8415/2162/5092/LMA\\_Green\\_Loan\\_Principles\\_Bookletpdf.pdf](http://www.lma.eu.com/application/files/8415/2162/5092/LMA_Green_Loan_Principles_Bookletpdf.pdf)

<sup>51</sup> [http://www.lma.eu.com/application/files/8415/2162/5092/LMA\\_Green\\_Loan\\_Principles\\_Bookletpdf.pdf](http://www.lma.eu.com/application/files/8415/2162/5092/LMA_Green_Loan_Principles_Bookletpdf.pdf)

<sup>52</sup> [http://www.lma.eu.com/application/files/8415/2162/5092/LMA\\_Green\\_Loan\\_Principles\\_Bookletpdf.pdf](http://www.lma.eu.com/application/files/8415/2162/5092/LMA_Green_Loan_Principles_Bookletpdf.pdf)

<sup>53</sup> In addition, there are several internationally listed green bond indices focused on specific jurisdictions – in particular China. For instance, the Shanghai Green Bond Index Series (developed by the Shanghai Stock Exchange in collaboration with China Securities Index Co), or the CUFÉ-CNI Green Bond Index Series (developed by the Shenzhen Securities Information Co., together with the International Institute of Green Finance) are indices based on green bonds issued in China which are also listed in Europe on the Luxembourg stock exchange.

<sup>54</sup> BIS Quarterly Review, September 2017.

## 5.4. Green investment funds

59. **A green fund is a mutual fund or other investment vehicle that will only invest in companies that are deemed socially conscious in their business dealings or directly promote environmental responsibility on standardized green assets.** In Europe, the green funds market is driven by the countries that pioneered responsible investment, like France which experiences strong growth, and the major financial hubs like Switzerland and the United Kingdom. The majority of European green funds are equity funds, but the market is gradually diversifying, in particular with the emergence of green bonds funds since 2015.<sup>55</sup> Notably, the first green bond fund dedicated to emerging markets was established by IFC and Amundi in 2017.

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<sup>55</sup> The European green funds market - March 2017 - Novethic, with the support of ADEME





# 6

WHAT MAKES  
A PROJECT  
“GREEN?”  
CRITERIA AND  
ELIGIBILITY



**60. Terms like “green” or “greener” and “sustainable” have become buzzwords of choice to describe products or projects that are environmentally friendly.** While used interchangeably, each could mean something different. “Sustainable” encompasses the entire life cycle of a system from design through disposal, while “green” is attributable to a single process or an input that may have limited impact. Sustainability is tied to whole systems, of which individual consumer products, including those labeled “green” are a part. “Green is typically associated with individual products and processes that seek to “pick the low-hanging fruit.”<sup>56</sup>

**61. Potential market growth raises questions over what exactly constitutes “green.”** Often “green” indicates environmentally preferable attributes that could be vague and subject to multiple interpretations depending on any number of factors which includes business practices; market structures; societal norms; politics; and government regulations. Due to such ambiguity promoting or regulating “greenness,” it must be approached with care. At the same time because the term “green” is evocative and powerful, it is charged with significant impact potential that could be claimed for environmental benefits.

**62. Sustainability and green have a lot in common.** Sustainability emphasizes “green products, sustainability-oriented processes in manufacturing of green products and the recyclable components with which they were constructed”<sup>57</sup>. Often “green” products and practices are integrated into a larger system of sustainable production processes and their materials or modules are not merely recycled, but “upcycled” (i.e., the natural and technical nutrients of products are converted without waste into the raw materials for other green products or the components for other products).<sup>58</sup> In this sense, green products and processes are, at best, a subset of wider sustainable building, farming, or manufacturing processes, but not the reverse.<sup>59</sup>

**63. Any definition of “greenness” considers the desired positive environmental/i.e. green /impacts attributable to specific stakeholders (e.g., regulators, producers, and consumers).** For example, strategically “green” techniques, practices, products, and policies are characterized as: focusing on individual devices, products, indicators, practices, buildings; having limited impact on individual changes and reforms and making the world more sustainable; politically offering conventional, pragmatic and reformist policies and actions; and generating success in terms of indefinite progress through incremental improvements.<sup>60</sup>

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<sup>56</sup> Yanarella EJ, and Levine, RS. Don't pick the low-hanging fruit! Counterintuitive policy advice for achieving sustainability. *Sustainability* 1(4):256–261.

<sup>57</sup> Yanarella et al, 2009

<sup>58</sup> McDonough W, and Braungart M. *Cradle to Cradle: Remaking the Way We Make Things*. North Point Press, San Francisco, 2002.

<sup>59</sup> *Ibid* 1

<sup>60</sup> *Ibid* 2

## 6.1. “Green” project eligibility and categories

64. **Agencies promoting “green projects” define their elements and outcomes based on their own policies, overarching principles, or decision criteria for programs and use of resources relevant to these mandates.** Largely, broad categories of eligibility for green projects used by the regulating agencies are defined by the concerns they are aiming to address such as climate change, natural resources depletion, loss of biodiversity and/or pollution control. In green projects, MBDs promote the full range of activities that are environmentally sound and sustainable through instruments such as loans, concessional finance and green bonds etc. For instance, US EPA defines green urban water projects as follows:

**Table 1** Green urban water projects defined by US EPA

<b>Water Efficiency</b>	Promotes the use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources for the future.
<b>Energy Efficiency</b>	Promotes the use of improved technologies and practices to reduce the energy consumption of water projects, use energy in a more efficient way, and/or produce/ utilize renewable energy in water and sanitation utilities and networks.
<b>Green Infrastructure</b>	Promotes green storm water infrastructure that address the effects of wet weather, maintains and restores natural hydrology by infiltrating, evapotranspiring, water harvesting and reusing storm water (e.g, site- and neighborhood-specific practices, such as bioretention, trees, green roofs, permeable pavements and cisterns). On a larger scale, promoting green infrastructure that helps preserve and restore natural landscape features, such as forests, floodplains and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed.
<b>Environmental Innovations</b>	Project promoting innovation including those that demonstrate new and/or innovative Approaches to delivering services or managing water resources in a more sustainable way.

65. **China has linked national environmental targets with the underlying concept of green.** China has employed a longer-term approach to driving the country’s transition to low carbon-green economy in its regulation of the green bonds market. Chinese official definitions for projects that qualify for green bond issuance are broad and comprehensive. The Green Finance Committee, which sits under the China Society for finance & Banking, developed a Project Catalogue. The catalogue offers comprehensive guidelines for what constitutes green in the Chinese green bond market. It covers climate change mitigation and adaptation projects, and broader environmental projects, such as projects addressing air pollution, to be in line with national environmental policy priorities. The Catalogue sets up six categories with 31 subcategories of projects that are eligible for financing via green bonds. While the Catalogue’s categories largely follow sector-specific criteria appearing internationally, there are categories specific to fossil fuel projects, such as public transport projects that use fossil fuels, and supply chain investments where environmental and climate benefits remain unclear.

**Table 2 China Green projects and Green Bond Guidelines**

China Green projects		Green Bond Guidelines*
Category	Sub-category	Area
<b>Energy saving</b>	Industrial energy saving Sustainable Buildings; Energy management center; Urban and rural infrastructure construction with energy-saving efficiency.	Technology improvement for energy saving and emission reduction; Green urbanization** - energy saving and environmental protection industry.
<b>Pollution prevention and control</b>	Pollution prevention and control; Environmental restoration Clean use of coal.	Pollution prevention and control.
<b>Resources conservation and recycling</b>	Water saving and unconventional water use; Redevelopment and integrated use of tailings and associated mining byproducts; Recycling and use of industrial solid waste exhaust gas and effluents. Recycling, processing, and use of renewable resource. Remanufacturing of electromechanical products; Recycling and use of biomass resources.	Circular economy; Water saving and unconventional water use.
<b>Clean transportation</b>	Railway transportation. Urban rail transit-public urban and rural transportation; Waterway transportation; Clean fuel new energy; Mobile Internet application on transportation.	Green urbanization – transport.
<b>Clean energy</b>	Wind power generation; Solar photovoltaic (pV) power generation; Smart grid and energy internet; Distributed energy resources; Solar thermal applications; Hydropower generation and other new energy applications.	Clean and efficient use of energy/ new energy – hydropower, wind, nuclear, solar, bioenergy, geothermal, shallow geothermal energy, marine, and air energy.
<b>Ecological protection and climate change adaptation</b>	Natural ecological protection and protective development of tourism resources Ecological agriculture husbandry and fishery, Forestry development, Emergency prevention Disaster control.	Ecological agriculture and forestry Ecological civilization demonstration projects Low-carbon industry projects, Low-Carbon demonstration projects.

\* Issued by the National Development and Reform Commission.

\*\* The green urbanization projects include development of green buildings, building industrialization, improvements to existing buildings for energy saving, construction of sponge (water protection) cities, construction of smart cities, construction of smart grids, and construction of charging facilities for new energy cars.

Source: Based on Roadmap for China’s Green Bond Roadmap for Next Stage Market Development. 2016. Climate Bonds Initiative, IISD.

**66. Approaches to making decisions about green investments have evolved over the years, through (negative or positive) screening, thematic investing, and engagement with companies.** In fact, some approaches favor investment in specialist green companies, while others are designed to filter out the best companies within a sector, exclude “dirty” companies or persuade “heavy polluters” to change. There are also sector-specific international criteria which provide guidance, and issuers can voluntarily adhere to them as a good practice but they are not regulatory requirements per se. The Green Bond Principles do not set out sector-specific criteria directly, but instead refer issuers to existing sector-specific technical standards, such as the green building standards or the Climate Bonds Standard. Adherence to common sector-specific standards will ensure investor confidence in the environmental credentials of the bond instruments and can reduce any risks from the “greening” impacts of the bonds that are not sufficiently robust. Whether an issuer chooses to follow sector-specific criteria for their green bond to increase investor confidence in the bond is largely driven by the issuer’s internal risk management procedures and branding considerations.

**67. Increased government involvement in promoting green growth has led to the formation of new structures used by MDBs aiming to augment investors’ interest in projects that are considered green or climate friendly.** For instance, the Inter-American Development Bank (IADB) dedicates at least 25% of its investment capital towards those projects that have a “climate positive impact,” and the European Investment Bank (EIB) also has the same target of 25% for projects considered green.<sup>61</sup> In April 2016, World Bank Group President Jim Kim called for a new approach, one where the WBG will maximize finances for development by systematically crowding in private sector investments and making them work for developing countries and poor people: “Maximizing Finance for Development means finding win-win solutions, where investors get a good return, and countries utilize these resources to meet their development goals. We’re putting this approach to work with teams from across the World Bank Group, and we’ve already seen great results.”<sup>62</sup> The Climate Change Action Plan for 2016-2020 reconfirms commitments made at the 2015 Annual Meetings in Lima, Peru, to increase the climate-related share of WBG portfolio.<sup>63</sup>

**68. In many ways, MDBs have addressed the challenging and complicated nature of green project finance and the difficulty of mobilizing capital into green investments.** First, they help the governments overcome a major deterrent – a lack of knowledge about assessing risks and understanding the benefits of “greening.” Technical aid for feasibility assessments usually precede or are a part of MDB’s financing packages. Second, early stage risks of green infrastructure projects are improved by improving governance structures, working with stakeholders, regulating how the investments are shaped, reducing the complexity of projects, involving private sector by understanding primary drivers for interest in green investments etc. The MDBs also recommends

<sup>61</sup> Aravamathan, Ruete, Dominguez. 2015. Credit Enhancement for Green Projects. The International Institute for Sustainable Development.

<sup>62</sup> <http://www.worldbank.org/en/news/speech/2017/10/13/wbg-president-jim-yong-kim-speech-2017-annual-meetings-plenary-session>

<sup>63</sup> “World Bank; IFC; MIGA. 2016. World Bank Group Climate Change Action Plan 2016-2020. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/24451> License: CC BY 3.0 IGO.” <http://hdl.handle.net/10986/24451>

### Box 5 Examples of World Bank Green Bond Project Criteria

*Eligible mitigation projects that meet specific criteria for low-carbon development.*

- Solar and wind installations;
- Funding for innovative technologies that allow significant reductions in greenhouse gas (GHG) emissions;
- Greater efficiency in transportation, including fuel switching and mass transport;
- Waste management (methane emissions) and construction of energy-efficient buildings;
- Carbon reduction through reforestation and avoided deforestation.

*Eligible Adaptation Projects that meet specific criteria for low carbon development*

- Protection against flooding (including reforestation and watershed management);
- Food security improvement and implementing stress-resilient agricultural systems (which slow down deforestation);
- Sustainable forest management and avoided deforestation.

Source: <http://treasury.worldbank.org/cmd/htm/GreenProjects.html>

### Box 6 EBRD Green Portfolio Projects

Illustrative areas of EBRD Green projects eligible for financing include:

- Renewable energy projects, such as photovoltaic installations, and production of photovoltaic cells/modules;
- Installation of wind turbines, construction of mini-hydro cascades, geothermal and biomass facilities;
- Rehabilitation of power and heating plants and transmission/distribution facilities to reduce total greenhouse gas («GHG») emissions;
- Modernization of industrial installations to reduce total GHG emissions;
- Innovative technologies that result in significant reductions in total GHG emissions, e.g. smart distribution networks
- Fuel-switching from carbon-intensive (coal, heating oil, oil shale) to less carbon-intensive fuels such as natural gas;
- Greater efficiency in mass transportation, such as investment in fuel-efficiency (fleet replacement) or more energy-efficient infrastructure;
- Methane capture on waste landfills and waste water treatment plants;
- Rehabilitation of municipal water/waste water infrastructure to reduce water consumption and waste water discharges;
- Improvements to solid waste management (minimization, collection, recycling, storage, and disposal);
- Energy efficiency investments in existing buildings (insulation, lighting, heating/cooling systems);
- Investments to improve efficiency of industrial water use;
- Sustainable and stress-resilient agriculture, including investments in water efficient irrigation;
- Sustainable forest management, reforestation, watershed management, and the prevention of deforestation and soil erosion.

Source: <http://www.ebrd.com/pages/about/principles/sustainability/policies.shtml>

a tool box with evaluation methods to evaluate upstream and downstream risks of resource depletion or altering the quality of the environment and ecosystems due to project investments.

## 6.2. Technical criteria for green projects

### 69. On a more granular level, “green” must meet certain technical requirements.

For example The National Institute of Building Sciences Whole Building Design Guide defines green products as: not containing highly toxic compounds and not contributing to highly toxic by-products during the manufacturing process; not containing chlorofluorocarbons (CFCs), halogenated chlorofluorocarbons (HCFCs), or other ozone depleting substances; complying to air quality standards (e.g. VOC emissions); incorporating recycled content (post-consumer and/or post-industrial; made by using renewable resources and resource efficient processes; durable and low maintenance; having low energy intensity (i.e. the total energy required to produce a finished product, including the energy used to grow, extract, manufacture, and transport to the point of use); employing “sustainable harvesting” practices if wood or bio-based production; being easily reused -- either as a whole unit or after dismantling; being readily recycled, preferably in a closed-loop recycling system, which allows a manufactured product to be recycled into the same (or similar) product without significant deterioration of quality; being biodegradable; being obtained from local resources and manufacturers. <sup>64</sup>

### 70. Multi-attributable parameters of green products are used in various certification programs and usually are based on life-cycle analysis.

These parameters include energy use, recycled content, and air and water emissions from manufacturing, disposal, and use. Others focus on a single attribute, such as water, energy, or chemical emissions. Rating systems for green buildings, such as LEED, Green Globes, and the National Green Building Standard, using LCA offer greater assurance to consumers, designers, specifiers, and others that a product’s marketing claims accurately reflect its green attributes.

### 71. Construction industry is on the forefront of greening.

Standards, rating, and certification programs developed in the marketplace help guide, demonstrate, and document efforts to deliver sustainable, high-performance products. It is estimated that there are nearly 600 green product certifications in the world with nearly 100 in use in the U.S., and the numbers continue to grow (Source: BuildingGreen). The ISO defines different types of labels that can be used for green products. Below is an outline of the ISO-defined labels and what is being claimed. Product certifications available in the U.S. are mostly Type I and Type II labels, while Type III labels are now required in France, and becoming more common in Europe and for those U.S. manufacturers with an international focus. Specific typology and criteria applicable to green projects supported by USEPA targeting small and medium size businesses in water, wastewater and solid waste management is presented in Table 3.

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<sup>64</sup> www.nibs.org Based on the National Institute of Building Sciences Whole Building Design Guide



**Table 3** Specific typology and criteria applicable to green projects supported by USEPA

Scope	Key features	Suggested Areas
Management and utilization of water resources through better quality of water supply to user (Fresh water (tap or portable), water for industrial processes, agriculture and grey water.)	<ul style="list-style-type: none"> <li>• Efficient use of water resource</li> <li>• Rainwater harvesting</li> <li>• Recycling &amp; reuse</li> <li>• Reduction use of chemicals</li> <li>• Use of green materials and/or equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Better water treatment technology</li> <li>• Leakage monitoring and minimization</li> <li>• Lower grade water for industrial process</li> <li>• Recycling and reuse of water</li> <li>• High efficient treatment plant</li> </ul>
Wastewater treatment, solid waste and sanitary landfill; (Domestic, garden waste, industrial waste, municipal waste, agricultural waste, organic waste, sewage waste)	<ul style="list-style-type: none"> <li>• Waste recycling</li> <li>• Waste to energy</li> <li>• Waste to fertilizer</li> <li>• Waste reduction</li> <li>• Waste water treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Waste cooking oil to biofuel</li> <li>• Composting</li> <li>• Construction waste</li> <li>• Batteries</li> <li>• Clothing/Furniture</li> <li>• Electronic Waste (E-Waste)</li> <li>• Fluorescent Lamps</li> <li>• Used Tires</li> <li>• Biogas production</li> <li>• Bioethanol production</li> <li>• Biohydrogen production</li> <li>• Composting (green microbe)</li> <li>• Biodegradable materials (i.e. bio resins)</li> <li>• Contribute to improve effluent biochemical oxygen demand (BOD) and Chemical Oxygen Demand (COD) level</li> <li>• Hazardous Waste</li> <li>• Paint</li> <li>• Plastic Bags</li> <li>• Plastics - General Info</li> <li>• Styrofoam</li> </ul>

Source: USEPA [http://www.epa.gov/waterinfrastructure/pdfs/guidebook\\_si\\_energymanagement.pdf](http://www.epa.gov/waterinfrastructure/pdfs/guidebook_si_energymanagement.pdf)  
 Assessment of environmental and social impacts of “green” projects.

## 6.3. Sustainable and Responsible Investing

**72. The Environmental, Social and Governance (ESG) criteria is a set of standards for company operations that socially conscious investors use to screen investments.**

They are a set of voluntary benchmarks to measure the positive outcomes of impact investing aimed at accomplishing specific goals beneficial to the environment and society. Environmental criteria look at how a company performs as a steward of the natural environment, company’s energy use, waste, pollution, natural resource conservation and animal treatment. They also evaluate which environmental risks might affect a company’s income, and how the company is managing those risks. Social criteria examine how a company manages relationships with its employees, suppliers, customers, and the communities where it operates. Governance deals with a company’s leadership, executive pay, audits and internal controls, and shareholder rights.

**73. For example, a company might face environmental risks related to its ownership of contaminated land,** an oil spill it was responsible for, its disposal of hazardous waste, its management of toxic emissions or its compliance with the government's environmental regulations. Social criteria look at the company's business relationships along the supply chain – the company's suppliers, and how they adhere to the social values that the company itself claims to hold. Likewise, how does the company support the communities in operation? Does the company keep healthy and safe working conditions for its employees?

**74. Regarding governance, investors want to know that the company financial management practice includes accurate and transparent accounting,** and that common stockholders are allowed to vote on important issues. They also want companies to avoid conflicts of interest in their choice of board members. Finally, governance conscientious investors prefer not to invest in companies that engage in illegal behavior or use political contributions to obtain favorable treatment. Nonetheless, measuring the company's performance with regards to ESG against what constitutes an acceptable set of ESG criteria is to some extent subjective, and the investors are expected to research and find investments that match their own values.

**75. Applying ESG presumes a domestic context and an enabling environment for transparency and access to information on the environment, social and governance performance of green market actors.** Russia's domestic policy environments and local markets may be insufficiently developed at this time to proactively facilitate domestic private investment in "green" projects. Enhancing the existing institutional models could support market development and capacity building to accelerate risk taking investors, through demonstrations, co-investment and sharing risks with investors using guarantees, grants, subsidization and other risk mitigation measures. In addition, "greening" the existing institutions such as commercial banks may be beneficial both ways – (i) creating the domestic context for ESG application, and (ii) steering and expanding green components of domestic investment programs that are already housed in different government agencies and institutions.

**76. Sustainable and Responsible investing (SRI) goes one step further than ESG by actively eliminating or selecting investments according to specific ethical guidelines.** SRI incorporates any strategy an investor may deploy which incorporates ESG consideration or analysis. Unlike ESG analysis, which shapes valuations, SRI goes further by using ESG factors to apply a checklist for negative or positive screening. For example, an investor who holds an anti-conflict belief may wish to avoid any mutual fund or exchange-traded fund (ETF) that invests in companies engaged in firearms production. Alternatively, an investor may opt to distribute a fixed part of his/her portfolio to companies that contribute to charitable causes.

**77. SRI is experiencing rapid growth.** The 2016 Report on U.S. Sustainable, Responsible, and Impact Investing Trends<sup>65</sup> estimates that in the US sustainable, responsible impact investing is around US\$8.72 trillion in professionally managed portfolios having dynamic investment strategies that apply ESG, SRI and alike. Investment portfolio managers widely recognize nowadays that management of ESG issues can have a material influence on the profitability, value, and share price of companies. In the investment

<sup>65</sup> US SIF: The Forum for Sustainable and Responsible Investment is the nonprofit membership association for the responsible investment industry in the U.S. ( [www.ussif.org](http://www.ussif.org)).

universe, SRI will increasingly become the norm as more investors become interested in clean and green products, and “standards take shape and concerns about the performance of sustainable assets diminish.”<sup>66</sup>

**78. Looking forward, the sectors and areas likely to grow in Russia** under an increasing public pressure to improve environmental performance and resource use are energy, water infrastructure, pollution abatement and waste management. Multiple investments opportunities exist to responsibly invest in these sectors should a conducive policy and regulatory environment be established. ks, compl

## 6.4. Measuring the impact of green investments

**79. Measuring the impact of green investments and countervailing risks is becoming increasingly important in promoting green projects and reducing investors’ risks.** Concerns of “greenwashing,” an issue discussed later in this note, create an impetus to find a reliable and verifiable measurement of the sustainability and impacts of investments. Proliferation of investment products labelled as sustainable has fueled concerns about the quality and potential for negative impacts and damage to investors’ trust. Quantifying the impacts is central to measuring the performance of green investments. The process includes understanding and assessing the ‘additionality’ of a green investment and finding out whether the project’s impact would have occurred without a green component. The ongoing efforts to developing standardized, more transparent measurements or benchmarks for sustainable investment products will likely prove critical to the sector’s future growth.

**80. Many countries, including Russia, introduced stringent environmental regulation in the 1990s.** This set in motion a new generation of policy and decision-making that needed a robust set of tools for management of environmental risks. Understanding the causal links between economic activities and potentially harmful effects on humans and the environment is the first step to map the potential risks of investments. In environmental management, the most commonly used valuation methods<sup>67</sup> of risk management actions about environmental and social impacts are briefly discussed in Box 7.

**81. Measuring the impact of green investments is among the challenges in addressing a boost to green investments.** UNEP’s 2015 Adaptation Gap Report<sup>68</sup> identifies funding, technology and knowledge gaps and the need for greater alignment and harmonization of systems to measure impact and monitor green projects in the following ways: (i) alignment – organization of systems so that they match or fit well together and ensure better coordination of stakeholders; (ii) harmonization – the adjustment of differences and inconsistencies among different systems (methods, procedures etc.) to make them uniform or mutually compatible to produce traceable and transparent information.

<sup>66</sup> <http://www.mercer.com.au/our-thinking/sustainable-investmentopportunities.html>

<sup>67</sup> Based on Hofstetter et al. 2002 Tools for Comparative Analysis of Alternatives: Competing or Complementary Perspectives? Risk Analysis, Vol. 22, No. 5, 2002

<sup>68</sup> <http://web.unep.org/adaptationgapreport/content/adaptation-gap-reports>

### Box 7 Valuation of environmental risks

- **Life cycle assessment (LCA)** is a method for the comprehensive environmental assessment of products and services. LCA was initially used to assess products and services at the production facility. The comprehensiveness has two dimensions. First, a large variety of environmental impacts that affect materials and stocks, ecosystems, and human health are included. Second, the impacts along the full life cycle of a product— from cradle to grave— are considered and allocated to a chosen product function.
- **Supply chain sustainability (SCS)** is a holistic valuation of supply chain processes and technologies that addresses the environmental, social and legal aspects of a supply chain's components as well as their economic factors. SCS is based on the principle that socially responsible products and practices are not only good for humans and the environment but are also good for building positive brand awareness, lowering risk and improving long-term profitability. The concept builds on responsible sourcing and encourages supply chain partners to develop and share best practices for green operations and logistics. It has also allowed prospective partners to demonstrate compliance with industry best standards for worker safety, environmental protection and business ethics.
- **Benefit-cost analysis (BCA)** measures both benefits and costs connected to all consequences of alternative decision. Usually, monetary values are used as common metrics for both costs and benefits. This standard method of economic decision-making has been used for a long time in environmental decision-making. Crucial elements here are the identification and subsequent valuation of environmental and human health endpoints and the assessment of intergenerational health effects.
- **Cost-effectiveness analysis (CEA)** is similar in scope to BCA but measures non-monetary consequences in physical indicators. Such analyses are widely used in the medical and environment-public health areas where health costs are compared with health improvements.
- **Programmatic comparative risk analysis (PCRA)** refers to the application of comparative risk assessment to set priorities for further studying risk management actions. PCRA uses a risk-based, scientific ranking of environmental problem areas, for example, indoor radon, drinking water contaminants, and criteria air pollutants. The risk domains usually considered in a PCRA are human health, ecosystems, and welfare or quality of life, and human health is the most common element of the analysis.

82. **Investors tend to use customized approaches to measuring impacts.** Several techniques are suited to specific assessment needs — i.e. the Impact Reporting and Investment Standards (IRIS) and the Global Impact Investing Rating System (GIIRs) — and methods that are used more widely in investment and evaluation, including third-party certification. For example, the Conservation Finance Alliance (2014) screened 23 investment funds with potential environmental benefits (such as investment in sustainable agriculture and clean technology) and found that over 50% used IRIS's metrics and many used them in combination with custom metrics designed for a specific fund. The most commonly used approach to measuring impact is the 'Logic Model' (Nicholls, Nicholls & Paton, 2015), which is not specific to impact investment and is used widely to evaluate project and program effectiveness. It maps what is known

as a ‘theory of change,’ that is the process and stages from input (i.e. financial capital) through to impact, which is used by GIIIRS for rating the social and environmental performance of funds and firms.

**83. The Economist Intelligence Unit Limited<sup>69</sup> 2016, reports on a work-in-progress of Professor Jake Reynolds from the Cambridge Institute for Sustainability Leadership (CISL),** trying to fill the void when the typical ethical investor is left “almost blind” when trying to understand the effects their investment decisions have on the wider world. CISL and the Investment Leaders Group (ILG)—a body of 11 leading investment firms, including Standard Life Investments and Allianz Global Investors—are behind one of the leading initiatives in this sphere. CISL and ILG started with the 17 UN Sustainable Development Goals (SGD) by reducing them to six—three covering social measures and three environmental—and constructed a framework to measure how a company’s actions affect each. At this stage the framework has created measurement mechanisms for one social goal (“decent work”) and one environmental goal (“climate stability”).<sup>70</sup> While this is very much a work in progress, the CISL AGI method creates a system of allocating a score to each area, which allows each company to be ranked objectively. This area is evolving with interest from major index providers like MSCI and Morningstar that are beginning to work on products that can calculate impact, though there is a long way to go.<sup>71</sup> Interestingly, some proprietary systems, which are used for negative screening and eliminating companies, do not meet the sustainability (ESG) requirements. Such is the London-based, sustainability-focused Arabesque, which combines SRI and Islamic finance principles to select the companies in its funds maintaining that a significant overlap exists between ESG investing and the obligations of Sharia law, focusing on “protecting the well-being of people.”<sup>72</sup>

**84. Independence and credibility of impact rating are widely recognized as trust builders.** One way to ensure these requisites is to use a third party (e.g. NGOs), to help rate the sustainability of businesses. However, if third party assessors have strong business interests in the assessment, there may be a conflict of business interests which potentially affects the data’s reliability. There are certain risks when ratings agencies wishing to maintain ongoing business with their clients apply an ‘upward bias’ in ratings. Ratings vary based on whether they are solicited (paid for) or unsolicited (not paid-for) credit ratings. Research indicates that unsolicited credit ratings tend to be lower than solicited ratings.<sup>73</sup> Thus the assessment of investment impact could be more reliable were it not paid for by the organization being assessed, and also more independent<sup>74,75</sup> Green market development policies should consider promoting transparency, independence and standardization to address potential concerns and boost the impacts of green finance.

<sup>69</sup> © The Economist Intelligence Unit Limited 2016.

<sup>70</sup> Ibid.

<sup>71</sup> Ibid 1.

<sup>72</sup> Ibid 2

<sup>73</sup> Poon, 2003; Bolton, Freixas & Shapiro, 2012, The Credit Ratings Game. *Journal of Finance*

<sup>74</sup> Science for Environment Policy (2016) Environmental impact investment. Future Brief 16. Produced for the European Commission DG Environment by the Science Communication Unit, UWE, Bristol. Available at: <http://ec.europa.eu/science-environment-policy>

<sup>75</sup> Hoepfner, 2016 Financial Data Science for Responsible Investors, ICMA Center, Henley Business School

## 6.5. Green Project bankability

**85. Green public infrastructure projects should be economically sustainable. Furthermore, to mobilize private sector finance the project should provide attractive risk-adjusted returns.** Economically sustainable infrastructure projects and green infrastructure projects are those that provide jobs and help boost GDP. They do not burden governments with unpayable debt, or users with painfully high charges. They also seek to build the capabilities of local suppliers and developers. While economic sustainability is a key part of the public investment due diligence process, it does not necessarily mean that private investors would be willing to provide funding. For that, it is essential that the project is bankable, meaning that it provides investors with attractive risk-adjusted returns. In particular, it is important to ensure that risk-adjusted returns can be competitive with those of traditional infrastructure, even if the policy settings and prices do not fully reflect the total benefits of greater sustainability. Many infrastructure projects cannot deliver the 10-to-15 percent rates of return private investors expect, as users are unwilling or unable to pay high enough charges to allow for full cost recovery plus a return on investment.

**86. Non-financial corporates base their project investment decisions on expected returns.** Corporate companies are important originators of green projects through their investments, and usually base their decisions on a project's ability to meet (IRR) the return requirement and its strategic fit within a company's business plans.<sup>76</sup> Most companies address concerns about suitability, climate-related risks and returns, by taking a full life-cycle view of assets. This requires that corporate leadership resist the short-term pressures for high returns, which can happen if companies own and operate the assets.

**87. Sustainable-infrastructure projects are perceived by investors as riskier than traditional projects. Institutional investors need to see a track record of performance to determine risk-return but such a track record is not available.** Also, sustainable technologies can change so quickly as to make historical performance data outdated. Sustainability complicates the risk-return issue because the technologies and platforms are often new and the up-front costs higher. Furthermore, environmentally friendly projects can imply higher up-front costs to the builder, while the savings accrue to the operator or owner.<sup>77</sup> Another challenge is that sustainable infrastructure often includes small-scale assets such as rooftop solar panels. These projects do not justify traditional (and often fixed-price) transaction costs unless they can be bundled together.

**88. A lack of capacity in government agencies tasked with preparing green infrastructure projects also hampers project bankability.** Lack of capacity in implementation agencies (generally local) results in delayed procurement, slow land acquisition processes, slow social and environmental clearances, weak economic analysis that underestimates cost and benefits alike, poorly set green targets to

<sup>76</sup> On average, companies whose businesses are tied to infrastructure assets require real rates of return on total capital employed at 5 to 10 percent for new investments: 5 to 6 percent for power and water utilities, 7 to 8 percent for energy companies, and 9 to 10 percent for engineering and construction companies. McKinsey & Company. 2016. Financing Change: How to Mobilize Private-Sector Financing for Sustainable Infrastructure. Detroit.

<sup>77</sup> For example, developers pay more to make buildings energy efficient, but it is the homeowner or business that benefits from lower energy bills.

be achieved, and implementation flaws. All of these factors serve as a deterrent to potential investors. Therefore, development and transaction costs in green finance projects are often perceived as too high in comparison to traditional projects.<sup>78</sup>

**89. Making a project bankable requires matching financing instruments to needs throughout its life cycle.** Infrastructure projects are on average financed through 30 percent equity and 70 percent debt.<sup>79</sup> Debt financing is typically difficult to obtain until the project can generate revenue, and thus initial funding comes from developer equity—which is expensive, and scarce. However, faster construction timelines for some green infrastructure (such as solar arrays compared with grid-connected gas- or coal-fired power plants) reduces construction risk and allows for debt financing to come in earlier on in the project.

**90. Standardization of financial instruments reduces transaction costs and improves project bankability.** Many transactions must be tailored to individual projects, and there can be diverse and inconsistent standards. Having to create unique financing structures for each project and jurisdiction increases transaction time and costs.<sup>80</sup> Yieldcos and green bonds use familiar financial instruments to channel funds from retail and pension-fund investors (who have lower costs of capital) towards infrastructure projects, including sustainable ones. Green bonds and yieldcos also reduce risks associated with infrastructure investments. For instance, the credit risk associated with green bonds is typically lower than that of similar project bonds because that risk is assumed by the issuing entity and not by cash flows from the individual project. Given these lower risks, green-bond yields tend to be on the lower end of the spectrum as well. Yieldcos, on the other hand, reduce risk by pooling projects, thus helping institutions to diversify their investments. Developing liquidity facilities for sustainable-infrastructure-related securities, with a view to help develop a secondary market, would increase institutional-investor familiarity with the asset class, reduce transaction costs, and allow the recycling of development capital. Some pension funds are increasingly investing directly in infrastructure projects rather than as limited partners in infrastructure funds, and so they get involved earlier in project consortia as equity partners.

## 6.6. Risks of ‘greenwashing’.

**91. Greenwashing is a legitimate concern for investors.** According to an EU study<sup>81</sup>) many companies have been found to misreport their environmental performance. For instance, less than a quarter of firms within the EU’s Emissions Trading Scheme reported 90% or more of their greenhouse gas (GHG) equivalent, scope 1 and 2 emissions. Bloomberg data of July 2016, reports that only 53 firms worldwide currently report 100% of their GHG equivalent scope 1 and 2 emissions (Yu, Hoepner & Adamsson, 2016). Although greenwashing occurs partly to attract investors who are interested in

<sup>78</sup> McKinsey & Company. 2016. Financing Change: How to Mobilize Private-Sector Financing for Sustainable Infrastructure. Detroit. p. 32.

<sup>79</sup> In a review of more than 3,700 infrastructure financings from 2000 to 2015 that used both debt and equity, McKinsey & Company. 2016 (ibid) found that debt averaged 70 percent of the total capital.

<sup>80</sup> Development bank infrastructure experts estimate that the use of lawyers, engineers, transaction specialists, and other advisers can account for 1 to 5 percent of project costs, and these are difficult to recoup since they are not capitalized.(ibid)

<sup>81</sup> Liesen et al., 2015. Does stakeholder pressure influence corporate GHG emissions? Empirical Evidence from Europe, Accounting, Auditing and Accountability Journal 28 2015



environmentally responsible firms, it tends to be counterproductive as it also reduces investor confidence in green products and environmentally responsible firms (Delmas & Burbano, 2011).

**92. Due to many ambiguities, perceived risks related to “green” exist due to poor impact monitoring, marketing, and lack of communication on green products.**

This explains some of the reasons why terms like “green,” “sustainable,” and “environmentally friendly” are misused, leading to ‘greenwashing’ and ‘environmental myopia,’ thus influencing consumer and investor decisions. Confused and skeptical consumers could influence the investors’ appetites to invest in green projects or value chains.

**93. Likewise, characteristics of «green investment» appear to be a bit of a gray area.**

Purchasing stock in a business that uses environmentally mindful businesses practices in a traditionally «dirty» industry may be considered a green investment by some, but this could be questionable (substantially so). For example, consider an oil production company that has a good record for environmental practices. While it is prudent to believe that the company is taking the best precautions in preventing damage to the environment through its daily operations, purchasing stock as a green investment might be controversial because fossil fuels are the biggest contributors to global warming. As a benchmark for understanding ‘green’ investment, it is a stand-alone category closely related to investment approaches such as SRI (socially responsible investing), ESG (environmental, social and governance investing), sustainable or similar concepts.

**94. Most green investments are invariably associated with climate change mitigation or adaptation, and rightly so.**

It seems that there is more clarity and uniformity in agreeing on “green” investments when relating to climate change. In the IMF Working Paper, Eyraud et. al. (2011) refers to green investment as “the investment necessary to reduce greenhouse gas and air pollutant emissions, without significantly reducing the production and consumption of non-energy goods.” Green investments focusing on reducing GHGs are: low-emission energy (renewables, bio fuels and nuclear); energy efficiency (energy sector and other energy-consuming sectors); and carbon capture and sequestration (forestry and agriculture). While these characteristics are true for the bulk of green investments, this definition does not capture the full range of “green” benefits that could derive from investments in land management, biodiversity conservation and forest management, clean water and air, pollution reduction -- all of which qualify as “green”.

**95. “Greenwashing” aspects have been under scrutiny in response to growing societal concerns related to domestic and global environmental and climate issues.**

ESG once considered “non-financial” and “intangible” have become important determinants in the capital markets – and tangible in the outcomes regarding valuations of companies and a factor for building investor’s trust.<sup>82</sup> Governments,’ stakeholders’ and investors’ expectations and the pressure to “anticipate,” evaluate, understand and better manage present and future economic risks (and opportunities) have created an enabling environment for companies to embrace ESG/Sustainability initiatives.<sup>83</sup>

<sup>82</sup> Corporate ESG / Sustainability / Responsibility Reporting – Does it matter? Analysis of S&P 500® Companies’. 2012. ESG Reporting Trends & Capital Markets Response, and Possible Associations with Desired Rankings & Ratings [www.ga-institute.com](http://www.ga-institute.com).

<sup>83</sup> *ibid* 1.



Nowadays multinational companies often include adoption of CSR and SGS in their corporate strategies due to an increasing demand from responsible investors. The need for reporting and verification of actions and corporate strategies led to the emergence of a global framework for organization of data and reporting on corporate ESG performance.

## 6.7. Green investments.

### Impact reporting and disclosure

96. **Since the January 2014 release of the Green Bond Principles (GBP), impact reporting has garnered increasing attention.** GBP increased investors’ demands for reporting of green bond markets to underline their credibility and as a real contributor to increasing capital allocation to environmentally sustainable projects. The fourth core part of the GBP emphasizes «reporting» by issuers, originally focused on a narrower requirement to account for the allocation of green bond proceeds either on a project-by-project or aggregated portfolio basis. GBP recommends reporting on the positive environmental impact of the investments funded by green bond proceeds, encouraging «the use of quantitative and/or qualitative performance indicators which measure, where feasible, the impact of specific investments (e.g. reductions in greenhouse gas emissions, number of people provided with access to clean power or clean water, or avoided vehicle miles travelled, etc.).

97. **The G20’s Task Force on Climate-related Financial Disclosures (TCFD), is a result of a global push by investors and companies to include information in their mainstream reports to regulators on actions related to climate risks.** The TCFD recommendations draw from existing climate change reporting frameworks such as the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) Standards; it doesn’t seek to force companies to invest in yet another set of surveys or information-gathering exercises. Under TCFD, companies report against governance, strategy, risk management metrics and targets related to climate risks using a 2 degrees C scenario and disclose information related to water consumption, energy use and efficiency, land use and development or use of products and services designed for a low-carbon economy.

98. **The Global Reporting Initiative (GRI) Framework has pioneered the development of the world’s most widely-used sustainability reporting framework.** A little more than one out of two companies included in the S&P 500 Index are publishing progress reports on their sustainability efforts. The GRI as a reporting mechanism has gained broad credibility embraced by the global business community, civil society, the public sector, and labor, academic and professional institutions. GRI reports on sustainability performance also include reporting on topics such as Human Rights, Local Community Impacts, and Gender. Voluntary disclosure of ESG performance following the GRI Framework is especially useful in clearly highlighting a company’s commitment to sustainable development; demonstrating compliance with environmental, workplace and other regulatory schemes, and serving as a benchmark to compare the organization against peer groups, sectors and industries, and competitors.

**99. Many investors agree that as yet there is no clear standard for evaluating ESG performance and that much subjectivity comes along with measuring companies' environmental and social practices and performance.** Reporting on sustainability alone does not seem to assure or guarantee inclusion or higher rankings, but reporting does improve the chances of being recognized by credible third parties such as rating and ranking providers and equity index managers. GRI reports indicate that companies progressing on their sustainability initiatives tend to perform better in the capital markets, and appear to be given a premium by investors.

**100. The demand for reporting in different countries is driven by various factors.** Whether the countries adhere to GBP which is designed to attract and retain investors, or to comply with country's regulatory requirements, such as France's ground-breaking Article 173, and/or recommendations by market and regulatory bodies such as the Task Force on Climate-Related Financial Disclosures, reporting and disclosure are increasing. The 2017 update of the GBP emphasized the integrity of the green bond market by furthering the importance of disclosure focused on underlying methodology and assumptions used in the quantitative determination of impacts. This is, of course critical in allowing investors to appraise the comparability of estimated impacts, but also in facilitating alternative assessments and calculations to be carried out independent of the applied methodology.

**101. Green bonds that support renewable energy and energy efficiency projects lead the market in the standardization of impact reporting (e.g. energy or GHG reduction metrics) as there is a critical mass of science that supports disclosure for these types of projects.** Yet, reporting on GHG emissions data, in the absence of one single commonly-used standard for calculating the GHG emissions reduced or avoided, remains a challenge. Often, bond issuers follow their own methodologies while making these transparent to investors. There are several calculation methodologies both within and across institutions. While there are on-going efforts to harmonize GHG accounting methodologies for relevant sectors by the International Financial Institutions, given the current differences in calculation approaches, reporting GHG emissions based on a uniform, consistent and published method, remains yet to be seen.

**102. In Russia, non-financial reporting continues to develop at a slower pace than in other parts of the world.** Many definitions of non-financial reporting are not yet developed in Russian legislation. The Concept of Developing of the Non-Financial reporting was adopted in May 2017, by Government order N° 876-p dated May 5, 2017, thus improving the overall framework for non-financial reporting; it will also help create an appropriate infrastructure, and allow for reporting assurance mechanisms including the maintaining of a report register. The concept also sets the stage and requirements for mandatory disclosure of non-financial reporting for different types of companies and organizations.

**103. Of the 20 largest private companies in Russia included in the Forbes rating for 2016, 10 regularly issue non-financial reports, five of them rated in the top ten (LUKOIL, Surgutneftegaz, Tatneft, Severstal, Bashneft) and five in the second.** According to the results from another rating by RIA in 2016, out of Russia's 100 highest-value companies, 28 regularly issued non-financial reports. These are oil and gas, metallurgical, financial, telecommunication and one energy company (PJSC RusHydro).

In all, 25 companies from the first half of the list disclose a significant amount of non-financial information in Russia. As of February 1, 2017, 164 companies and organizations were included in the National Register of Corporate Non-Financial Reports, managed by the Russian Union of Industrialists and Entrepreneurs, which issued 751 non-financial reports from 2000 to 2016. Among them: environmental reports (EO) – 68; social reports (SB) – 291; reports in the field of sustainable development (ESD) – 247; integrated reports – 120; and industry reports – 25.

**104. Russia’s strategies for green finance and sustainable investing could promote a shift from the screening of objectionable exposures to investment solutions, with measurable sustainability impacts.** Attaining the bankability of green projects depends on the capacity of project proponents and financing institutions to attain, monitor, and report on green targets. Institutionalizing and mainstreaming reporting on social and environmental impacts will be a winning strategy to attract the growing number of impact-oriented investors and see future growth of green finance markets in Russia.



# 7

## APPROACHES TO GREEN FINANCE MARKET DEVELOPMENT AND REGULATION: LEARNING FROM INTERNATIONAL EXPERIENCE



**105. This chapter reviews the greening financial sector experiences worldwide, with a special focus on France, Brazil and China, to draw lessons on successful experiences that could inform Russia.** Those three countries adopted comprehensive actions to green their financial systems without using mandatory investment requirements or other policy instruments that could create market distortions.

**106. Countries where developing green finance is a policy priority, formulate national action plans or ‘roadmaps’ to green the economy and the financial sector.** Such plans contain measures to facilitate financial sector funding of green projects. National action plans help coordination between financial sector authorities and line ministries, which is essential to achieving results. For example, developing criteria to identify green mortgages requires close involvement of housing and construction government agencies to ensure that standards requirements are adequate. China, France and Indonesia are examples of countries that have elaborated a national strategy to green their financial system.

**107. No country has developed its green financial system without decisive action from the financial regulator.** While the role of central banks and supervisors may vary according to the domestic institutional framework, they are key to promoting the scaling up of green finance via greening their own activities, understanding and monitoring market dynamics of green finance and acting as catalysts for greening the financial system. Regulators play a key role in supporting the development of green finance either through provision guidelines or regulation for incorporation of E&S considerations and green financial products, provision of financial infrastructure such as information systems, and raising industry awareness and capacity building.

**108. Key components of successful financial greening experiences typically include (i) adoption of green finance principles; (ii) systems to monitor compliance with guidelines and track financial flows to green assets, and (iii) methods to assess the financial impact of climate-related factors.** A first step is encouraging financial intermediaries to incorporate environmental aspects in their investments through voluntary guidelines. Market-led initiatives are consensus-based and don't impose undue burdens on financial systems. This approach can be particularly appropriate to financial systems experiencing fragility. This was the approach Brazil followed in the early 2000's. China has issued voluntary guidelines for banks to manage their environmental and social risks. Monitoring compliance is key to ensuring the effectiveness of the voluntary approach setting mechanisms. Such mechanisms could include: oversight by the regulator; a monitoring board of adherence to the guidelines; disclosure of green investments. The latter requires a clear and normative definition of green assets. Understanding and assessing the financial risks related to climate factors motivates financial institutions and regulators to adopt a risk management mechanism and develop green finance products.

**109. Financial authorities play an important role supporting market-led initiatives.** Voluntary initiatives are often created and led by banking associations with the input and endorsement of regulators. Brazilian authorities supported the development and adoption of industry guidelines through public financial institutions. Many other countries have followed a similar approach with different degrees of support from

financial regulators. For example, the Nigerian Banker's Committee launched the Nigeria Sustainable Banking Principles.<sup>83</sup> The Central Bank of Nigeria supported the initiative and oversees implementation of the principles.

**110. Regulatory requirements on mandatory investments or favorable prudential treatment to green investments are relatively rare, as they are not first-best instruments and could introduce distortions.** To address the problem of insufficient investment in green projects due to externalities, a price on carbon would be the most direct and efficient instrument to internalize the externality. If not possible, other feed-in tariffs for renewables or other mechanisms should be pursued to make the project feasible. Regulating the financial sector moves the place of intervention further away from the market imperfection and could create distortions. Mandatory investments on green assets are rare, as most countries have moved away from directed credit policies for the reasons above, with only documented cases in Bangladesh and India.<sup>84</sup> Prohibitions for lending based on environmental concerns exist in China and Brazil, where the central bank has issued regulation restricting financial support to companies that operate in environmentally vulnerable areas such as the *Amazon Region* in Brazil.<sup>85</sup> On the insurance side, China has introduced a mandatory pollution liability scheme which has helped develop green insurance products.<sup>86</sup> Only Lebanon seems to apply differentiated prudential regulations to green the financial sector. Banque du Liban supports green credits by lowering the reserve requirements of commercial banks by an amount of 100-150% of the loan value if the bank's customer can provide a certificate from the LCEC that confirms the energy savings potential of the financed project.<sup>87</sup>

**111. Some prudential regulators however are inducing banks to consider climate-related risks and benefits.** In Brazil, the central bank requires commercial banks to stress test their lending against environmental and social (E&S) risk criteria and hold additional capital against these risks. The 'Policy Guidelines for Green Banking' and 'Guidelines on Environmental Risk Management' published by the Central Bank of Bangladesh encourage banks to conduct systematic environmental risk analysis as part of the credit appraisal process. To incentivize banks' compliance with the implementation of these guidelines the Central bank takes green management practices into account when computing the banks' CAMEL rating<sup>88</sup> and when granting permission for new bank branches. Bank Indonesia requires banks to assess the environmental impact of large or risky loans and to take borrowers' environmental conservation efforts into account with their business prospects. The Peruvian bank regulator introduced minimum requirements for social and environmental risk management.<sup>89</sup> Regulation for non-

<sup>83</sup> <https://www.cbn.gov.ng/out/2012/ccd/circular-nsbp.pdf>.

<sup>84</sup> Credit institutions in Bangladesh are required to allocate 5% of their total loan disbursements to green sectors. In India, banks must allocate 40 percent of loans to priority sectors, which, since 2012, include renewable energy.

<sup>85</sup> Resolution 3,545/2008, Resolution 3,813 Resolution 3,896/2010 and Resolution 4,008/2011.

<sup>86</sup> While polluting fines are the policy tool used to internalize the negative externalities arising from pollution, effective internalization is only achieved if the firm has assets to pay the fine.

<sup>87</sup> Climate Finance Loan Schemes in Lebanon - Climate Change Lebanon. <http://climatechange.moe.gov.lb/viewfile.aspx?id=216>.

<sup>88</sup> Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Market Risk (CAMELS) rating is a supervisory tool per which banks are assigned a rating reflecting their compliance with regulation and overall 'soundness.'

<sup>89</sup> [https://www.ifc.org/wps/wcm/connect/f5195580492471bc8099d5289542d56e/SBN\\_Regulation+for+Social+and+Environmental+Risk+Management.pdf?MOD=AJPERES](https://www.ifc.org/wps/wcm/connect/f5195580492471bc8099d5289542d56e/SBN_Regulation+for+Social+and+Environmental+Risk+Management.pdf?MOD=AJPERES).



bank intermediaries is less developed albeit South Africa's Regulation 28 established guidelines to incorporate ESG considerations into the investment decision-making process of pension funds.<sup>90</sup>

**112. Financial authorities also issue guidelines or regulations for the issuance of green products such as green bonds or green loans.** Several financial authorities have issued guidelines or regulations for the issuance of green bonds including France, China, India, and Brazil. The ASEAN Capital Markets Forum, which comprises capital market regulators from 10 ASEAN jurisdictions, launched the ASEAN Green Bond Standards, with the aim of enhancing transparency and unification of the market and ensuring that investors have access to sufficient information. Those guidelines generally follow the ICMA Green Bond Principles. EU is currently developing an official European standard for green bonds, which is expected to be introduced in 2019. Green Bond Principles recommend, and some country specific green bond standards require, an external review to confirm the alignment of the green bonds with the key features of the associated principles or standards such as (i) the establishment/review of an issuer's Green Bond framework ("Second party opinions"); (ii) evaluation of the environmentally sustainable features of underlying assets (verification); (iii) certification of a green bond or associated Green Bond framework or use of proceeds from the issuance against an external green assessment standard and (iv) rating. Green Loan Principles follow a similar approach. The financial regulator in China has issued Green Credit Guidelines for the purpose of encouraging banks to provide green loans.

**113. Stock markets are developing green indexes to facilitate the channeling of resources towards firms with good environmental practices, in some cases with the support of financial regulators.** As demonstrated by international experience, the development of green stock and bond indexes can channel more private capital towards green industries as they facilitate green investments by institutional investors. Green stock indexes usually have a significant share of green enterprises or track the green performance of listed companies. In the US there are numerous examples of green indexes which act as performance indicators of stocks covering areas such as energy efficiency, clean fuels, renewable energy generation and pollution mitigation: Nasdaq Green Economy Global Benchmark Index, S&P 500 Environmental and Socially Responsible Index etc. Emerging markets have also been developing green indexes. China's CSI 300 Green Leading Stock Index, sampled from listed blue chip companies, measures a company's green development strategies, green supply chains, energy and resource consumption as well as its negative environmental impact. The Brazilian stock exchange and Brazilian Development Bank jointly created the Carbon Efficient Index. The index comprises the shares of listed companies that adopted transparent practices with respect to their greenhouse gas emissions. The main objective of establishing this index is to encourage companies with actively traded stocks to assess, disclose and monitor their GHG emissions, thus stimulating a low-carbon economy.

**114. Recently, the Sustainable Stock Exchanges (SSE) Initiative issued a voluntary action plan on 'How Stock Exchanges can Grow Green Finance.'** The SSE green finance action plan identifies two main action areas that stock exchanges could work on in parallel. First, the promotion of green-labelled products and services; second,

<sup>90</sup> However, some funds have incorporated "green" investment in their asset allocation decisions reflecting an investors mandate, including, for example, the New Zealand Superannuation Fund; Sweden's AP2 or Norway's Government Pension Fund Global.

more systematic changes to support green transition. The guidance also identifies two cross-cutting action areas that will facilitate green finance efforts: strengthening climate-related and environmental disclosure among issuers and investors; and contributing to the growth of dialogue and consensus-building on green finance with other capital market participants. Throughout all four of these action areas, partnerships are key. Exchanges have also been collaborating through the SSE to develop model guidance on ESG reporting for exchanges to use in their own markets. Many exchanges have now launched ESG reporting guidance to encourage and support high-quality ESG reporting for issuers.

**115. Information systems to track green investments and monitor compliance with green policies are another key element of green financial infrastructure.** Measuring progress on green finance is needed to both identify the degree to which financial institutions are adopting practices that impact sustainability and the extent to which sustainability is factored into risk assessments. It can also gauge the levels of finance being directed towards green sectors and growth objectives that have been prioritized by governments. A better understanding of the supply of green finance will provide policy makers and regulators with insights into the type of additional incentives needed to increase green finance.

**116. Financial sector regulators can play a key role in setting up information systems for tracking green investments.** For example, the China Development Bank, together with China's central bank and banking regulator, drafted guidelines and standards on green-credit provision and installed a statistical information system to track green-credit provisions in China. In terms of green loan origination, CBRC introduced the Green Credit Statistics System in 2014, which was among the first emerging markets examples of regulatory guidance to define green loans. Green credit loans are classified into 12 categories with sub-categories, reflecting consensus within industries on what projects are considered green. A tool has also been developed for banks to calculate the environmental benefits from green credit lending, including reduction in carbon emissions, water pollution, and savings on water use. With a standardized definition for green banking assets, it is easier for banks to issue green bonds or pilot other green banking products, such as asset-backed securitization. CBRC Green Credit Statistics also track data on loans with compliance issues on (i) environment; (ii) safety; (iii) deploying technologies mandated to be phased out, and (iv) occupational health.<sup>91</sup>

**117. Public financial institutions play an important role as “first movers” and adopters of good practices and standards.** In all countries analyzed, public financial institutions are key providers of green finance and first adopters of guidelines and standards. Public financial institutions can play an important demonstration effect on the viability of applying green finance practices to other market players.

**118. Development financial institutions are increasingly focused on mobilizing private funding for green projects to leverage their resources through loan syndication, guarantees and project preparation facilities.** Development banks can play a key role acting as the leading structurer in a loan syndication or consortium structure in which several banks provide a project's financing. NAFIN, a Mexican Development

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<sup>91</sup> Greening the Banking System - Experiences from the Sustainable Banking Network (SBN) (Input Paper for the G20 Green Finance Study Group)

bank focused on SMES and renewable energy projects, can only finance up to 50 percent of a project, which forces them to look for other partners to structure the transaction. FND of Colombia, a bank focused on infrastructure projects only finance up to 25 percent of the project to maximize private sector crowding-in. Guarantees covering specific types of risks during the project cycle are in many cases necessary to make projects attractive to investors. Guaranteeing power purchase agreements or insuring against changes in feed-in tariffs for renewable-power projects are examples of such structures. Preparation facilities finance the feasibility studies and the design of the financial structure of the transaction. The initial stage is the highest-risk phase of the project's life cycle and subject to significant rent-seeking conduct. Development institutions often operate project preparation facilities, helping governments to set priorities and develop a project pipeline. The International Finance Corporation's (IFC) InfraVentures unit helps to develop projects and takes equity positions to help crowd-in other financing.

**119. Development banks and Sovereign wealth funds (SWFs) can also set up a mix of public-private funds to invest in green projects.** Development banks use their capital and expertise to create investment funds to mobilize private sector resources to developmental projects. For example, the Development Bank of Japan acts as anchor investor in a fund for solar Japanese investments<sup>92</sup> with one third of the interests, with the rest provided by the private sector, IFC and Amundi, a leading European Asset Manager, have created a green bond fund dedicated to investments in emerging markets. SWFs are also natural investors for green finance products as they originate in oil or mineral exporting countries keen to foster to economic diversification that are greening their economies to improve environmental risks management. Norway's SWF has recently been authorized to invest in unlisted renewable energy companies, under the same profitability and transparency demand as other investments, to profit from the trillion-dollar unlisted renewable infrastructure market.<sup>93</sup> SWFs can develop their green investment capacity through various structures and collaborations, including public-private partnerships and joint investments in climate-friendly projects. China's SWF, for example, teamed up with Global Infrastructure Partners to acquire a portfolio of Asian wind and solar energy projects from a Singapore-based private infrastructure equity manager.<sup>94</sup>

**120. Tax incentives and subsidies are rarely used to develop the green asset markets as they can be applied in a more targeted manner to the eligible project directly rather than by reducing the financing costs.** Governments can also foster the development of new instruments by providing a tax-advantaged treatment of interest and other income received by investors when proceeds are used for eligible sustainable activities. There have been some bonds where private investors provide financing to traditionally publicly financed green projects, and the tax benefits are granted to these bonds. Clean Renewable Energy Bonds (CREBs) and Qualified Energy Conservation Bonds (QECBs) in the US are often cited as examples of how tax incentives may be used for green finance instruments; and they may provide some evidence on the effectiveness of these measures. Public funds in Singapore subsidize issuance costs for green bonds, with the Green Bond Grant offered by the Monetary Authority of Singapore covering green certification costs as part of the overall "global

<sup>92</sup> [http://geenergyfinancialservices.com/press\\_releases/view/434](http://geenergyfinancialservices.com/press_releases/view/434).

<sup>93</sup> <http://ieefa.org/norway-sovereign-wealth-fund-moves-toward-investing-in-renewables-infrastructure/>

<sup>94</sup> <https://www.ft.com/content/9bb4b6bf-b1f0-35ca-a4e4-8131d8296729>

financial hub” development strategy of Singapore.<sup>95</sup> Globally speaking, however, it is rare that tax incentives are used as a policy tool to develop the green bond markets. Tax exemptions can be applied in a more targeted manner to the eligible project directly rather than by reducing the financing costs by green bonds.

**121. High political support and coordination among different governmental entities strengthen policy formulation.** Countries where greening the financial sector has high priority as part of the sustainable development strategy engage all relevant governmental institutions. The leadership’s political support is helpful to align all public and private stakeholders, instructing them to contribute to the formulation and implementation of greening strategy within the aspects under their purview.

**122. Financial authorities can play a key role in familiarizing institutional investors with climate risks and the opportunities provided by green finance to improve financial performance.** The French Central Bank conducted a pioneer assessment of climate-related changes in the French banking system.<sup>96</sup> The Dutch Central bank issued a report in 2017 on climate risks to the financial sector using information obtained through a special data request to financial institutions, and survey responses on environmental risks perceived by the institution and how are they managed.<sup>97</sup> Financial authorities can work jointly with national banking associations and multilaterals to develop guidelines for the structuring and origination of green finance products. For example, the Indonesian Financial Services authorities published a *Clean Energy Handbook for Financial Service Institutions* in 2014.<sup>98</sup> Bank Indonesia has organized capacity-building workshops for bankers that cover E&S risk assessment, risk mitigation of renewable energy investment, and green finance in general, in cooperation with the Ministry of the Environment.

## Selected Country Cases

### 7.1. France

**123. The 2015 French Low-Carbon National Strategy envisioned important re-allocation of investments towards projects that contributed to energy transition.**

<sup>99</sup>The strategy, produced by the Minister of Environment Sustainable Development and Energy, envisioned an ambitious reduction in greenhouse gas emissions (75 percent by 2050, compared to 1990). A wide set of measures in different sectors (e.g residential housing, transport, agriculture, industry etc) were included in the strategy. As a transversal theme, the financial sector should mobilize resources towards projects that would facilitate achievement of that goal.

<sup>95</sup><http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2017/Keynote-Address-at-the-Investment-Management-Association-of-Singapores-20th-Anniversary-Conference.aspx>

<sup>96</sup> <https://www.tresor.economie.gouv.fr/Resources/File/433465>

<sup>97</sup> [https://www.dnb.nl/en/binaries/Waterproof\\_tcm47-363851.pdf?2017101913](https://www.dnb.nl/en/binaries/Waterproof_tcm47-363851.pdf?2017101913).

<sup>98</sup><https://www.climate-links.org/sites/default/files/asset/document/Clean-Energy-Handbook-for-Financial-Service-Institution.pdf>

<sup>99</sup> [http://unfccc.int/files/focus/long-term\\_strategies/application/pdf/national\\_low\\_carbon\\_strategy\\_en.pdf](http://unfccc.int/files/focus/long-term_strategies/application/pdf/national_low_carbon_strategy_en.pdf).

### Box 8 Disclosure Requirements under the French Energy Transition Law

**Banks and credit providers** will be subject to regular stress tests including a climate change component.

**Publicly traded companies'** annual reports must disclose the financial risks related to the effects of climate change, the measures adopted by the company to reduce them, and the environmental impact of the company's activities as well as the use of goods and services it produces.

**Asset managers managing funds below EUR 500 million, and institutional investors with balance sheets below EUR 500 million,** must report on the implementation of their ESG policies.

**Asset managers managing funds above EUR 500 million, and institutional investors with balance sheets above EUR 500 million,** are subject to extended climate change-related reporting obligations (besides their ESG policies). Those obligations are two-fold:

- Assess the portfolio's exposure to climate change-related risks, including both physical risks (physical impact of climate change) and transition risks (impact of the transition to a low-carbon economy).
- Assess the investor's contribution to meeting the international and national low-carbon goals, including the low-carbon targets set by the investor itself and the actions taken to achieve these targets.

#### 124. France's green finance development approach was based on setting up mandatory climate change-related disclosures, official labels for green financial products, and supporting public financial sector investments and issuances.

Disclosure requirements. France became the first country to pass a law introducing mandatory extensive climate change-related reporting under art. 173 of the July 2015 Energy Transition Law.<sup>100</sup> It strengthened mandatory carbon disclosure requirements for listed companies and introduced carbon reporting for institutional investors, defined as asset owners and investment managers. While climate-related reporting focuses mainly on the impact of the organization's activities on climate change, the French Energy Transition Law also mandates reporting on the impact of climate change on the organization's activities and assets. The law provides investors with broad flexibility in choosing the best way to fulfill the objectives, based on a 'comply or explain' approach, albeit they are encouraged to follow best practices. An assessment of the implementation will be carried out after two years, at the end of 2018, and the best-in-class approaches will be promoted.

Official Labels for green financial products. The French Label for the Energy and Ecological Transition, TEEC (Transition Energetique et Ecologique por le Climat) was launched in late 2015. This label's aim is to shift capital to green investments. Such green certification ensures the transparency and quality of the environmental

<sup>100</sup>[http://www.frenchsif.org/isr-esg/wp-content/uploads/Understanding\\_article173-French\\_SIF\\_Handbook.pdf](http://www.frenchsif.org/isr-esg/wp-content/uploads/Understanding_article173-French_SIF_Handbook.pdf).

characteristics of the financial products in question through an audit by an independent third-party expert (Novethic, who in 2009 launched the first European label for Socially Responsible Investment funds, or SRI, which take ESG criteria into account). Fixed income/credit funds that want to be labeled TEEC should be significantly invested in green bonds, issued in accordance with the Green Bond Principles, for more than 83 percent of their net asset Value. A decree establishing an SRI label was launched on January 2016 recognizing funds that incorporate ESG considerations on its asset allocation.<sup>101</sup> Funds wishing to obtain the SRI label must apply to one of the certification bodies approved by the French accreditation committee (COFRAC). There are currently two certification bodies: AFNOR Certification and EY France.

Support for from public financial asset managers and government issuances. By the end of 2015, even before the official launch of the SRI labels, France was already the most developed SRI market in Europe with assets over USD\$ 43 billion.<sup>102</sup> The French Responsible Investment market was primarily boosted by state-linked asset owners like the French Reserve Fund (FRR), the French civil servants complementary pension schemes and the Caisse des Dépôts, which are development financial institutions.<sup>103</sup> France's issuance of an EUR 7 billion sovereign green bond helps increasing the depth and liquidity of green bond markets.

## 7.2. Brazil

**Brazil has been a pioneer in its policy efforts to protect the environment and manage climate risks.** Given its biodiversity and the environmental challenges faced in the Amazon region, the biggest world green zone, environmental protection efforts have long been in the country's policy agenda. The national environmental Policy in 1981 introduced environmental impact assessments, later included in the 1988 constitution. The 2000-2004 government's multi-year plan included an environmental dimension for the first time. The focus of the policies was on protecting the environment and managing financial risks arising from environmental degradation. The National Policy on Climate Change was approved in a 2009 law, and comprised policies for environmental preservation, management, and recovery of the territory as well as reduction of the effects of greenhouse-gas. Main instruments to achieve the policies were the introduction of a carbon trade mechanism and a national climate change fund.<sup>104</sup>

**125. Brazilian policies to green the financial sector have evolved from supporting market-led initiatives to issue regulatory requirements.** Public banks have been important actors in the agenda, as early adopters of guidelines and providers of finance.

Promotion of voluntary guidelines. The Brazilian Banking Association (FEBRABAN) issued green banking guidelines, which were first adopted in 2008 by five Brazilian state-owned banks and then by commercial banks in 2009. The Brazilian stock

<sup>101</sup> [http://www.lelabelisr.fr/sites/default/files/annex\\_2\\_-\\_referentiel\\_3.pdf](http://www.lelabelisr.fr/sites/default/files/annex_2_-_referentiel_3.pdf).

<sup>102</sup> <https://www.statista.com/statistics/422438/socially-responsible-investments-europe-countries/>

<sup>103</sup> <http://www.eurosif.org/sri-study-2016/france/>

<sup>104</sup> <http://www.braziannr.com/brazilian-environmental-legislation/law-no-12187-brazilian-national-policy-on-climate-change/>.

exchange has promoted sustainability for a decade, driving ESG disclosure across all listings, including through the creation of the low carbon index and the corporate sustainability index.<sup>105</sup>

Regulatory requirements on environmental risk management. In July 2011, Banco Central do Brasil (BCB) issued circular 3547 establishing procedures on commercial banks' Internal Capital Adequacy Assessment Process (ICAAP) and requiring them to take into account the risk of exposure to environmental damage.<sup>106</sup> Through stress tests, banks have to evaluate the sufficiency of their capital to cover a variety of risks, including those arising from exposure to social and environmental damages. The BCB sets the general framework, listing the types of risks that a bank has to consider when deciding for itself how much additional capital to hold after submitting its ICAAP for independent validation. Banks that are subject to ICAAP regulation also are required to submit an annual report to BCB, outlining how they assess and calculate risks, explore implications for capital adequacy, and consider the exposure to social and environmental damages generated by the institution's activities.

BCB Resolution 4,327 issued in 2014, established guidelines for financial institutions for the creation and implementation of Social and Environmental Responsibility Policies (SERP), replacing the voluntary guidelines. SERPs should provide for governance strategies, particularly regarding the management of any social and environmental (E&S) risk, which refers to the possibility of losses due to socio-environmental damages. Banks have to incorporate E&S into their broader risk assessment framework and evaluate E&S risk and the potential negative environmental impact of new financial products and services, as well as collect data on actual financial losses due to environmental damages for a period of 5 years. Additionally, an organization's SERP governance structure should ensure compliance with its policies and provide guidelines regarding the implementation, monitoring, and assessment of its actions, and the identification of any related deficiencies.

Public financial sector institutions: Brazilian public banks have been leaders in the country in the adoption of E&S credit guidelines. The two largest public commercial banks, Banco do Brasil, and Caixa Economica Federal signed the Ecuador Principles, and Banco do Brasil is part of the portfolio of the Dow Jones Sustainability Index (DJSI) of the New York Stock Exchange, which brings together companies with the best E&S practices. Caixa created a Social and Environmental Fund that funds, among other things, projects in the areas of environmental management and recovery.<sup>107</sup> Both banks have also developed a range of products to finance energy-efficient investments. BNDES, a Federal development bank, operates the national climate change fund and the Amazon fund.

### 7.3. China

**126. China's environmental policy has evolved from focusing on pollution control to proactively incorporating environmental considerations into its development process.** The State Council of China in 1983 announced environmental protection as one

<sup>105</sup> [http://www.bmfbovespa.com.br/en\\_us/products/indices/sustainability-indices/](http://www.bmfbovespa.com.br/en_us/products/indices/sustainability-indices/).

<sup>106</sup> <http://www.bcb.gov.br/ingles/norms/brprudential/Circular3547.pdf>.

<sup>107</sup> <http://www.caixa.gov.br/sustentabilidade/fundo-socio-ambiental/Paginas/default.aspx>



of two basic state policies (the other being family planning). In 1995, public authorities for the first time indicated that economic development should be controlled and limited in a certain region to preserve the environment. Since then, a series of national plans, policies, and environmental laws have been enacted in China. According to Wang and Lin (2010) “Overtime the emphasis has moved from end-of-pipe pollution control, based on individual plants and processes, to a coherent and consistent strategy of pollution prevention based on entire drainage areas or other geographical regions.” The 2015 Overall Plan for the Reform of Ecological Civilization System envisions improving fiscal policies and incentives to mobilize necessary resources towards needed investments. According to estimates by the People’s Bank of China, 85–90% of the investment required to achieve the targets will have to come from private capital.<sup>108</sup> China also established ambitious targets.<sup>109</sup>

**127. To green the financial system, a comprehensive and coordinated approach was introduced among various institutions.** In 2014, China set up a green finance task force comprised of 40 experts to assess and advise on the best way for China to deliver on its decarbonizing ambitions. This task force produced a detailed report in April 2015<sup>110</sup> which, in turn, gave birth to the Green Finance Committee of the China Society of Finance and Banking (GFC). The GFC is led by China’s central bank and includes an elite group from China’s financial community including the top tier regulators, banks, asset managers, insurers and thought leaders. China is recognized as having one of the most coordinated and comprehensive approaches to greening its financial system, as strong support from leadership helps to align different stakeholders.<sup>111</sup> To develop green finance in China, the central bank developed information systems, non-binding guidelines, and new green financial products; the ministry of environment developed information on the environmental performance of firms; and the banking regulatory commission monitored bank activities on environmental impact. Continuing this tradition, the new Guidelines for Establishing the Green Financial System (henceforth the Guidelines) were issued jointly by the central bank (PBoC) the financial regulators, and the ministries of finance, environment and planning in 2016.<sup>112</sup>

Information systems. Taking an initial step in 2006, PBoC created a countrywide credit database for disclosing information on credit, administrative penalties, and information on the environmental compliance of firms. The China Banking Regulatory Commission (CBRC) monitors that commercial banks do in fact restrict loans to violators. In 2013 CBRC launches the Green Credit Statistics System that classifies green credit into 12 types. Banks are required to collect statistics on the annual energy conservation

<sup>108</sup> PBoC & UNEP, 2015

<sup>109</sup> Under the Paris Agreement, China has committed to reducing its carbon dioxide emissions per unit of gross domestic product by 60-65 per cent from its 2005 levels by 2030, and to increasing its share of non-fossil fuels in primary consumption to around 20 per cent.

<sup>110</sup> Establishing China’s Green Financial System, April 2015 co-sponsored by the research bureau of the People’s Bank of China and the United Nations Environmental Program inquiry into the design of a sustainable financial system.

<sup>111</sup> The latest Communist Party Congress saw general secretary Xi Jinping affirm China’s commitment to green finance; part of a wider focus on sustainable development.

<sup>112</sup> <http://www.pbc.gov.cn/english/130721/3133045/index.html>.



and emission reduction capacity of green credit projects.<sup>113</sup> In 2014, key performance indicators of green credit implementation were introduced.<sup>114</sup> The 2016 guidelines call for the mandatory disclosure of environmental information by listed companies.

Non-binding guidelines. In 2012, the CBRC issued Green Credit Guidelines.<sup>115</sup> These voluntary recommendations encourage banks to “effectively identify, measure, monitor and control environmental and social risks associated with their credit activities, establish environmental and social risk management systems, and improve relevant credit policies and process management.” The guidelines also establish that bank supervisors shall monitor the E&S risks faced by the institutions, and provide guidance on how to improve management as warranted. The 2016 Guidelines encourage institutional investors to conduct environmental and climate risk stress testing, and call for infrastructure to support financial institutions in their due diligence and evaluations by providing tools for calculating environmental costs and evaluating environmental impacts.

Regulatory requirements. Mandatory requirements are few, and relate to the non-banking industry. Most notably they oblige industries with high environmental risks to acquire pollution liability insurance, and include environmental review for companies’ initial public offering.

Public financial institutions. The Chinese financial system is mostly public. Development financial institutions such as the China Development Bank have played an active role, being the largest provider of green credit in the country at the end of 2015.<sup>116</sup> However, the 2016 guidelines call for encouraging financial institutions to issue more green loans and commit to exploring how to leverage public finance to support the growth of green loans through mechanisms such as interest subsidies, on-lending, and loan guarantees.

Green products: China has an active green bond market, and is one of the largest issuers. In 2015 POBC published the first Green Bond Guidelines, the Green Bond Endorsed Project Catalogue and the publication by the National Development and Reform Commission (NDRC), of its guidelines on green bonds, linked to fiscal support for infrastructure investment.<sup>117</sup> In early 2018 PBoC and CBRC issued new guidelines that address regulation of certifying institutions and establish quality control systems both through self-administered and external procedures.<sup>118</sup> The 2016 Guidelines seek to develop mechanisms for green financing, particularly the securing of green credit assets through the issuance of green bonds. It also calls for expanding green investment products, including establishing a green stock index.

<sup>113</sup> <http://www.cbrc.gov.cn/EngdocView.do?docID=4D4378ED00434E41BF454226FAE08B9A>

<sup>114</sup> <http://www.cbrc.gov.cn/EngdocView.do?docID=C5EAF470E0B34E56B2546476132CCC56>

<sup>115</sup> <http://www.cbrc.gov.cn/EngdocView.do?docID=3CE646AB629B46B9B533B1D8D9FF8C4A>.

<sup>116</sup> <http://www.cdb.com.cn/English/shzr/lxsd/>

<sup>117</sup> ReedSmith (2016).

<sup>118</sup> <http://www.pbc.gov.cn/english/130721/3456059/index.html>



8

THE WAY FORWARD



**128. The green finance agenda has been gaining momentum in Russia since its profile was raised in 2017 at the Russia State Council.** Various approaches and instruments have been discussed by groups of public and private stakeholders, including the Ministry of Finance, Ministry of Natural Resources and Ecology, Central Bank of Russia, development and public banks, industry associations etc. A dedicated working group on green finance and ESG investing was recently established under the Central Bank of Russia. However, in the absence of clear policy signals and a national champion, most of these efforts remain fragmented and do not contribute to a coherent development of green finance in Russia. While the importance of installing green finance in Russia has been well established, the best next steps remain under discussion. The most efficient approach would partner a host of public and private agencies like the Ministry of Natural Resources and Ecology, Central Bank of Russia, Ministries of Finance and Economic Development, Moscow Stock Exchange, VEB and others in efforts to coordinate actions, mobilize support and build capacity for development of the market. Development of green finance requires a set of national strategic documents, special policies and implementing rules that will encourage market stakeholders to ‘green’ the financial system and advance the transition towards a green economy. The remainder of the report highlights possible next steps and the roles and responsibilities of different stakeholders.

**129. A variety of factors resulting from a fragmented and uncoordinated approach seem to be impeding the development of green finance in Russia.** Current impediments include: (i) the absence of a champion public sector agency coordinating all relevant stakeholders; (ii) lack of an ample pipeline of green projects due to modest carbon reduction targets, underdeveloped green procurement and weak enforcement of existing environmental regulations and sector level targets (e.g. energy efficiency in buildings); (iii) lack of regulatory framework for green finance instruments, including standards and definitions of what constitute a green project/asset; (iv) incipient involvement of the domestic development financial institutions in the green agenda; and (v) a lack of awareness by financial institutions and pension funds and other institutional investors of the risks and return opportunities associated to green finance. Promoting new instruments or platforms requires coordinated action, as illustrated by international experience, in developing green finance markets, and is important to have an institution assuming leadership and ensuring cooperation of green project suppliers, investors, and regulators.

**130. B** This includes the following key elements, which are essential building blocks for wider action: (i) revisiting climate change commitments, environmental and sector specific targets and assessing financing needs by sector (e.g. green buildings, clean transport, renewable energy, waste management, sustainable agriculture etc.); (ii) identifying a national green finance champion and establishing a coordination body represented by the key stakeholders; (iii) developing a green finance roadmap and corresponding action plan; (iv) assessing the potential impact of climate change and the low-carbon transition on macroeconomic and financial stability; (v) incorporating a green agenda in public policy institutions’ mandates and public procurement; (vi) establishing an evaluation and measurement system, and tracking progress towards objectives; and (vii) raising awareness about green finance and building capacity at all levels (federal and regional policy makers, financial sector participants, etc.).

**131. Russia needs to intensify its efforts to green its economy to ensure economic sustainability and green its financial system with a view to mobilizing resources towards green investments and better managing risks.** Key sectors and areas that are likely to grow under an increasing public pressure to improve environmental performance and resource use are the energy, water infrastructure, pollution abatement and waste management sectors. There are multiple investment opportunities for responsible investing in these sectors provided that a conducive policy and regulatory environment is established to foster the development and financing of green projects and the management of environmentally induced economic and financial risks.

**132. Russia has to develop an action plan in order to realize its commitments, by sectors, to the Paris Agreement,** including the implementation of NDC, with financial incentives to stimulate the supply of green projects by businesses. Introducing the term “ecosystem services” in the body of environmental legislation would be aligned with international practices for monetizing and financing conservation and protecting natural assets of significant value to the economy and livelihoods. The latter will help expand the definition of green projects.

**133. Commitments to direct resources to environmentally sustainable projects from different institutional and private sector stakeholders will be key to generating a pipeline of green projects.** Besides more effective regulatory levers, encouraging Russian companies in all sectors (including financial) to voluntarily embrace ESG and sustainability initiatives in their corporate strategies including adoption of CSR is essential, and could go a long way. Similarly, ensuring public support for developing a robust pipeline of bankable sustainable and green projects will be central to gaining the trust of investors in the nascent green finance market.

**134. An institutional partnership led by the Ministry of Economic Development, Ministry of Finance and the Ministry of Natural Resources and Ecology (MNRE) will have a central role in supporting green project development.** An institutional agreement on a platform supporting resource allocation toward sustainable development, especially for greening the infrastructure with all its large-scale impacts, will be a step in the right direction. Greening the economic policies, sector regulations, and public investment programs may be a good starting point. Government policies should be centered on enabling incentives for meeting the green-economic objectives and SDG in non-traditional green investments such as nonrevenue water reduction, forestry expansion, smart transportation, green buildings, resource efficiency, waste for energy and others under a single goal of promoting a green transformation, low-carbon, sustainable, and inclusive growth. Better sectoral coordination on implementation of SDG-based on indicators (ecological indicators, health indicators, sociocultural indicators, and economic indicators) supported by centralized monitoring and information sharing will guarantee better performance of sectors in meeting the 2030 SDG objectives.

**135. In partnership with the Ministry of Industry and Trade, MNRE could take steps to facilitate greater market sustainability by participating in drafting, adopting and enforcing regulations for mandatory ESG reporting by large companies.** High-quality ESG information remains crucial to all responsible investment endeavors. Obligations for companies to disclose different types and levels of ESG information already exist in

many countries under the EU Accounts Modernization Directive. For instance, France and Denmark have more specific regulations on disclosure requirements. In the US the SEC has a requirement for certain disclosures related to climate change.

**136. To support the development of a green economy roadmap, Russia may benefit from a country-specific analysis of the role of different public and private actors in green investment.** A demand-supply analysis could inter alia include a review of institutions, sectors and themes that can be greened beyond the renewables; areas for fiscal and financial policy support; natural resources profiles of geo-economic regions and their pursuit of green projects; description of existing financial infrastructure, financial product and services that could be launched based on market demands and their leveraging potential; potential and beneficial partnerships for green market development; the role of the public sector in green innovation and technology development; and funding sources for boosting green financial markets.

**137. To leverage the effect of fiscal measures on green finance, Russian authorities could introduce green public procurement.** A recently proposed draft law on incorporating eco friendly and energy efficiency requirements in public procurement is a step into the right direction. Countries increasingly recognize that green public procurement can also be a major driver for innovation, providing industry with incentives for developing green products and services, particularly in sectors where public purchasers represent a large share of the market (e.g. construction, public transport etc.).

**138. MNRE can contribute to the development of green projects by ensuring that price signals reflect both positive and negative externalities.** The pipeline of bankable green projects could grow if fundamental measures, that may include changes in taxation and subsidies, are implemented. In the case of carbon, performance standards will be drivers of improvements in both production processes and products. Massive methodological support and technical assistance is needed for implementation of BATs on an accelerated schedule. Misaligning the horizon for BAT implementation with other green market development incentives could slow down the uptake of green investments.

**139. MNRE could also take the lead in developing a technically robust classification system to establish market clarity on what is 'green' or 'sustainable,' starting with 'clean, green and resilient,' environmentally sustainable, and socially sustainable, for key sectors.** This will include definitions, criteria, screening metrics to avoid "green washing" and support eligibility. For instance, for climate change mitigation the metrics would be avoided emissions and increased sequestration; for climate adaptation they would be reduced disruption and damage from the effects of climate change; for water resources management they would be water efficiency and sustainable withdrawals, etc. Putting more specificity into terms like 'accessible, affordable, equitable' when it comes to the SDGs, as well as clarifying 'substantial improvements in emissions or energy efficiency' or 'low-carbon' in terms of pollution control and mitigation could help maximize the market potential for financing green projects and contribute to national sustainability objectives.

140. **MNRE can take the lead in supporting an R&D platform** and engaging with industries such as energy, utilities, transport and construction, to encourage them to understand the climate and environmental concerns and provide R&D solutions that address technology, cost effectiveness, and return on investment concerns while delivering on climate reporting-disclosure objectives.

141. **MNRE, along with the Ministry of Economic Development and Ministry of Finance, could help address key bottlenecks of green project development that lacks capacity.** Such competencies are hard to develop, or are unequally distributed across the regions, thus creating infrastructure investment gaps. There is an urgent need for interventions at both the macro and project level to help develop a green investment framework and to more rapidly build capacity for green project pipeline development, evaluation and implementation, and monitoring and reporting. This could include a knowledge-sharing mechanism on best practice in green infrastructure planning and development.

142. **An institutional partnership led by the Central Bank of Russia and, and consisting of the Ministry of Natural Resources and Ecology the Ministry of Finance and Ministry of Economic Development, could have a central role in fostering an enabling environment for green finance.** The Central Bank is well positioned to lead this partnership as it is the financial sector regulator as well as the owner of the largest public banks. The proposed partnership could develop a national green finance roadmap that identifies system-wide needs, barriers to private sector capital mobilization and priority actions. However, Russia is still at an incipient state regarding the green financing agenda. Only recently, for example, the Central Bank of Russia conducted a review of green financial regulations and established a working group on green finance and ESG investing. While current Central Bank priorities are naturally focused on strengthening the financial system and resolving failed institutions, they could set the supporting conditions to stimulate green finance development over the medium term.

143. **The Central Bank of Russia could either mobilize and support financial institutions to develop market-led initiatives as an owner of some of the largest public and private banks, or issue or endorse voluntary guidelines for green bond issuance, E&S risk management, or general green banking finance guidelines.** Market-led initiatives and voluntary guidelines could help to create consensus and build support for the development of green finance. Also, the approach appears particularly suitable for countries such as Russia that have recently experienced banking fragility. The Central Bank could, for example, encourage institutions to adopt the Equator Principles and to enhance the local E&S standards. It could also draft guidelines for the issuance of green bonds, or adopt principles developed by the industry. Later on, the voluntary guidelines could be substituted with mandatory regulations in case it becomes necessary to further develop the market as done, for example, in the case of Brazil. Public banks should lead the effort by promoting the adoption of guidelines in the context of the banking associations, and be first movers in the adoption of these guidelines to demonstrate effect.



144. **The Moscow Stock Exchange** could follow the global trends to grow green finance and publish guidance on ESG and sustainability reporting to investors, and establish lists or segments dedicated to sustainable financial instruments, building on work carried out by the SSE Initiative.

145. **Developing systems and standards to measure the impact of green finance in Russia will be essential to tracking progress in greening the financial sector.** To that end a methodology to track and measure green finance should be introduced, and figures on green finance reported in the Central Bank Financial Stability Report. Different approaches can be used or adopted to local conditions as appropriate. For example, IFC has developed a bottom up methodology to track green finance by banks that provides a definition of “green” at a project level, based on the intended use of the investment in the real economy.<sup>119</sup> This approach estimates the green share per project type and then aggregates flows at an industry and country level. The WBG is leading efforts for developing an approach to identify “green” assets within banks which will soon be piloted. China has introduced standardized mandatory reporting on green loans for its largest banks, with 12 concrete categories and guidelines to track green lending products and services. Relevant authorities should develop indicators and an environmental information disclosure framework, and encourage listed companies to disclose more environmental information on a voluntary basis through designing and developing green stock indexes.

146. **The Central Bank could build in-country capacity as well as the capacity of system players through a program of research and training on green financial issues.** Such a program could include for example (i) developing methodologies to identify impacts and assess the climate-related risks in the Russian financial system; (ii) evaluating the economic and environmental impacts of introducing green finance products; and (iii) training staff and risk managers at financial institutions on climate-related risks.

147. **Assessing the potential impact of climate change and the low-carbon transition on macroeconomic and financial stability could be set as a medium-term priority for the Central Bank of Russia.** There are currently ongoing international efforts to develop an analytical framework for such assessment, led by the Central Banks and Supervisors Network for Greening the Financial System (NGFS), which could be leveraged in the future.

148. **International cooperation could be instrumental to developing domestic capacity, and Russian financial sector stakeholders could benefit from and contribute to these efforts by joining existing networks.** The Sustainable Banking Network (SBN) is a voluntary community of financial regulatory agencies and banking associations that promotes sustainable finance and is hosted by the International Finance Corporation (IFC). So far Russia is the only BRICS country with no SBN-member institutions (public or private). The Central Banks and Supervisors Network for Greening the Financial System was recently established by a group of central banks and supervisors on a voluntary basis to exchange experiences, share best practices, and contribute to the development of environmental and climate risk management in the financial sector and mainstream green finance.

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<sup>119</sup> IFC, 2017

### **Incorporating a green agenda in public policy institutions' mandates**

149. **The Russian Development Bank VEB could play a catalytic role in supporting the green finance strategy.** The VEB strategy has already prioritized investments in infrastructure, clean energy, sustainable development and energy efficiency and the bank started building a portfolio of such projects. However, there is no specific framework developed at the bank for identifying, measuring and reporting the impact of such projects. The recent regulation on loan syndication facilitates the bank's role in crowding in private sector funding. Also, it could develop a range of guarantee products offered to make green projects bankable. VEB could also explore the establishment of funds dedicated to supporting green investments either through capital participation or debt acquisition.

150. **Other financial development institutions could generate a portfolio of green assets.** Both the SME Bank and SME Corporation could incorporate targeted loan and guarantee products for environmental investments by SMEs (e.g. energy and resource efficiency, including manufacturing of renewable energy and energy-efficiency equipment, car loans/leases to electric vehicles and hybrids, green tech etc.). Once these products are mainstreamed, green bonds could be issued. Furthermore, SME Corporation could leverage its state-of-the-art online Business Navigator tool to provide information, advice and guidance to promote environmental compliance and green business practices by SMEs. The **Russia Housing and Urban Development Corporation (RHU DC)** could incorporate certain resource and energy-efficiency requirements into the rental housing or new construction it supports, as well as introduce retail green mortgages and loans to home owner associations and housing management companies via the specialized mortgage and construction bank (DOM. RF) for energy-efficiency improvements of multi-family buildings. These banking products present asset classes suitable for green securitization. Given its track record and expertise in securitization, RHU DC could pioneer green securitization in Russia. Given the rapidly growing mortgage market in Russia, green residential mortgage-backed securities are an ideal asset class to spur green finance market development. Notably, in 2017 the US housing agency Fannie Mae was the largest issuer of green bonds globally.<sup>120</sup>

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<sup>120</sup> [www.fanniemae.greenfinancing.com](http://www.fanniemae.greenfinancing.com).

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