Chapter 87
The Future of the Natural Resources Sector in Russia

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ABSTRACT

Environmental management, technologies, products and services are commonly expected to provide significant economic opportunities for companies and countries. This is mainly due to increasing awareness among politicians, academics and the wider population on the importance of environmental aspects in daily life. Consequently demand for environmentally friendly solutions is expected to grow continuously in the next decade. The present study is part of a broader research project which examines the long-term science and technology (S&T) agenda in Russia up to 2030. The project's results were approved by the Prime Minister of Russia in early January 2014. Researchers from the National Research University Higher School of Economics carried out the research project at the request of the Russian Ministry of Education and Science between 2011 and 2013. The research comprised six interrelated spheres: ICT; biotechnology, medicine and public health; new materials and nanotechnologies; environmental management; transport and space systems; and energy efficiency and energy conservation. For each sphere, the project explored in-depth the global emergent challenges and opportunities, the risks, and their degree of influence on Russia. The authors analysed the most important potential market niches, products and services that are capable of radically shaping world markets and highlighted their competitive advantages. Within the framework of these priority science areas authors emphasised several spheres of particular potential value and compared the level of research carried out in Russia and the leading countries. The current chapter also covers the analyses the natural resources sector made within a project aimed at integration of national and sectoral S&T Foresight studies funded by the Russian Ministry of Education and Science. Findings show that the potential applications for environmental products and services are

manifold. The study is based on a thorough analysis of expert opinions and their assessment of future applications and the development of demand for these applications. However the authors note that the expert opinions included in the assessment of prospective products, services and markets, despite being based on rigorous assessment, still reflect expectations. Their opinions incorporate a degree of uncertainty especially with regard to how and when (or whether) the markets, technologies, products and services will develop in the expected ways.

1. INTRODUCTION

In the era of globalisation and rapid scientific and technological development the environment is increasingly vulnerable. Continued pursuit of the current acceleration with respect to environmental management poses high risks of human losses and curbs on economic growth. Many global challenges that humanity will face in the near future are linked to the environment and the unsustainable use of natural resources. The challenges primarily concerns, for example, the depletion of several critical resources, climate change, growth in the environmental footprint and pollution of natural environments, the lack of high-quality water resources, and the loss of biodiversity (NIC, 2012; OECD, 2008b; OECD, 2012b). Scientific and technological undertakings in the search for integrated responses to such challenges are important (Meissner, Gokhberg, Sokolov (eds.), 2013). However, whilst the international community has already realized the importance of a transition to environmentally oriented development ('green growth') (OECD, 2011c), the subject has traditionally been viewed as 'peripheral' in Russia.

Russia's need to build capacity in science and technology in environmental management is not only due to the opportunities to secure important shares of these prospective markets, but also to the threat of losing its position in traditional segments because of the constant tightening of international environmental quality standards for products and production technologies (Varfolomeev et al 2014). The solution of this multi-faceted task lies in highly skilled domestic developers in all areas of applied research. The main challenge however lies not in technical or engineering skills but rather in the systemic understanding of the economic and societal potential of environmental innovations in the engineering and technical fields.

The answer to the above challenges lies in the substantial changes in science, technology and innovation policies in recent years, the broadening of the scope of the policies and the spectre of policy instruments (Kotsemir M. N., Meissner D. (2013); Meissner D., Sokolov A. (2013); Meissner D. (2013)) The new policies largely aimed to address one of the most important issues facing Russia: the search for new instruments of economic growth which is impossible without wide scale modernisation of the traditional economic sectors based on new technologies as well as the search for new production for market entry into emerging high technology markets (Meissner D. (2012); Sokolov A., Chulok A., Mesropyan V. (2013)). Reorienting Russia's economy towards innovation requires comparatively fast growth of the high technology industry and service sectors and a radical increase in their competitiveness. In order for that to become a reality, science, technology and innovation policy needs to be further developed, the quality of public information about the policies should be improved, and the evidence base strengthened.

2. METHODOLOGY AND APPROACH

The methodology of our chapter is part of the overall methodology of the long-term forecast, the key elements of which are outlined in Figure 1.

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