



Strategic management of the potash industry in Russia



D. Dmitrieva^a, A. Ilinova^{a,*}, A. Kraslawski^{b,c}

^a Organization and management department, Saint-Petersburg Mining University, Vasil'evsky Ostrov, 21 liniya 2, Saint-Petersburg 199106, Russia

^b LUT School of Business and Management, Lappeenranta University of Technology, P.O. Box 20, FI-53851 Lappeenranta, Finland

^c Faculty of Process and Environmental Engineering, Lodz University of Technology, ul. Wolczanska 213, 90-924 Lodz, Poland

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ABSTRACT

Mineral resources and the mining industry play an important role in economic development of many countries. The unique Russian mineral raw material base – phosphate and potash ore reserves in the case under consideration in this work – allows domestic mining and chemical companies not only to meet domestic demand but also to act as significant players on a global scale. Russian fertilizer companies enjoy a significant share of the global fertilizer market and have considerable strategic and social importance to the national economy. The objective of this paper is to identify and adopt the most appropriate methods and tools applicable to the peculiarities of fertilizer market and industry, as well as its highly dynamic environment. The paper briefly reviews research of strategic management in industry. We analyzed the current state of the mineral fertilizers market, identified main development trends and presented the unique characteristics of fertilizer (mining and chemical) companies in an oligopolistic market. The paper presents characteristics of industry environment using Ansoff's environmental turbulence matrix to evaluate appropriate management response and highlights the key features of fertilizer companies' strategic management. We find the study of mineral assets, as well as event analysis to be the key elements in defining rather appropriate strategic responses of mineral fertilizer industry to its turbulent environment.

1. Introduction

The use of fertilizers increased vastly over the twentieth century, and fertilizer use is estimated to continue to grow also in the near future (Enger, 2010). The global scope of the fertilizers production industry means that global market is a competitive environment and its development, which currently ensures steady growth of demand for fertilizers, is subject to a number of macroeconomic factors. These factors include population growth, reduction in arable land per capita, growth of per capita GDP and greater purchasing power in developing countries, and increasing demand for alternative energy sources (biofuels) (Cherepovitsyn, 2012). For instance, global population has grown from 1 billion in 1800 to 7 billion in 2012. It is expected to keep growing, where estimates have put the total population at 8.4 billion by mid-2030, and 9.6 billion by mid-2050 (Population Reference Bureau 2016). The change in the use of agricultural land in recent years has been significant (from 0.69 ha in use per person in 1960 to 0.47 in 2015) and it is expected to be 0.19 ha in use per person in 2050 (Bruinsma, 2009). World GDP per capita has grown from 450 US dollars in 1960 to 10,000 US dollars in 2015 (World Development Indicators, 2016). Biofuels production based on agricultural commod-

ities increased more than fivefold from 2000 to 2015 (Food and Agriculture Organization of the United Nations, 2016). Limited supply caused by resource exhaustibility also influences the situation on the market.

Global consumption of fertilizers in the agricultural years (beginning of July–end of June) 2009–2016 is presented in Fig. 1. The dynamic growth of consumption of fertilizers is seen in all three segments. The greatest increase is observed for nitrogen fertilizers, which are the most commonly used fertilizer worldwide.

Table 1 presents main indicators of fertilizer market development for 2013 and 2017.

Fig. 1 shows that in the recent years the annual growth rate of fertilizer consumption has stabilized at 1–2%. The data in Table 1 show that, in the short term, a surplus of supply over demand is foreseen for all segments of the industry despite the attractive fundamentals. This oversupply is connected with production growth and active development of world production capacity. The most significant surplus is observed for potash fertilizers and the estimated surplus of supply over demand is expected to reach 30% of world production by 2017 where North America, Eastern Europe and Central Asia would account for 70% of world incremental potash supply between 2015 and 2020. For

* Corresponding author.

E-mail addresses: diana-dmitrieva@mail.ru (D. Dmitrieva), iljinovaaa@mail.ru (A. Ilinova).

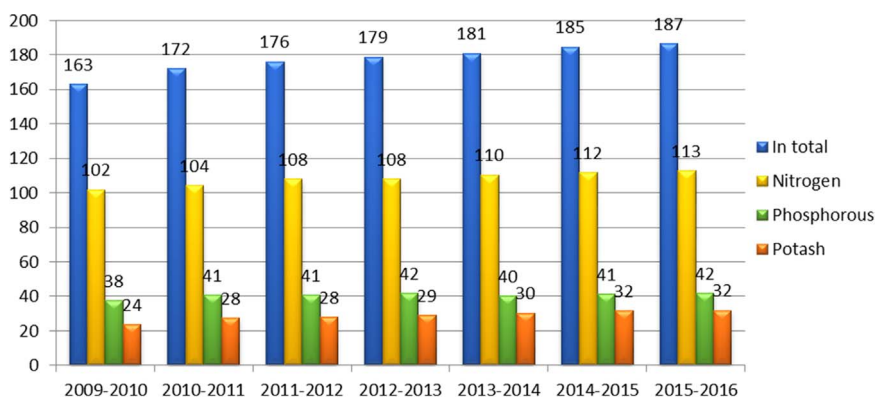


Fig. 1. Global consumption of fertilizers (agricultural years), million tonnes.

Table 1
Main indicators of fertilizer market development, million tonnes.

Indicator	Potash		Nitrogen		Phosphate	
	2013	2017F	2013	2017F	2013	2017F
World production capacities	49.7	59.6	173.5	199.5	54.6	63.7
World production	41.7	49.7	150.4	159.8	45.5	52
World consumption (including industrial)	32.7	34.7	141.5	154.2	42.1	46.5
Supply-demand balance and excess (% of supply)	9	15	8.9	5.6	3.4	5.5
	22%	30%	6%	4%	7%	11%

nitrogen fertilizer, overproduction is forecast to increase to 4% of production, and for phosphorus to 11%. However, the current recession is forcing many companies to postpone the increase the production capacity, thus slowing production growth. In consequence, the forecasts may overestimate market surplus.

The global fertilizers market significantly influences the development and prospects of many modern Russian mining and chemical industries, particularly integrated enterprises. The global fertilizers market is affected by many factors, for example (Ponomarenko, 2011):

1. The balance of supply and demand
2. The limited geographic accessibility of mineral resources (potash and phosphate ores);
3. The characteristics of arable farming, including different scales of agricultural activities in different countries and different levels of fertilizer consumption;
4. The concentration of industrial facilities near the sources of raw materials, market outlets and seaports;
5. Directions of agricultural policy in different countries;
6. Conditions for international agricultural trade, etc.

In addition, changes in prices for raw materials and energy have a significant impact on fertilizer prices. The geographical mismatch between production and consumption means that the fertilizer markets are international in nature and a significant share of the products is exported.

When considering the above factors, it should be mentioned that some of them affect the industry in a long-term or predictable way (such as growth in world population and the availability of various natural resources) whereas others can change dramatically, becoming weaker or stronger or even changing direction (for example, agricultural policy or regulation of foreign and domestic trade). The complexity of the interaction of these and other dynamic and multidirectional factors generates turbulence in the external environment and poses challenges for strategic decision-making in integrated mining and

chemical companies. Environmental turbulence (Bruno, 2015) should be understood as “a measure of the degree of changeability and predictability of the companies’ environment” (Ansoff, 1993). The faster the changes occur, the higher the degree of turbulence.

However, the competitive advantages of Russian manufacturers, which are largely resource-based, can be partially or completely lost as a result of changes in the industry environment. Growing price competition in the fertilizer market, increasing levels of dynamism of the external environment and greater volatility of global markets have forced mining and chemical companies around the world to focus on managing costs and improving the effectiveness of strategic management and marketing activities.

2. Literature review

Despite the wide range of existing methods and tools for strategic management (Aaker, 2013; Barney, 1991), no optimal strategic approach that takes into account the industrial and market peculiarities of the fertilizer manufacturing industry in a highly turbulent environment has been found. Previous studies have addressed fertilizer markets and forecasts of fertilizer consumption (Al Rawashdeh and Maxwell, 2011; Al Rawashdeh et al., 2016; Geman, 2013), demand and supply sides of the fertilizer industry (Al Rawashdeh and Maxwell, 2014), the role of fertilizers in the global food system (Cordell, 2015), and also the development of phosphate and potash resources and reserves (Mew, 2016, Ciceri, 2015, Cooper, 2011). From the point of view of strategy, many studies have considered issues of strategic management of large companies (Freeman, 1984, Glueck, 1980, Lorange, 1980, Worrell, 1988, Grant, 2011, Pitere, 2001, Ansoff, 2007, Spender, 2014). Previous research has also addressed recent evolution of the fertilizers market and has assessed likely developments in the coming decades (Al Rawashdeh and Maxwell, 2014), as well as questions concerning fertilizer availability in a resource-limited world (Dawson, 2011).

There are a small number of papers devoted to development of fertilizer companies and the management of these enterprises. In particular, previous study has attempted to analyze the technical efficiency performance of major global corporations involved in phosphate recourses mining using the BCC (Banker, Charnes, and Cooper) and CCR (Charnes, Cooper, and Rhodes) models of data envelopment analysis (Geissler, 2015). In addition, papers have considered capital investment in fertilizer companies (Geman, 2013), the supply behavior of state mining enterprises (Al Rawashdeh, 2008), and efficiency performance of the world’s leading corporations in phosphate rock mining (Geissler, 2015). However, there are no research papers focusing specifically on strategic management of fertilizer mining companies operating in conditions of a highly turbulent external environment.

Practically all phosphate and potash resources used for fertilizer

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