

Chapter 9


Circular Economy Experience: A Russian Perspective

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ABSTRACT

The chapter focuses on the historical aspect of economic development stages. It identifies agriculture-based, industrial, and post-industrial economies' characteristics. It is demonstrable that the problem of limited resources, the use of waste from consumption, and production has always existed. However, these problems were solved differently in different historical periods. The accumulated problems can be solved by the transition to a circular economy model. When studying the Russian experience in the transition to a circular economy model, the focus remains on Russian legislation. The example of Russian industrial enterprises shows the practical application of the circular economy principles. The research covers such enterprises as PJSC NK ROSNEFT (which includes PJSC ANK Bashneft, Bashneft-Ufaneftekhim, JSC Novokuibyshevsky Oil Refinery, and JSC Rospan International), PJSC TATNEFT, PJSC MMC Norilsk Nickel, PJSC Magnitogorsk Iron and Steel Works. The presentation is on strategies, policies, and programs aimed at ensuring industrial safety, labor protections, and the environment.

INTRODUCTION

The growth of population, which is accompanied by an increase in industrial production, has led to increased consumption of resources. The natural reserves on the planet are depleted. Intensive human economic activities lead to environmental pollution and climate change. The problems listed above make all the countries think about searching for solutions to them.

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The purpose of this chapter is to study the implementation of the circular economy principles in Russia. For a more complete understanding of the ongoing processes, it is necessary to pay attention to the historical aspect of economic development. All developed countries across the world went through the same stages in their economic development, thus, it is necessary to identify the differences between the stages of economic development. The transition to a circular economy model requires a serious review of existing business processes and the identification of business processes that are consistent with the circular economy model.

From our point of view, the introduction of the circular economy principles should be initiated by the government of the country, therefore, it is important to study the legislation that encourages enterprises to comply with industrial safety, environmental standards, the development and implementation of more efficient technologies. Enterprises that can have a negative impact on the environment include, first of all, mining enterprises, oil refineries, and metallurgical plants. Therefore, the chapter studies the use of business models corresponding to the circular economy in oil and gas companies, at metallurgical plants, and also in light industry. The following enterprises were selected as examples: PJSC NK ROSNEFT (consisting of PJSC ANK Bashneft, Bashneft-Ufaneftekhim, JSC Novokuibyshevsky Oil Refinery, JSC Rospan International), PJSC TATNEFT, PJSC MMC Norilsk Nickel, PJSC Magnitogorsk Iron and Steel Works. These enterprises use a systematic approach to ensure industrial safety, labor protection and reduce the negative impact on the environment. Russia houses 11 large vertically integrated oil producing companies as well as over 180 independent oil producing companies; 10 largest vertically integrated metallurgical companies and this is not an exhaustive list of industrial enterprises (Rosstat, 2019). We are limited by the volume of the chapter, therefore, we will not be able to consider all enterprises from different industries.

During the transition to a circular economy model, the role of manufacturing enterprises increases, thus, the application of business models in light industry enterprises was studied.

The data of the Federal State Statistics Service of Russia (Rosstat), as well as data from the reports published by the researched enterprises on official websites was used as a source of information.

BACKGROUND

Any production as consumption is associated with the use of resources and has an impact on the environment. K. Boulding tried reviewing the problem of a more efficient use of natural resources from the theoretical point of view, proposing circular economy. In the 70s of the twentieth century, this idea was supported by European countries. In 1972, Meadows et al. in their work *The Limits to Growth*, developed a model of world development provided that the existing population growth rates, industrial and agricultural production, irrational use of non-renewable natural resources, and environmental pollution stayed the same. The conclusions were sad: mankind was confidently heading for disaster, material growth cannot continue indefinitely on a physically finite planet. In further studies conducted in 1992 (20 years later) and 2002 (30 years later), these findings were confirmed with a slight adjustment of individual indicators.

In 2010, Ellen MacArthur established a foundation with a goal to popularize the ideas of a circular economy. The Foundation's initiatives are supported by the European Commission and in 2012 adopted the «MANIFESTO FOR A RESOURCE-EFFICIENT EUROPE», which decides on the transition to a resource-efficient, regenerative circular economy in the European Union. In 2014, the Ellen MacArthur

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