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The Competitiveness of Jordan Phosphate Mines Company (JPMC) Using Porter Five Forces Analysis

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Abstract

The area of changing international mineral competitiveness has attracted growing attention among mineral economists. The main purpose of this paper is to examine the competitiveness of the Jordan Phosphate Mines Company (JPMC) using porter analysis. A questionnaire survey was undertaken with JPMC experts and findings showed that JPMC has a favorable advantage on the bargaining power of suppliers, threat of substitutes and threat of local entry. However, it doesn't have a favorable advantage on the bargaining power of buyers, rivalry among competitors and threat of global entry. Depending on the literature and the questionnaire findings, a number of strategies were recommended to JPMC, which can also be adopted by the companies in other developing countries.

Keywords: competitiveness, porter five forces, market concentration, rivalry, bargaining power

1. Introduction

Jordan is a small Middle Eastern developing economy, which the United Nations Development Program classifies as a "medium human development". Its mining industry is dominated by the production of phosphate and potash. Since Jordan's independence in 1946, these minerals have been a significant generator of national income and economic growth. As the major producer of phosphates in the Middle East, Jordan is a significant exporter into world markets. Jordan recently ranked as the sixth largest producer and the second largest exporter of phosphate (Jordan Phosphate Mines Company, 2008) which is exported to more than thirty countries.

While the first discovery of phosphate deposits in Jordan took place as early as 1894, the current monopoly producer is the Jordan Phosphate Mining Company (JPMC). The JPMC was established as a public shareholding company in 1953 and commenced its operations in 1962. It has operated in the international market since that time and has established itself as a prime source for the international fertilizer industry. It currently operates three mines – the Hassa, Abyiad, and Eshidiya mines – all in Jordan's Southern region, the nation's poorest.

Although the mining sector contributes only around one per cent of the employment, the Jordan Phosphate Mining Company (JPMC) remains one of the largest employers in the nation with 3870 workers in 2007. In March 2006 the Jordanian government sold 37 per cent of JPMC to the Brunei government. The Jordanian government currently owns around 26 per cent of the company's capital and owners now operate the company. Besides phosphate rock production, JPMC produces several downstream products such as phosphoric acid, Di-ammonium phosphate and Aluminium fluoride. Its main competitors are Syria, Morocco, Tunisia, Egypt, USSR and Togo. Phosphate is an important source of income for Jordan. Together with potash its products are the major outputs of the nation's mining sector. The collective revenue contribution of mining to the national economy in 2008 was three per cent of Gross Domestic Product and fourteen per cent of merchandise exports (Central Bank of Jordan, 2008).

The ability of companies and countries to mine phosphate and other mineral commodities competitively and in the process to generate new wealth depends on their mineral endowment. Jordan for example produces and exports phosphate because it is well endowed with high quality and low cost deposits. This production creates wealth that benefits mining companies and their stockholders, the government, local communities as well as phosphate consumers around the world.

Michael Porter's famous Five Forces of Competitive Position model provides a simple perspective for assessing and analysing the competitive strength and position of the JPMC. The Five Forces tool is used in this paper as a

simple and powerful tool for understanding where power lies in JPMC. This is important, as it helps it to understand both the strength of its current competitive position, and the strength of a position it is looking to move into. With a clear understanding of where power lies, it can take fair advantage of a situation of strength, improve a situation of weakness, and avoid taking wrong steps. This makes it an important part of its business planning toolkit.

2. Literatures Review: Competitiveness and Mining View

The concept of competitiveness is best understood at the firm level. In the simplest terms, an unprofitable firm is uncompetitive. In the textbook model of perfect competition, an uncompetitive firm is one with an average cost that exceeds the market price of its product offering. A firm may be unprofitable because its average cost is higher than the average costs of its competitors. Its average cost may be higher than its competitors because its productivity is lower; it pays more for its inputs, or both.

Tilton (1992, 2000 and 2003) suggests two schools of thought concerning national and company mineral competitiveness. These are "the traditional view" and the "alternative view". The traditional view states that competitiveness and wealth creation in mining is largely a transitory gift of nature. Companies and countries with the best deposits are the most competitive and generate the most wealth. Once their deposits are exhausted, however, competitiveness will shift to those companies and countries with the next best set of deposits. In this view, resource endowment is the overriding determinant of competitiveness in mining.

The traditional view of competitiveness which stresses the overriding importance of abundant, high quality mineral resources and deposits is only partially correct. There is no doubt that mineral endowment is important; it is, however, not the only significant determinant of competitiveness. Other factors of production - low cost electricity, a skilled labor force, a well developed infrastructure also play a role, along with a multitude of public policies.

Tilton's "alternative view" sees a key role for technology and innovation in reversing mining's otherwise declining fortunes by maintaining and enhancing the competitiveness of the industry. Here government plays a role in providing an economic climate that encourages innovative activities. In this view of the world, the role of government shifts from ensuring that society gets its fair share of wealth created by mining and that it is used in a manner that achieves intergenerational equity, to creating an economic climate conductive to the innovative activities of firms and individuals. In short, public policy focuses more on how to increase the benefits flowing from mining and less on how best to divide them.

Tilton (2003) reported that while every mine eventually runs out of reserves, innovation and new technology may extend by decades the path to extinction. The possibilities for government policies to affect natural competitiveness in mining and mineral processing certainly exist, particularly by encouraging the development and diffusion of new technology. While it is true that new innovations today tend to spread quickly around the globe, in the mineral sector they often affect producers differently. Vogt (2006) reported that technology can enable mining in South Africa to remain competitive and to remain an important contributor to the economy.

The introduction of new leaching techniques, much more suitable for gold deposits in the USA than in South Africa or Russia, has greatly increased the competitiveness of US producers. The more widespread use of column flotation is another example of technology change in the phosphate industry. This has been the most dramatic development in the area of fine particle separation in mineral processing since the invention of froth flotation. A flotation column is a bubble column device that achieves separation between solid particles by using differences in their affinity for air bubbles. While the concept of bubble column flotation was first developed and patented after 1910 - see Clifford, Lloyd & Zhang (1998) - industrial acceptance of flotation column cells did not take place until the early 1980s. Producers now use columns widely for the separation of phosphate/gangue.

Besides technology, government policies can also play an important role in increasing competitiveness. For example, the specific type of fiscal regime that a country adopts is of paramount importance both to the government of that country and the investor, because this directly impacts on each party's share of benefits from the exploitation of the mineral resource. The major taxes that are applied to mining operations are classified under three broad categories: they are either profit related, output related, or input related.

Rodriguez (2004) reported that profit-related taxes are usually in the form of corporate income tax, dividend withholding tax and additional profits tax. Output taxes (commonly referred to as royalties) are related to the sales value of the mineral resource, while input taxes are imposed on the inputs of mining operations, such as sales, transaction and withholding taxes, import duties and labour and wage related tax payments. For companies to invest in the mineral sector the right balance has to be struck between the interests of the investor and the

government, and essentially the fiscal regime must be competitive and stable when compared to others in existence throughout the world.

Some other authors looked at factors of production as the major determinant of competitiveness in mining. Bosmel (1992) reported that competitiveness in mining e.g., the capacity to sell ores and metals on the world market at a profit, relies on the capacity of the producer to mix adequately the three basic production factors: the mineral deposit, capital and labor.

Mining Association of Canada (2008) set several variables that affect the competitiveness of an investment regime in Canada. These include a present and projected shortage of labor – skilled and unskilled, increasing Project approval times and costs, declining levels of domestic reserves of key minerals such as copper, zinc, silver and lead reserves. The sustained growth of the value of the Canadian currency can also serve to reduce the profitability/feasibility of mining and metals operations that receive revenues in U.S.

In considering the contribution of copper to the economic development of Chile, Maxwell (2004) suggested that mining competitiveness is related to policy environment, size of mineral endowment, cultural homogeneity and political harmony, human capital and distance from major markets. Maxwell framework provided a useful broad view of the factors that will influence country‘s mineral sector competitiveness.

Large-scale and long-term mining operations inevitably produce a significant amount of waste which depends on geological and technological characteristics such as: geological settings, reserve characteristics, the type of mining operation (surface or underground mine), tailing dump closure design and post-closure cost, and so Kulczycka, Goralczyk and Włodarczyk (2003) considered the volume and cost of mining waste produced as an important determinant of competitiveness. The lower the cost, the higher the firm profitability and competitiveness in the market.

Porter’s five forces model is widely considered to be one of the core ideas in modern corporate strategy. The model is a framework that defines the rules of competition in an industry and highlights what is important in order to have a long-term competitive advantage. According to the model, the competitiveness of an industry is influenced by five forces and the collective strength of these forces determines the ultimate profit potential of an industry. Five forces which are: threat of entrants, intensity of competitive rivalry, power of suppliers, power o buyers and the threat of substitutes (Porter, 1980). Porter, additionally, emphasized the role of the government on the competitiveness of the industry through its influence on five forces.

Slator and Olson (2002) stated that Porter’s basic premises are indeed valid. They stressed that the vast majority of Porter’s conclusions are as valid today as they were 20 years ago. Slator and Olson didn’t challenge the points porter has made so effectively in his model. Instead, they believed that the five forces model is an incomplete representation of the market factors that influence an industry and business performance. They concentrated on forces that were not elements in the Five Forces Model, as well as on new ways of thinking about the original forces.

Porter model could be used to analyze the factors that affect the mining and manufacturing industries. For example, Orala and Mıstıkoglu (2007) used porter model to analyze the brick industry in Turkey. Their results showed that competition between the existing companies in Turkish brick industry was fierce with many similar-sized companies and there was low entry and exit barriers, increasing threat from the substitute products, and increasing bargaining power of buyers.

Pines (2006) has analysed the industry of emergency care using Porter’s five forces model. He found that the suppliers to Emergency departments (ED), particularly the pharmaceutical companies and nurse staffing companies, exert a significant level of power over the individual ED. The industry does have significant barriers to entry, both in education and cost of starting an emergency care centre. The buyers of ED care also have significant power over the individual ED and there is also a high threat of substitution and a high degree of internal rivalry

3. Assessing the Competitiveness of JPMC Using Porter’s Five Forces

3.1 Methodology

A questionnaire survey has been distributed by hand to 35 experts working in the marketing; financial and research and development departments within the Jordanian Phosphate Mines Company. The experts sample included 27 men and 7 women whereas ninety percent of them ranged in age from 31 to 50 years old. Among them 13 experts has 11 to 15 years experience , 19 experts have 16 to 20 years experience and only 3 experts have more than 21 years experience. The experts are also educated and 25 of them have bachelor degree and 10 of them have master. The questionnaire consisted of five main sections with a total number of 29 questions.

These sections included questions related to the bargaining power of suppliers (6 questions), the bargaining power of buyers (6 questions), the threat of substitutes (7 questions), the threat of substitutes (3 questions) and the rivalry among competitors (7 questions) (see Tables 1, 2).

This section adopts an original survey-based qualitative approach (primary data) to examine JPMC global competitiveness. Taking into account that the paper depends on the opinion of "JPMC experts" instead of admittedly scarce independent "industry experts", however, the response bias is minimized and the objectivity and neutrality are not compromised (e.g. through omitting the name of the consulted experts).

One of the known limitations of the five forces model is that it focuses on the whole industry, rather than on that industry's individual firms. As such, the model is useful for assessing the likely competitiveness of an average company in the industry not Just JPMC alone. To put this note into context, it is clear that the threat of substitutes, power of suppliers and threat of entry do apply partially at least to many regional phosphate companies of comparable technological capability.

Table 1. Frequency and percentages of sample gender and age

Gender	*Frequency*	*Percent*	*AGE*	*Frequency*	*Percent*
Male	27	77.1	31-40 years	16	45.7
Female	8	22.9	41-50years	16	45.7
Total	35	100.0	51-60 years	3	8.6
			Total	35	100.0

Table 2. Frequency and percentage of sample experience and education

Experience	*Frequency*	*Percent*	*Education*	*Frequency*	*Percent*
11-15	13	37.1	Bachelor degree	25	71.4
16-20	19	54.3	Master degree	10	28.6
21	3	8.6	Total	35	100.0
Total	35	100.0			

3.2 Results and Discussion

3.2.1 Bargaining Power of Suppliers

Suppliers of raw materials, components, and services (such as expertise) to the firm can be a source of power over the firm. How easy it is for suppliers to drive up prices is driven by the number of suppliers of each key input, the uniqueness of their product or service, their strength and control over their customers, the cost of switching from one to another, and so on. The fewer the supplier choices one company has, and the more it needs suppliers' help, the more powerful its suppliers are.

In analyzing the bargaining power of suppliers, Sulfur and ammonia are the main input products used by JPMC to manufacture phosphatic fertilizers. There are more than 15 international suppliers for ammonia (US, China, Canada, Egypt, Germany, Qatar, India, Indonesia, Netherlands, Pakistan, Poland, Russia, Saudi Arabia, Trinidad and Tobago, Ukraine) and there are around 26 main suppliers for sulfur (US, Australia, Canada, Chile, China, Finland, France, Germany ,India, Iran, Italy, Japan, Korea, Kazakhstan, Kuwait, Mexico, Netherlands, Russia, Saudi Arabia, South Africa, Spain, United Arab Emirates, Uzbekistan, Venezuela). JPMC imports around 170,000 tonnes of ammonia from neighboring gulf countries (mainly Qatar). It also imports around 350,000 tonnes of sulfur for sulfuric acid manufacturing from Russia, Iran and Ukraine. The government is also an important supplier of the industry through supplying important local services needs such as electricity, fuel, water and natural gas.

Through the results of the questionnaire in Table 3, respondents agreed that JPMC has large number of input suppliers**,** and the company has been well informed about the supplier's products and markets and it can easily switch to substitute products from other suppliers. Respondents also agreed that input products purchased by the company from suppliers are unique (not ordinary), and they don't constitute a high proportion of their business. The easier it is to start a new business, the more likely it is that JPMC will have competitors and so it seems that there is no difficulty for JPMC suppliers to enter the company's business, sell directly to the company customers, and become a direct competitor for JPMC. Overall, 56 per cent of respondents agreed that JPMC has a credit and a favorable competitive advantage in the bargaining power of suppliers. The question of bargaining power of

local suppliers, yet, is not relevant for JPMC as the government, which provides electricity, fuel and water, for JPMC, owns around 26 per cent of the company assets.

Table 3. Bargaining power of suppliers' results

		Yes	*Percentage (%)*	*No*	*Percentage (%)*	*Power of suppliers*
1-	There are a large number of potential input suppliers?	34	97.1	1	2.9	Low
2-	Are the products that you need to purchase for your business ordinary?	6	17.1	29	82.9	High
3-	Do your purchases from suppliers represent a large portion of their business?	3	8.6	32	91.4	High
4-	Would it be difficult for your suppliers to enter your business, sell directly to your customers, and become your direct competitor?	13	37.1	22	62.9	High
5-	Can you easily switch to substitute products from other suppliers?	29	82.9	6	17.1	Low
6-	Are you well informed about your supplier's product and market?	33	94.3	2	5.7	low
	Total	118	56.2	92	43.8	Low

3.2.2 Bargaining Power of Customers

This force describes the ability of customers to put the firm under pressure. How easy for buyers to drive prices down, this is driven by the number of buyers, the importance of each individual buyer to the business, the cost to them of switching from one product to another, and so on. If the industry has few, powerful buyers, they are often able to dictate terms to suppliers. Bargaining power of buyers also increases with the buyers buying from the same supplier in large amounts. It also increases if there are undifferentiated products, low switching costs, a threat of backward integration, purchase being not important for the buyer, buyers having all the relevant information about the product or production.

In analyzing the bargaining power of customers, JPMC exports are focused on Asian customers. More specifically, ninety per cent of Jordanian phosphate exports are directed to Asian markets and around sixty per cent of which is directed towards one market; the Indian market, the largest phosphate consumer in the world, and a market in which Jordan maintains excellent prices for the phosphate exports (Jordan Phosphate Mines Company, 2008). Nevertheless, focusing exports towards one market exposes JPMC to the added risk of that market closing for one reason or another.

Table 4 shows that most respondents agreed that JPMC's products (e.g. phosphate rock, phosphoric acid, di-ammonium phosphate) are unique and they represent high expense for the company's customers who are well informed about these products and their markets. Respondents have also stated that JPMC doesn't have enough customers and losing one would be critical to its business success. Nevertheless, it would be difficult for buyers to integrate backward in the supply chain and compete directly with the company's customers. It would be also difficult for customers to switch from the company's product to its competitors' products and so overall majority of results by respondents (around 53 per cent), stated that JPMC doesn't have a favourable advantage on the bargaining power of customers.

The phosphate producers which have the most to gain or lose from the Indian buying decisions are undoubtedly those in Jordan, the US and Morocco. For example, in 1990, Morocco has been very hard hit by India's refusal to purchase acid at the price originally dictated by Morocco. At that time, India successfully managed to lower the price from a high of $480 per tonne in 1989 to a much lower level of $376 per tonne.

Table 4. Bargaining power of buyers' results

		Yes	*Percentage (%)*	*No*	*Percentage (%)*	*Power of buyers*
1-	Do you have enough customers such that losing one isn't critical to your success?	8	22.9	27	77.1	High
2-	Does your product represent a small expense for your customers?	15	42.9	20	57.1	High
3-	Are customers uninformed about your product and market?	10	28.6	25	71.4	High
4-	Is your product unique?	15	42.9	20	57.1	High
5-	Would it be difficult for buyers to integrate backward in the supply chain, purchase a competitor providing the products you provide, and compete directly with you?	29	82.9	6	17.1	Low
6-	Is it difficult for customers to switch from your product to your competitors' products?	21	60	14	40	Low
	Total	98	46.7	112	53.3	High

3.2.3 Threat of Entry

Profitable markets that yield high returns will draw firms. The results are many new entrants, which will effectively decrease profitability. Unless the entry of new firms can be blocked by incumbents, the profit rate will fall towards a competitive level. Some common factors that raise barriers of entry are: economies of scale, differentiation, long-term relationships with the customers, capital requirements, switching costs, access to distribution channels, and government policies.

The high start up costs and the regulations set by the Jordanian government to open a new mine represent a high barrier of entry to the local industry. JPMC has a monopoly over the extraction of the phosphate resources in the country and its customers are loyal to its products brands and it will be difficult for a new local competitor to enter the industry or to obtain new customers. Results in Table 5 showed that inputs required for production pose high threat of entry. Ortiz (2004) stated that the machinery and equipment of the fertilizer plant in Aqaba (located south of Jordan) will cost over $US114 million. The US share of the machinery and equipment accounted for 70 per cent of this cost.

Overall results on threat of local entry factor showed that JPMC has a favourable advantage. The respondents agreed that the uniqueness of the assets needed to run the three phosphate mines in the southern part of Jordan (Al-Abyad, Eshidyah, and Al-Hassa) and the processing plant in Aqaba represent a big threat of entry to the phosphate industry. However, the threat of global entry is low. Through analysing the market concentration, e.g. percentage share of sales, there has been a decline in the market concentration of the largest company, largest three companies and largest five companies from 1975 to 2008 which may indicate that there have been new entrants in the market in the last thirty years, see Table 6.

The arrival or the entry of new producers in markets close to Jordan's competitive location could affect the future market share of the JPMC. The large Saudi Arabian Al-Jalamid phosphate project, located close to its border with both Jordan and Iraq, has a new capital investment of $US 2 billion. It commenced operations in 2010, this may have a significant impact on the downstream market for Di-ammonium phosphate (DAP) and it seems likely to position Saudi Arabia as the third or fourth largest phosphate producing nation. It is a potential threat to Jordan's future mining capacity expansions to feed integrated downstream capacity targeted at the export market.

Table 5. Threat of entry results

	Yes	*Percentage*	*No*	*Percentage*	*Threat of entry*
1- Are customers loyal to your brand?	29	82.9	6	17.1	Low
2- Are there high start-up costs for your business?	35	100	0	0	Low
3- Are the assets needed to run your business unique?	33	94.3	2	5.7	Low
4- Is there a process or procedure critical to your business?	31	88.6	4	11.4	Low
5- Will a new competitor have any difficulty acquiring/obtaining customers?	27	77.1	8	22.9	Low
6- Do you need a license to open a new mine / project	35	100	0	0	Low
7- Will a new competitor have difficulty acquiring/obtaining needed inputs to compete efficiently	10	28.6	25	71.4	High
Total	200	81.6	18.4	18.4	Low

Table 6. Market concentration of the phosphate market from 1975 to 2008 (percentage share of sales)

Year	*Largest company*	*Largest three companies*	*Largest five companies*
1975	41.8	77.3	85
1990	33	66	85
1995	34	64	80
2000	30	60	75
2008	24	62	75

Source: US Geological Survey (various years)

The existence of close substitute products increases the propensity of customers to switch to alternatives in response to price. If substitution is easy and viable, then this will weaken the producers' power. According to Porter's analysis substitute products refer to the products offered by other industries. When switching costs to new products are low, the threat of substitutes is high.

3.2.4 Threat of Substitutes

Because phosphate is an essential nutrient for plant growth, there is no substitute for it (US Geological Survey, 2008). Jordan phosphate products compare favorably to the other possible substitutes. Potassium, Urea and Nitrogen fertilizers are sometimes considered as close substitutes for phosphate and so it is costly for Jordan Phosphate Mines Company customers to switch to other products since they might experience a loss of productivity. Even if switching costs are low, customers may have allegiance to a particular brand and this seems true for the JPMC's customers. Overall results in Table 7 suggest that 76.2 per cent agreed that JPMC has a favorable competitive advantage over the substitute's threats.

Phosphate rock used in agriculture has no substitutes. However, zeolite is considered to be a substitute for phosphate in the detergent industry. Demand for detergent zeolite grew during the late-1980s and early-1990s because of concerns about the possible effects of sodium phosphates on freshwater bodies (Lerner, 2000).

3.2.5 Rivalry among Competitors

For most industries, this is the major determinant of the competitiveness of the industry. Often the greater the number of players, the more intense the rivalry, however, rivalry can occasionally be intense when one or more firms struggle for market leader position. Rivalry also intensifies if companies have similar shares of the market, leading to a race for market leadership. In a growing market, firms are able to grow revenues simply because of the expanding market whereas, in a stagnant or declining market, companies often fight intensely for a smaller market.

With high fixed costs, companies must sell more products to cover these high costs. High storage costs or perishable products result in a situation where firms must sell product as soon as possible resulting in increasing rivalry among firms. Firms that produce products that are very similar will compete mostly on price, so rivalry is

expected to be high. If exit costs are high, a company may remain in business even if it is not profitable. If customers can easily switch, the market will be more competitive and rivalry is expected to be high.

Rivalry is intense among competitors in the phosphate industry. There has been considerable tendency to cheat on price agreements to increase their market share. For example, Azhar (2000) reported that in the late 1980s, Jordan made a market share agreement with Morocco. Morocco paid lip service to the agreement, but in practice acted unilaterally in selling phosphate in some of Jordan's South East Asian markets by undercutting Jordanian prices.

In the past, US phosphate prices have benefited from tighter North American supply and production problems in Jordan. Some of Jordan's competitors have also received government assistance, which has given them a competitive edge. In the USA for example producers get sales tax exemptions for new machinery and equipment.

Results in Table 8 showed that there are high numbers of competitors, and there is no clear leader in the market. The market is growing fast, and JPMC has a high fixed costs and it can store its products to sell at the best times. Respondents also agreed that JPMC products are not unique and it is not easy for its competitors to abandon their products. Overall results (63 per cent of respondents) confirm that JPMC doesn't have a favourable advantage over the rivalry among competitors. This is because other producers have a very strong influence in the market and rivalry among competitive companies is fierce as there are quite a number of equally balanced companies with low differentiation.

Table 7. Threat of substitute's results

	Yes	Percentage(%)	No	Percentage (%)	Threat of Substitutes
1. Does your product compare favourably to possible substitutes?	20	57.1	15	42.9	Low
2. Is it costly for your customers to switch to another product?	31	88.6	4	11.4	Low
3. Are customers loyal to existing products?	29	82.9	6	17.1	Low
Total	80	76.2	25	23.8	Low

Table 8. Rivalry among competitors' results

	Yes	Percentage (%)	No	Percentage(%)	Rivalry power
1. Is there a small number of competitors?	4	11.4	31	88.6	High
2. Is there a clear leader in your market?	9	25.7	26	74.3	High
3. Is the market growing fast?	26	74.3	9	25.7	Low
4. Do you have low fixed costs?	5	14.3	30	85.7	High
5. Can you store your product to sell at the best times?	28	80	7	20	Low
6. Is your product unique?	11	31.4	24	68.6	High
7. Is it easy for competitors to abandon their product?	7	20	28	80	High
Total	90	37	155	63	High

4. Conclusion and Recommendations

JPMC was analyzed as a case study within the frame of Porter's five forces model. Results showed that JPMC has a favorable advantage on the bargaining power of suppliers, threat of substitutes and threat of entry. However, it doesn't have a favorable advantage on the bargaining power of buyers and rivalry among competitors.

Barriers to entry in the local phosphate market are high because JPMC has a monopoly over the extraction and exploration of phosphate deposits in Jordan. However global threat of entry is low and new exploration and discovery of new phosphate reserves and deposits in the world may encourage new entrants to enter the global market and be a strong competitor, e.g. Saudi Arabia. Where preferential borrowing privileges and overgenerous fiscal incentives exist, capital would then be relatively inexpensive, encouraging new phosphate enterprises in the world to invest more heavily in plant and equipment in order to reduce operating costs.

Threat of substitute products has not been experienced throughout the industry widely yet. However, the threat of incoming substitute products should not be ignored and product developments should be one of the main strategies of JPMC in order to stay competitive. Additionally, marketing strategies should focus on the promotion of the advantages of phosphate products against the substitutes in order to satisfy the buyers' concerns related with the product specifications in terms of cost, quality, reactivity and smell.

The future changing of technological requirements suggests that suppliers of the new technologies will have a strong bargaining power in the near future. While current production technologies used by the JPMC is good enough to satisfy customers, however, the quality of phosphate deposits is declining and the levels of certain impurities may pose problems in processing or in their application to crops and so JPMC may have to adopt new technologies in the future.

Rivalry among competitive companies is fierce as there are quite a number of equally balanced companies with low differentiation. However, in order to survive against the global competition, low cost with high quality should be targeted by JPMC .Yet, the size; the location and the technical know-how are important parameters that would affect JPMC in choosing their strategies.

Since JPMC exports are focused on Asian customers and around 60 per cent of which, is directed towards the Indian market, in order to reduce bargaining power of buyers, a good export strategy is to diversify and spread exports as much as possible because higher concentration and lower spread of the exports strengthen bargaining power of buyers and makes the exporter more vulnerable to market disturbances whereas, a lower concentration and higher spread makes the exporter less vulnerable to market disturbances.

The key to growth -- even survival -- is to stake out a position that is less vulnerable to attack from head-to-head opponents, whether established or new, and less vulnerable to erosion from the direction of buyers, suppliers, and substitute goods. Establishing such a position can take many forms:

- solidifying relationships with favorable customers,
- differentiating the product either substantively or psychologically through marketing, integrating forward or backward, or
- establishing technological leadership

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