



MINISTRY OF ENERGY AND MINERAL RESOURCES

# Performance of Jordanian Mining Sector During 2014-2018

Amman 2020





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## Preface

This special Bulletin is a result of the valuable study for the performance of the Jordanian Mining Sector for the years 2014 to 2018 as part of the efforts of the Ministry of Energy and Mineral Resources “MEMR”; to emphasize the importance of this sector in supporting the National Economy and the extent of the contribution of this sector's revenues to Gross national Product “GNP”, in addition to many other economic indicators.

The mining sector in Jordan is considered one of the main pillars of the Jordanian Economy, as it plays an important role in strengthening the national economy along with the rest of the other economic sectors. Despite the fluctuation of its contribution rates during various time periods, its role remains a tangible weight as it is one of the most important tributaries of the national economy. It contributes effectively to the employment of the local workforce, and works to cover the local market’s need for raw materials and intermediate and final products related to this sector. It also contributes to providing currencies through export, in addition to supplying the State’s Treasury with mining taxes and fees.

This report aims to highlight the mineral resources available in Jordan and the role of the main big companies operating in the Mining Sector in Jordan, in addition to the manufacturing industries that are based on the exploitation of the Jordanian mineral resources, as well as encouraging the participation of local and foreign companies in the exploitation of Jordanian Mineral Resources due to the benefits granted for the companies operating in this sector as well as for investors who are interested in the mining sector in general.

**Hala Adel Zawati**

**Minister of Energy and Mineral Resources**



## 1. Introduction

The mining sector is considered one of the most important strategic sectors where mineral resources form the basis for the economic and social development of any country, as it contributes mainly and effectively to the employment of the local workforce and covers the market needs of primary, intermediate and final products related to the sector in addition to supplying national income in foreign currencies by exporting raw materials and products.

The sector consists mainly of large industries in terms of volume of investments (Phosphate and Potash). Many companies have started investing in this promising sector, which is considered one of the largest industrial sectors in terms of the size of the capital of its relevant industrial facilities.

Also, its products are the feed for other important industries such as Fertilizers, Acids production, Cement Industries, ... etc., and there are potential developments for this sector by increasing the local added value for the various minerals, and by the investment in other fields such as Oil Shale and Silica Sand and the establishment of their real significant industries, which requires activating the exploitation of the untapped mineral resources in the Country to improve and develop this sector to meet the abundant demand.

The Jordanian Mining Sector is based on the exploitation of many non-metallic mineral resources (minerals and industrial rocks) such as Phosphates, Potash, Basalt, Glass Sand and Limestone...etc., and on manufacturing industries based on these mineral resources such as Fertilizers, Acids and Cement industries. There are no exploitation activities yet in metallic minerals such as Copper and Gold and Rare Earth Elements, and activities are still limited to exploration.

Jordan is one of the largest producers and exporters of Phosphate, Potash, Bromine, Fertilizers and Chemical Acids in the world, as Jordan is the fifth country worldwide in the production of Phosphates for the year 2017, and it is also the only Arab country in the production of Potash, as recently began operations of mining Oil Shale in huge quantities in the region of Attarat Um Al-Ghadran for Electricity Production.

The presence of such huge mining projects, and with the potential exploitation of Copper in Wadi Araba region that will be initiated after the completion of the resource evaluation studies, and promotion of other minerals such as Silica Sand and Rare Earth Elements will have a positive and significant return in terms of raising the proportion of the mining sector's contribution to the Gross National Product "GNP".



MINISTRY OF ENERGY AND MINERAL RESOURCES

As for the mining sector's contribution to the Gross National Product "GNP", and despite the fluctuating rates of its contribution during the various time periods, its role still constitutes a tangible weight as it constitutes one of the most important tributaries of the national economy as the total returns of the mining sector in its two segments (Extractive and Manufacturing) for the year 2018 were about 2270.8 Million JD, which constituted 7.6% of the Gross National Product "GNP", while the mining sector's exports were up to 1098 Million JD, which constituted 19.7% of the total national exports.

This report aims to shed the light on the situation of the mining sector and highlight the role of this vital sector by reviewing the most important economic indicators and the extent of its contribution to the Gross National Product "GNP".

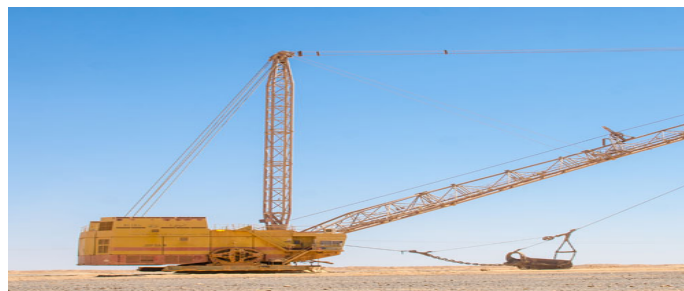


## 2. Mining Industries in Jordan

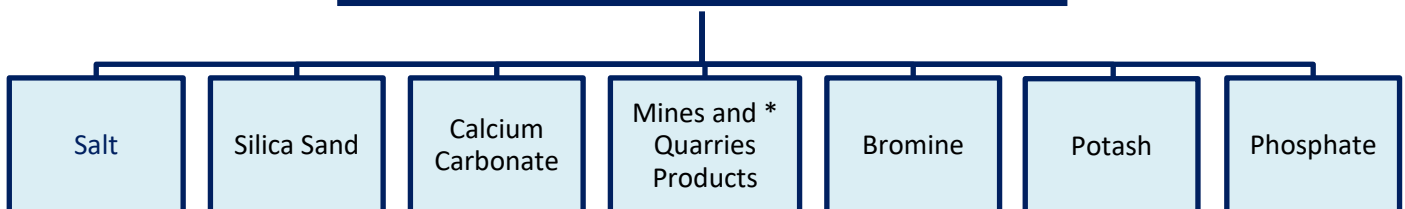
The Jordanian mining sector, through its two segments, the Extractive and Manufacturing industries, is one of the most important tributaries of the national economy, as it effectively contributes to the operation of the local labor force and works to cover the needs of the local market from raw materials and from intermediate and final products related to the sector, as well as its contribution in foreign currencies infusion through export, this is in addition to providing the State's Treasury with the taxes, revenues and various fees.

As for the extent of the contribution of the Jordanian mining sector to the Gross National Product, the total revenues of the Jordanian mining sector amounted to about 2270.8 Million Jordanian JD in 2018, which constituted 7.6% of the Gross National Product, and these revenues were distributed among the Extractive Mining Industries by 72% and the manufacturing industries at a rate of 28% of the mining sector. The mining sector exports, both Extractive and Manufacturing, amounted to (1098) Million JD, which formed 19.7% of the total national exports.

The Extractive Mining Industries include:

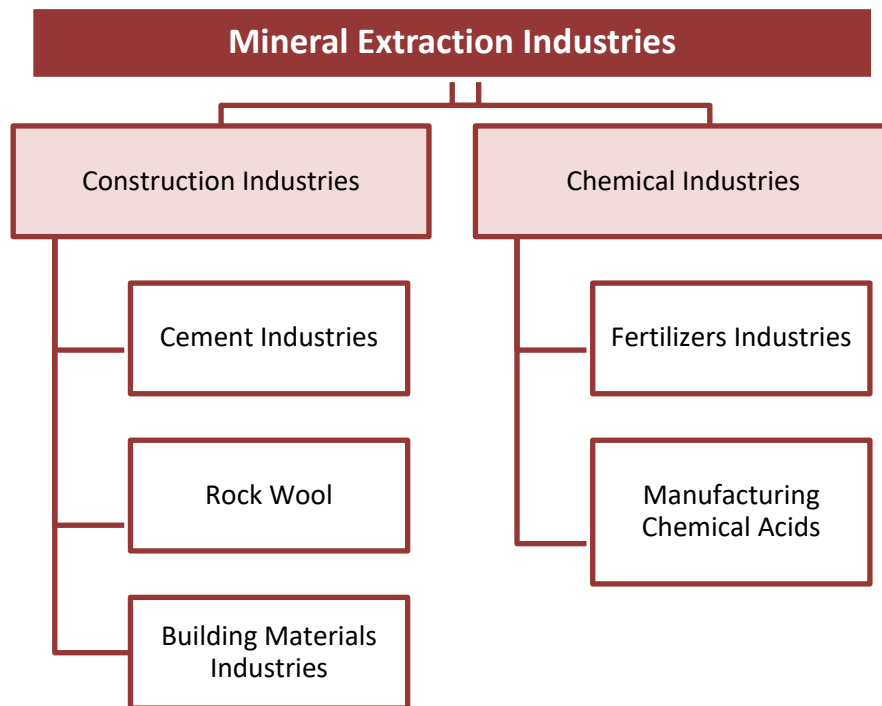


### Mineral Extraction Industries



\*Products of Quarries and Mines such as Building Stones, Natural Sand, Aggregates, Marble, Granite, Glass Sand, Basalt and others.







## 2.1 Mineral Extraction Industries

### 2.1.1 Phosphate

**Jordan Phosphate Mines Co. (JPMC)** is a public shareholding limited company, founded in 1949 with current capital 82.5 Million JD. The Company aims to mine and exploit Phosphate in Jordan. The total number of employees in the company (2570) by end of 2018.

| Jordan Phosphate Mines Co. (JPMC) |       |
|-----------------------------------|-------|
| Establishment Date                | 1949  |
| Capital (Million JD)              | 82.5  |
| Employees                         | 2,570 |
| Contribution in GNP for 2018      | %1.09 |
| Number of Mines                   | 3     |

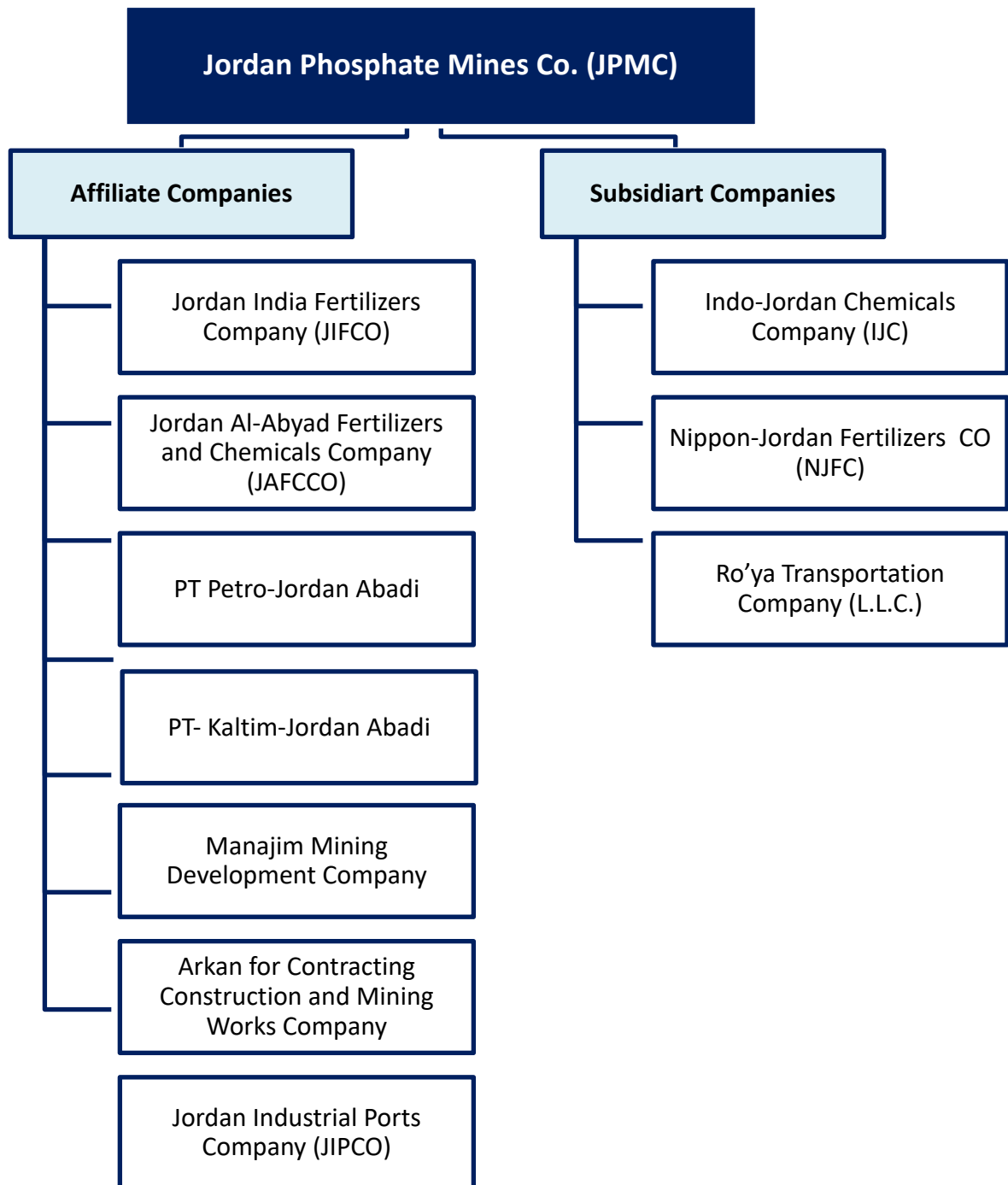
Jordanian Phosphate ore is characterized by the high quality specifications, which helped marketing it in the global markets, so that it contributed effectively to the national economy, as the contribution rate of Phosphate revenues and the industries based on it, such as Fertilizers and Acids, in 2018 was about 1.09% of the GNP.

The Phosphate production for 2018 was distributed among the three mines of the Company, where the production percentage from the Eshidiya mine was about 72%, from the Al-Hassa mine was about 10% and 15% from the Al-Abiad mine.

The Eshidiya mine reserve is about 1.2 billion Tons of total proven and probable reserves, Al-Abiad mine contains about 11.8 Million Tons, and Al-Hassa mine has 24.6 Million Tons.

(Source: Jordan Phosphate Company Annual Report, 2018).

| Phosphate Mines Reserve |                   |
|-------------------------|-------------------|
| Name of Mine            | Reserve           |
| Eshidiya                | 1.2 Billion Tons  |
| Al-Abiad                | 11.8 Million Tons |
| Al-Hassa                | 24.6 Million Tons |





## A. Subsidiary Companies

### 1. Indo-Jordan Chemicals Company (IJC)

The Indo-Jordan Chemicals Company (IJCC) was established in 1992 with a capital of 63.4 Million USD that produces Phosphoric Acid with a production of about 224,000 Tons annually. The total number of employees was (331) by the end of 2018.

### 2. Nippon-Jordan Fertilizers CO (NJFC)

The company was established in 1992 with 24 Million USD capital, it produces Complex Fertilizers, Phosphate Ammonium Fertilizers with 300 Thousand Tons/year, The Shareholders in NJFC are JPMC with 70% of capital, APC with 20% of capital and 10% of the 16.7 Million JD for Mitsubishi Corporation, the number of employees has reached (117) by end of 2018.

### 3. Ro'ya Transportation Company (L.L.C.)

The Ro'ya land transportation of goods Company is a limited liability company that was established in 2010 with a capital of 100 Thousand JD, fully - owned by the Jordan Phosphate Mines Company.

## B. Affiliate Companies

### 1. Jordan India Fertilizers Company (JIFCO)

The Jordan India Fertilizers Company (JIFCO) was established in Jordan in 2008 to produce Phosphoric Acid in the Eshidiya area in partnership with the Indian Farmers Fertilizers Cooperative (IFFCO) who owns 52% of the capital. The Jordan Phosphate Mines Company contribution to 48% of JIFCO's capital with amounts of (524.5) Million USD. JIFCO utilizes about 1.8 Million Tons annually of Phosphate rock.



### 2. Jordan Al-Abyad Fertilizers and Chemicals Company (JAFCCO)

Jordan Al-Abyad Fertilizers and Chemicals Company (JAFCCO) was established in 2007 to produce fertilizers and chemicals at Al-Wadi Al-Abyad mine, in partnership with JAFCO Bahrain Co., Arab Mining Company, Venture Capital Bank. JPMC's contribution is with 27.4% of JAFCCO's capital with (51.1) Million JD.

### 3. PT Petro-Jordan Abadi

PT Petro-Jordan Abadi was established in partnership with the Indonesian Graisek Petrochemicals in 2010 to produce Phosphoric Acid, the company's annual consumption is about 800 (Thousand Tons) of Phosphate from JMPC, which contributes of 50% of the company 62 Million USD Capital.





**4. PT- Kaltim-Jordan Abadi**

PT Kaltim-Jordan Abadi was established in partnership with the Indonesian PT Pupuk Kalimantan Timur (PKT) in 2014 to produce Phosphoric Acid from JPMC Phosphate, which contributes with 40% of the company 2.5 Million USD Capital.

**5. Manajim Mining Development Company**

Manajim Mining Development Company was established in 2007, with a (1) Million JD capital. Jordan Phosphate Mines Company holds 46% of the share capital, the Jordanian Company for Economic Development and Trade also contributes 54% of the capital.

**6. Arkan for Contracting Construction and Mining Works Company**

Arkan for Contracting Construction and Mining Works Company was established in 2011, as a Joint venture with Al-Own Modern Contracting with a capital of (25) Million JD. Jordan Phosphate Mines Company holds 46% of the capital. Arkan for Contracting and Construction Company is responsible for the mining activities for JPMC.

**7. Jordan Industrial Ports Company (JIPCO)**

Jordan Industrial Ports Company was established in 2009 for the purpose of managing and operating of Aqaba industrial port with equal capital share contribution totaling of (1) Million JD. The Jordan Phosphate Mines and Arab Potash Co., to be increased gradually according to the needs of the project and which reached to (140) Millions JD at the end of 2018 and located on 68000 m<sup>2</sup> in the Southern area of Aqaba Gulf near to Saudi Arabia Borders.

In February 2015, the Jordan Industrial Ports Company signed an expansion and rehabilitation agreement to expand the industrial port with the Consortium of (Tecnicas Reunidas S.A.) and (PHB Weserhtht, S.A) with about 200 Million USD and for 22 months.



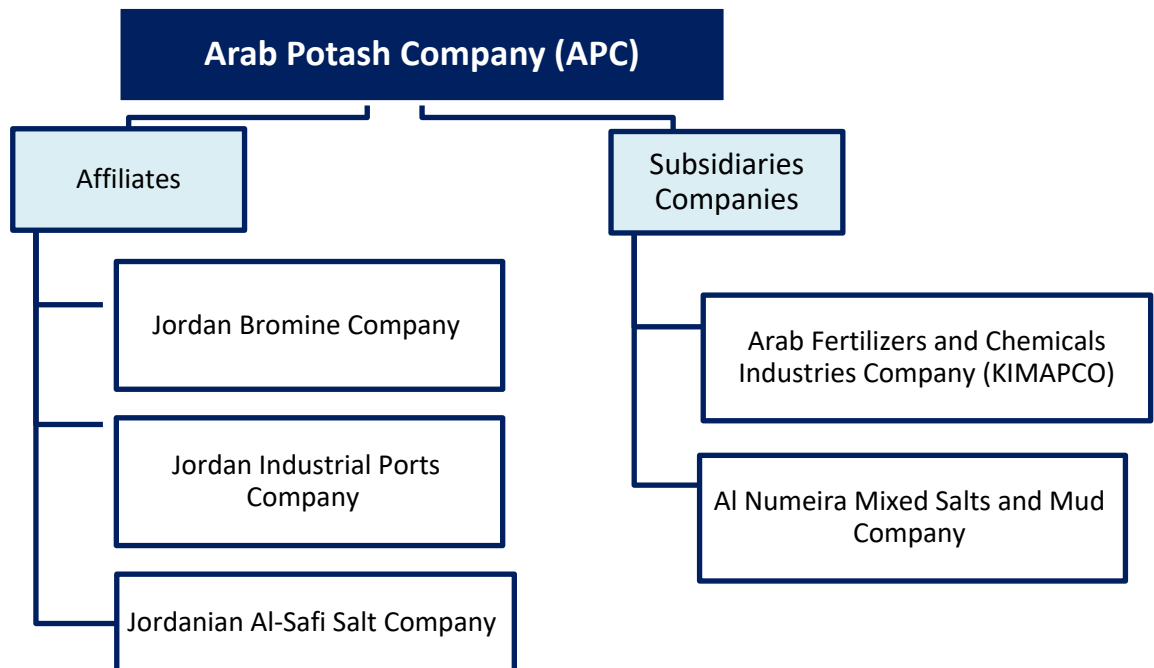
## 2.1.2 Potash

**Arab Potash Company (APC)** was established in 1982, for exploiting the Dead Sea Salts particularly to produce Potassium Chloride through solar evaporation of sea water and the separation of impurities from it. The number of employees in the Arab Potash

| Arab Potash Company (APC)    |          |
|------------------------------|----------|
| Establishment Date           | 1982     |
| Capital (Million JD)         | 83.3     |
| Employees                    | 1789     |
| Contribution in GNP for 2018 | %1.61    |
| Location                     | Dead Sea |

Company reached (1789) by end of 2018. In addition to about (680) employees who are working in the Affiliates and Subsidiary Companies of the Arab Potash Company.

### Affiliates and Subsidiary Companies of the Arab Potash Company





## A. Subsidiaries Companies

### 1. Arab Fertilizers and Chemicals Industries Company (KIMAPCO), LLC

It was established in 1999 with a capital of 29 Million JD. It is wholly owned by the Arab Potash Company, and with (257) employees.

### 2. Al Numeira Mixed Salts and Mud Company, LLC.

The company was established in 1997 to buy and package Carnallite and extract mud from the Dead Sea for the cosmetics industry. It is totally owned by APC with 800,000 JD share capital. Numeira employees reached (70) employee.

## B. Affiliate Companies

### 1. Jordan Bromine Company (JBC)

Jordan Bromine Company (JBC) has been established in 2003 as a joint venture between “Jordanian Company for Dead Sea Industries and the American “Albemarle Holdings “with 30 Million USD capital, the company produces Bromine, Chlorine and Potassium Hydroxide and working in Numeira at Ghor Safi area. The products marketing is made by Albemarle Holdings company according to the signed marketing agreement. The company has (350) employees.

### 2. Jordan Industrial Ports Company (JIPCO)

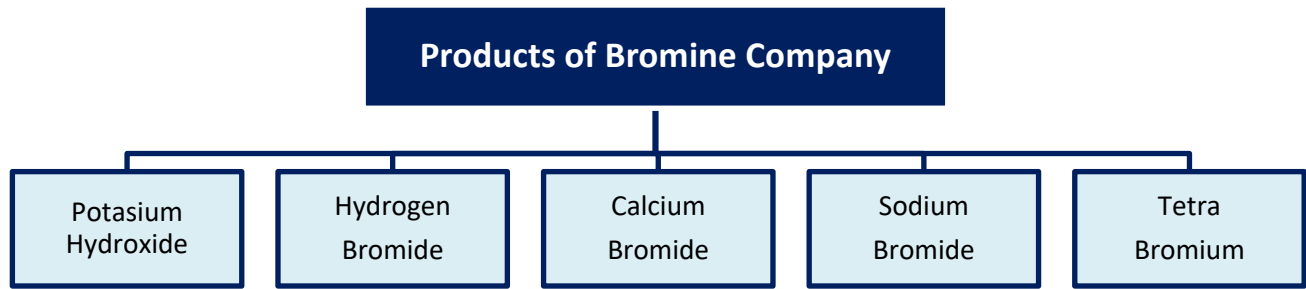
Within the framework of the Potash Company’s plan to increase the handling capacity on the export pier in Aqaba and in parallel with the Government’s plans to develop the ports, the Arab Potash Company and the Jordanian Phosphate Mines Company have jointly financed the Industrial Port Project with a total amount of about (140) Million JD.

### 3. The Jordanian Al-Safi Salt Company (under liquidation)

Al-Safi Salt Company is a governmental company that was established in 1996 with a capital of 12 Million JD, concerned with the evaporation of the Dead Sea water to process and sell the produced salt, but the company has sustained losses, and in 2016 the Arab Potash Company bought it and decided to appoint new liquidation committee. The committee has completed most of the liquidation procedures.



### 2.1.3 Jordan Bromine Company (JBC)



Jordan Bromine Company produces Bromine and its derivatives such as Tetra Bromium, Sodium Bromide, Calcium Bromide, Hydrogen Bromide and Potassium Hydroxide from the Dead Sea. The company also exports Bromine to more than 30 countries around the world since its establishment, and it is the first accredited exporter company in Jordan to Europe. The company has (350) employees.

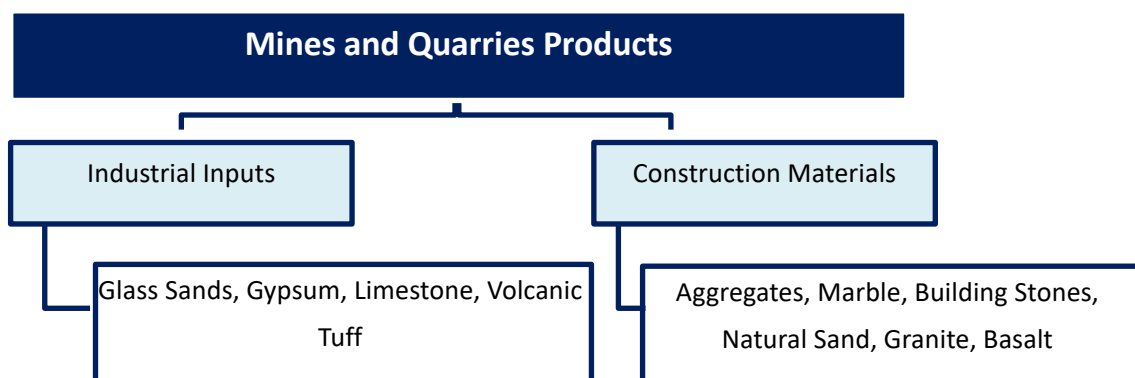
### 2.1.4 Quarries and Mines Products

Quarries and mines products are classified according to their use into two main categories:

1. **Construction Materials** such as Aggregates, Marble, Building Stones, Natural Sand, Granite and Basalt blocks.
2. **Industrial Inputs** such as Glass Sand, Gypsum, Limestone and Volcanic Tuff.



Domestic sales of construction materials are directly related to the building and construction sector, as these materials are used in construction, street paving, tile manufacturing, cement manufacturing, etc. These products are widely used to cover the needs of the local market and some of them are exported.



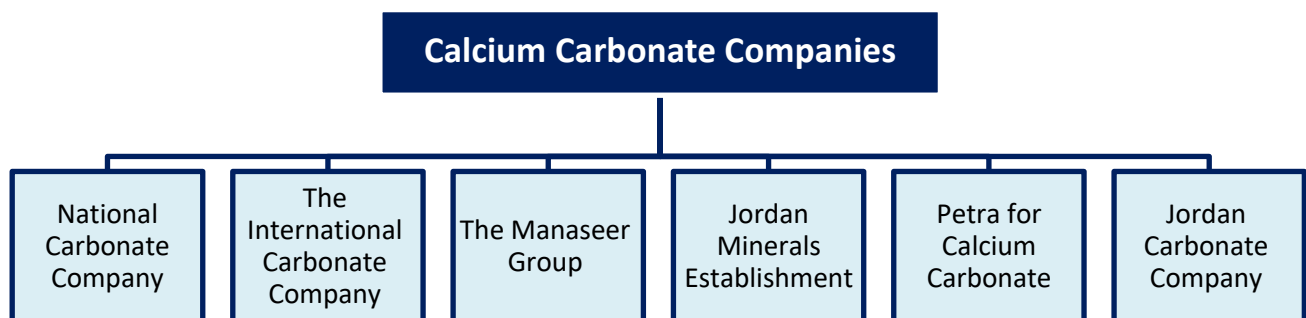




## 2.1.5 Calcium Carbonate

The Calcium Carbonate industry in Jordan is based on the exploitation of pure Limestone as a raw material available in large quantities in central Jordan by many local companies, where most of these companies' production from the Calcium Carbonate goes for export. Calcium Carbonate products are used in many industrial sectors, as fillers or as raw materials for other industries and other final products. In general, Calcium Carbonate granules are used in many industries, for example: glass industry, feed industry, various paints industry, carpet industry, plastic industries and many other industries.

The following is a summary of the main companies operating in this field:



1. **Jordan Carbonate Company:** Jordan Carbonate Company is a private company that was established in 1979 to produce and export various types of natural and processed Calcium Carbonate, with annual production capacity of 400,000 Tons, exploiting local raw materials through its quarries located in Jiza region, south of Amman.
2. **Petra for Calcium Carbonate:** Petra Company for Calcium Carbonate was established in 2003 as a 100% Jordanian company. The company mines the ore from its quarries located in the Qatraneh area (Karak) to produce Calcium Carbonate with high specifications and purity and to obtain a high-quality product. The company's products are currently exported to many countries, including Saudi Arabia, Kuwait, Syria, Lebanon, Emirates, India and Nigeria.
3. **Jordan Minerals Establishment:** is one of the companies producing natural and treated Calcium Carbonate powder with a production capacity exceeding (350000) Tons annually.





4. **The Manaseer Group:** has established a factory to produce Calcium Carbonate in cooperation with the Spanish company ECUTEC, which is specialized in the production of processed natural Calcium Carbonate in the Qatraneh region, south of Amman, at a cost of 20 Million JD, and with an annual production capacity of 350,000 Tons of Calcium Carbonate.



5. **The International Carbonate Company:** The Company was established in 2009, where pure Limestone is mined from the company's quarries in the Al-Damkhey area south of Amman and transported to the factory site in the Abu Al-Hassani area south of Amman. The product is exported to Saudi Arabia.
6. **National Carbonate Company:** The Company was established in 2009 to participate in the development of the Calcium Carbonate industry, by establishing a modern factory, with a production capacity of 60,000 Tons per year as an initial production. The company operates a factory in the Al-Damkhy area, 70 km south of Amman, where the high-purity Limestone is used to produce a wide range of ultra-fine products of Calcium Carbonate.

### 2.1.6 Silica Sand

Silica Sand is found in large quantities in south of Jordan, and is characterized by the high degree of purity and near to the surface which makes it easy to mine and also close to the necessary infrastructure services such as main roads, electricity and the port of Aqaba. There are currently two companies working in Jordan to process Silica Sands and produce various Silica products that enter in many industries and for export:

- **International Silica Industries Company** has a factory in the Daba'a region for mining Silica Sand from Dabbit Hanout (Aqaba Governorate).
- **Middle East Regional Development Company** produces Silica Sand through its factory in Al-Qwaira south of Jordan.

Also there are 10 mining rights and quarries licenses (7 mining rights) and (3 quarries licenses) for the production and processing of the resource for construction and exportation use.

Production and exportation of Silica products have declined in recent years (after 2015) due to the surrounding regional conditions and the lack of local industries based on the use of Silica Sand, which led to a reluctance to invest in this field, moreover to the difficulty in competing the market of the Silica Sand in neighboring countries such as Saudi Arabia and Egypt due to our high production costs.



There are investment opportunities to establish various industries based on these competitive materials with added value for different uses and for export purposes on the regional and global levels such as:

### **1. Production of fine Silica Sand**

Fine Silica (less than 100 microns) containing a proportion of Kaolin can be used as a by-product in the manufacturing of ceramics and white cement after sand treatment and washing, and the production of different grain sizes for the said industries.

### **2. Glass industry**

There is no glass manufacturing in Jordan, thus a great investment opportunity is available for interested investors, which will be supported by the high purity of the resource for manufacturing panels and glass containers and for the sophisticated industry of optics and crystal glass manufacturing.

### **3. Fiberglass, Sodium Wire and Derivatives Industries**

There are open investment opportunities for manufacturing of Glass Fibers, Sodium Silicate and Potassium Silicates and its derivatives such as Silica Gel and precipitated Silica, but the feasibility studies for these industries should be undertaken before establishing the relevant projects and to study the local and regional demand and other challenges.

## **2.1.7 Salt (NaCl)**

Salt is extracted from the Dead Sea by Arab Potash Company as a by-product and is sold to Salt factories for purification, treatment and production of different types of Salt to cover the needs of the local market.



- **Amra Salts Factory:** The factory was established in 1986 with an annual production capacity of about 36500 Tons of Salt, and about annual 27,000 Tons of high purity salt, where the factory covers the needs of 80% of the local market. The number of workers in the factory is about 100 workers.



## 2.2 Mineral Manufacturing Industries

### 2.2.1 Chemical Industries

#### A. Fertilizers and Chemical Acids

The Fertilizers and Chemical Acids industry plays an important role in the economies of countries, whether at the industrial or agricultural level as a result of its primary role in enhancing agricultural products and improving the food security of the population, which encourages the establishment of such industry in Jordan is the availability of the main raw materials for the industry (Phosphate and Potash), as Jordan has large reserves of Phosphate and Potash minerals.

Jordan Phosphate Mines Company is considered one of the pioneer companies in the world in the production of high quality fertilizers, the industrial complex of the Jordanian Phosphate Mines Company is one of the largest Phosphate fertilizer complexes in the Middle East.” DAP” fertilizer is produced with an annual capacity of about one Million Tons. The subsidiaries and affiliates of the Jordanian Phosphate Company, whether operating in Jordan or outside Jordan in countries such as India and Indonesia, produce various kinds of fertilizers and different chemical acids.

The Arab Potash Company is also the only producer of Potash in the Arab world. According to Jordan Chamber of Industry data, there are 85 registered fertilizers factories, including 60 factories that export their products to many countries of the world, where these factories benefit from the comparative advantage of the availability of raw materials for this industry from Phosphate and Potash. The fertilizers industry is an export-oriented industry, as most of the production is exported to Arab and international markets, in particular to the Japanese market.

The following are the most important companies operating in this field:

#### 1. Jordanian Indian Fertilizers Company (JIFCO)

The company produces Phosphoric Acid through its factory in the Eshidiya region / Ma'an Governorate, in partnership with the Federation of Indian Farmers IFFCO, which owns 52% of the company's capital, while the Jordanian Phosphate Mines Company contributes 48% of the joint-stock company capital of 524.5 Million USD, and it uses about 1.8 Million Tons of Phosphate annually.





## **2. Jordan Abiad Fertilizer and Chemicals Company (JAFCCO)**

Fertilizers and Chemicals are produced by the company's factory in Al-Wadi Al-Abyad / Karak Governorate, in partnership with JAFCCO Bahrain, the Arab Mining Company and Venture Capital Bank. The Phosphate Company contributes 27.4% of the company's capital of 51.1 Million JD.

## **3. Indian Jordanian Chemical Company (IJC)**

The company started production of Phosphoric Acid in 1997 with an annual production capacity of (224) Thousand Tons, and Sulfuric Acid with an annual capacity of (660) Thousand Tons with associated facilities in the Eshidiya Phosphate mines area, and facilities for storing acid in Aqaba which is close to Aqaba port and the ships loading port.

## **4. Nippon-Jordanian Fertilizer Company (NJFC)**

The company produces Compound fertilizers, Ammonium Phosphate fertilizer, with a production capacity of 300 Thousand Tons annually.

## **5. Arab Fertilizers and Chemicals Industries Company (KIMAPCO), LLC**

The company produces Potassium Nitrate fertilizer through its factory in Aqaba.

## **6. PT Kaltim-Jordan Abadi**

The company produces Phosphoric Acid through its factory in Indonesia using Phosphates supplied from Phosphate mining company.

## **7. PT Petro-Jordan Abadi**

The company produces Phosphoric Acid through its factory in Indonesia, using approximately 800,000 Tons per year of Phosphate from the Jordanian Phosphate Mines Company.

## **2.2.2 Construction Industries**

### **A. Cement Industry**

There are five factories in Jordan for the production of cement of all types, with a production capacity of 8 Million Tons annually, while the actual need for the local market of cement is about 4.5 Million Tons annually. These factories are:



### **1. Lafarge Jordanian Cement Factories (Al-Fuhais and Rashadiya)**

Jordan Cement Factories Company was established in 1951 and it is the first company to produce Clinker and Portland Cement using local natural resources such as Kaolin, Gypsum and Limestone. The company's capital at establishment was one Million JD, and it has gradually increased with the development of the company until it became about 60 Million JD after a series of additions and after the merge of the Janoub Company with the Jordanian Cement Factories Company in 1985. The production capacity of the company upon establishment has reached 175 Thousand Tons, which gradually increased to reach 2.3 Million Tons annually, starting from 1983.

In 1988 the Government sold part of its share to a strategic partner, the French Lafarge Group, which now owns 52% of the company's capital.

The company has two cement production plants; one is located in the Fuheis area near Amman and the other in Rashidiya area in southern Jordan. The company also established the Aqaba Export Station in 1992.

The company produces four types of cement:

- a. Ordinary Portland cement - Portland Pozzolana Cement - Cement for Finishing
- b. Sulfate-Resistant Cement

The production and sales of the company has decreased in the past few years due to the decrease in demand for cement, in addition to the presence of four other factories. Also, in 2013, the company suspended work at its factory in Fuheis, in addition to the shutdown of one of the production lines at the Rashadiya factory since 2010.

*(Source: The Company's Annual Report 2018).*

### **2. Al-Rajhi Cement Factory**

The factory was established in the year 2006 in Al-Mafraq Governorate, with a production capacity of Clinker about 2 Million Tons / year and a production capacity of Cement about 2.4 Million Tons / year using Limestone available in Al-Mafraq Governorate, and later the company name was changed to Cementra.

### **3. Modern Cement and Mining Company Factory**

The company started production in 2011 with a production capacity about 1.8 Million Tons / year, producing Cement from its factory in the Damkhi region, south of Amman, with an investment of more than 650 Million USD, with 550 employees.



#### **4. Qatraneh Cement Company Factory**

Established in 2007 with a total investment of 500 Million USD and an annual production capacity about 1.8 Million Tons annually to keep up with demand in the Jordanian market and the neighboring regional markets (Iraq, Palestine and Syria). The factory is located 90 km south of Amman and the site is characterized by the availability of high-quality raw materials.

#### **5. North Cement Company's Mill in Muwaqqar**

The company was established in 2007, with a production capacity of about one Million Tons of cement annually. With a capital of (55 Million JD), the company is concerned with manufacturing Cement, Clinker, grinding and producing Cement of all kinds and forms.

#### **6. The Arab White Cement Company**

The Arab White Cement Company was established in 1982 with a joint Jordanian Syrian capital so that 40 percent of its production goes to the local market and 60 percent is exported to Syria. The company has a factory located in Wadi Al-Dhlail area in northeastern Jordan. The company has been producing White Cement since 1985, with an annual production capacity about 108,000 Tons of Cement, and the production capacity was increased in 1996 to 144,000 Tons annually. The total investment amount is 18 Million JD.

### **B. Rock Wool industry**

The Jordanian Rock Wool Industries Company was established in the year 1981 for Rock Wool industry that is used as heat insulation materials of various types and shapes and also produces Basalt of all sizes and types for the local market and for export, the company continued production until 2010, when the company's production in 2009 reached more than 1000 Tons of rock wool products that was sold to the local market and the external markets with a total revenue of about 640,000 JD, after this year the company's production began to decline as demand for Rock Wool products began to drop because of the interruption of a large number of industrial and construction projects as a result of the political and economic situation in the neighboring region, which are the main markets for the company's products, until the company stopped production from this industry in 2012.



### **Investment Opportunities:**

Although the use of Basalt as road gravel is still limited because of the cheap alternative of Limestone, the engineering specifications for Basalt as road gravel are much better than Limestone. Therefore, investing in Basalt as road gravel is considered one of the potential investments in the Kingdom. As for the plumbing molds industry, there are currently no Basalt investments in Jordan, but there is a great investment opportunity in this industry after the Czech Company Gewandestria in 2000 who took samples of Basalt from the areas of Tel Burma and Jabal Unayzah and conducted some technological experiments and laboratory analyzes Basalt was found to be suitable for making plumbing molds and pipe making, in addition to many other uses for Basalt.



### 3. Production and Sales

#### 3.1 Mineral Extraction Industries

##### 3.1.1 Phosphate

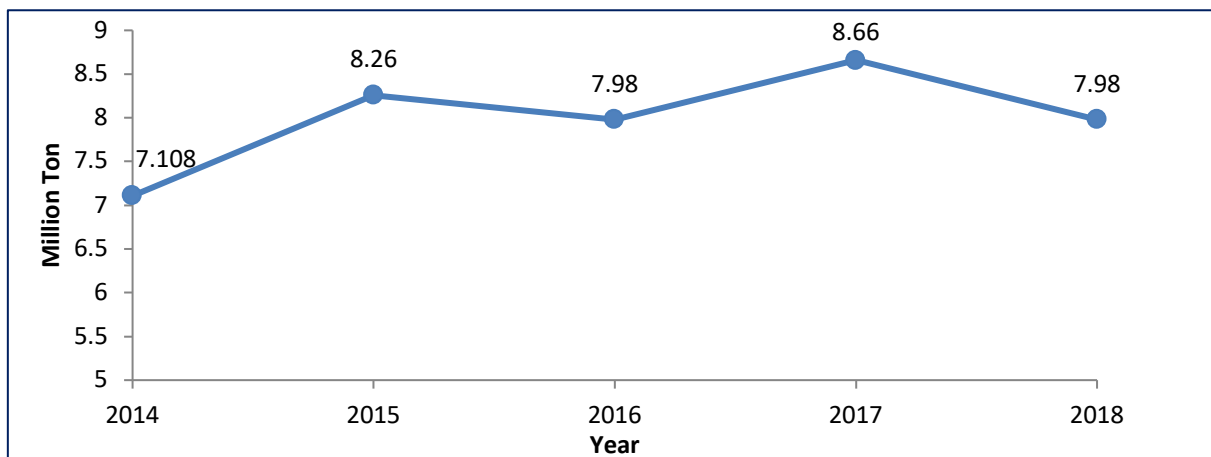
Table (1): Produced, Exported and Domestic Use Quantities, Sales Revenue for Phosphate during the period (2014-2018)

| Year  | 2014  | 2015  | 2016  | 2017  | 2018  |
|---|-------|-------|-------|-------|-------|
| Phosphate products Quantities(Thousand Tons)  | 7,108 | 8,263 | 7,988 | 8,665 | 7,986 |
| Phosphate Exported Quantities (Thousand Tons)   | 4,616 | 4,839 | 4,704 | 5,195 | 4,163 |
| Consumed Phosphate Quantities Domestically (Thousand Tons)  | 2,685 | 3,345 | 3,231 | 3,588 | 3,900 |
| Phosphate Sales Revenue (Million JD)  | 357.6 | 423.6 | 367.1 | 335.5 | 327.2 |
| Unit Price (JD/Ton)<br>* Based on Global Prices<br><a href="http://www.indexmundi.com/rockphosphate">www.indexmundi.com/rockphosphate</a> | 91    | 82    | 73    | 61    | 66    |

Source: Jordanian Phosphate Company annual reports for years 2014-2018

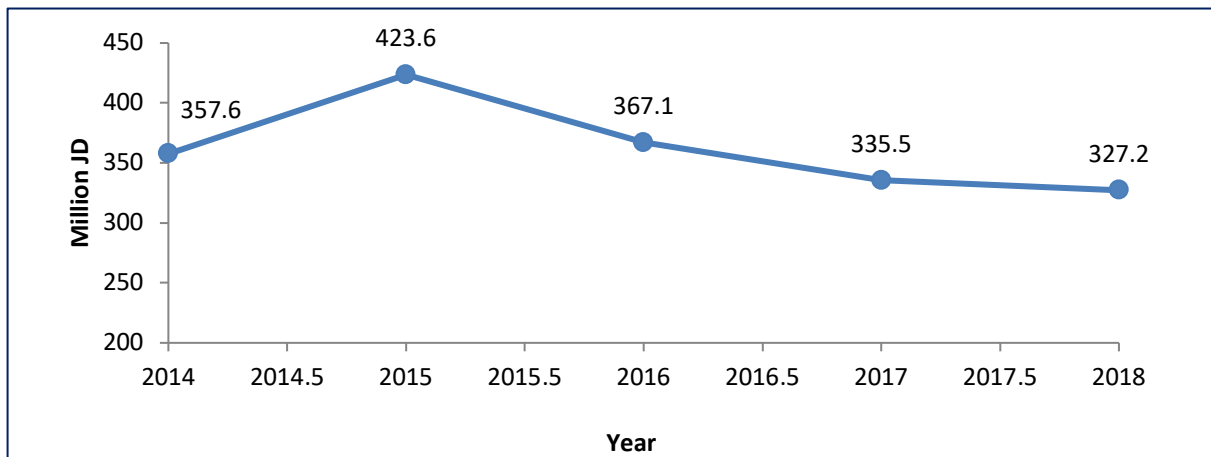
#### Economic Indicators

Figure (1): Quantities of Phosphate Produced (Million Tons) during 2014-2018

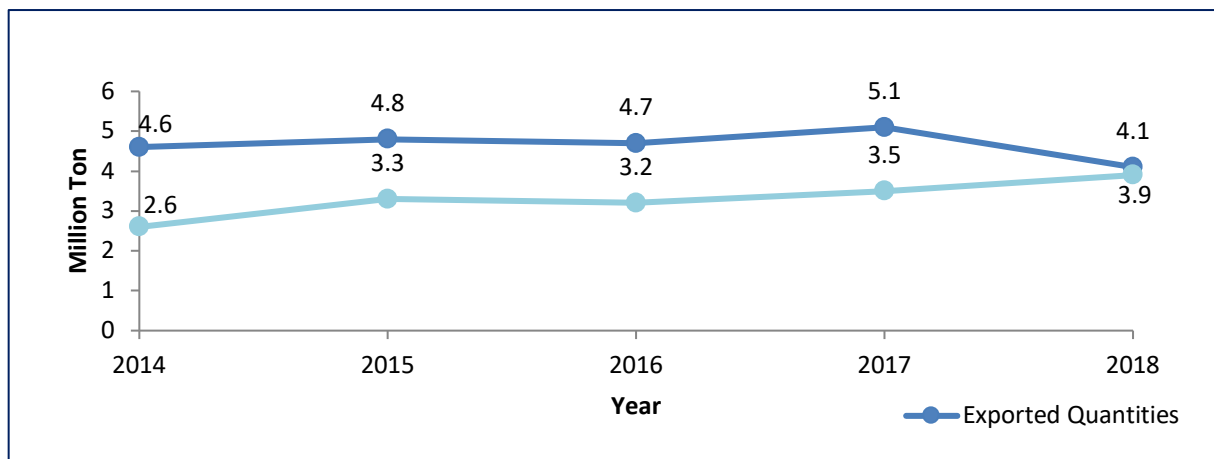




**Figure (2): Sales Revenue of Phosphates (Million JD) during 2014-2018**



**Figure (3): Quantities of Phosphate Exported and Sold to the Local Market during 2014-2018**



- Highest production of Phosphate was in 2017, it reached 8.66 Million Tons.
- Highest sales revenue was in 2015, it reaches 423.6 Million JD as a result of increase in Phosphate prices globally compared to previous years.
- Highest Exported Phosphate quantities were in 2017, which reached to 5.19 Million Tons.
- Lowest Exported Phosphate quantities were in 2018, which reached 4.16 Million Tons, because of shutting down in one of the client's factories in India resulting in non-compliance with the company's marketing plan.



### 3.1.2 Potash

In 2018 Arab Potash Company production of Potash was 2,436,000 Tons, which is equal to 106% of the annual production plan that equals (2,300,000) Tons, as 136,000 Tons increase in production and with 482.72 Million JD sales revenue, which contributed with 1.61% of Gross National Products" GNP".

**Table (2) : Quantities and Production Ratios of all types of Potash in 2018**

| Type         | Quantity (Ton)   | Ratio %    |
|--------------|------------------|------------|
| Normal       | 1,253,650        | 51.47      |
| Soft         | 964,000          | 39.57      |
| Granular     | 218,350          | 8.96       |
| <b>Total</b> | <b>2,436,000</b> | <b>100</b> |

*Source: Annual Report for Arabian Potash Company 2018*

**Table (3) Potash Production (Thousand Ton) and Sales Revenue (Million JD) during 2014-2018**

| Year                                       | 2014   | 2015   | 2016   | 2017   | 2018   |
|--|--------|--------|--------|--------|--------|
| Potash production (Thousand Tons)          | 2086.2 | 2355.0 | 2003.5 | 2320.0 | 2434.5 |
| Potash Sold (Thousand Tons)                | 2245.3 | 2188.2 | 2030.2 | 2360.2 | 2439.9 |
| Export (Thousand Tons)                     | 2016.6 | 1972.8 | 1841.7 | 2165.8 | 2197.8 |
| Domestic Market Consumption (Thousand Ton) | 228.7  | 215.34 | 188.5  | 194.4  | 242.1  |
| Sales(Million JD)                          | 475.05 | 472.8  | 322.2  | 364.3  | 482.72 |
| Net Profit (Million JD)                    | 99.6   | 131.1  | 62.2   | 89.8   | 124.9  |
| Unit Price (JD/Ton)                        | 217.97 | 216.55 | 163.3  | 156.2  | 205.9  |

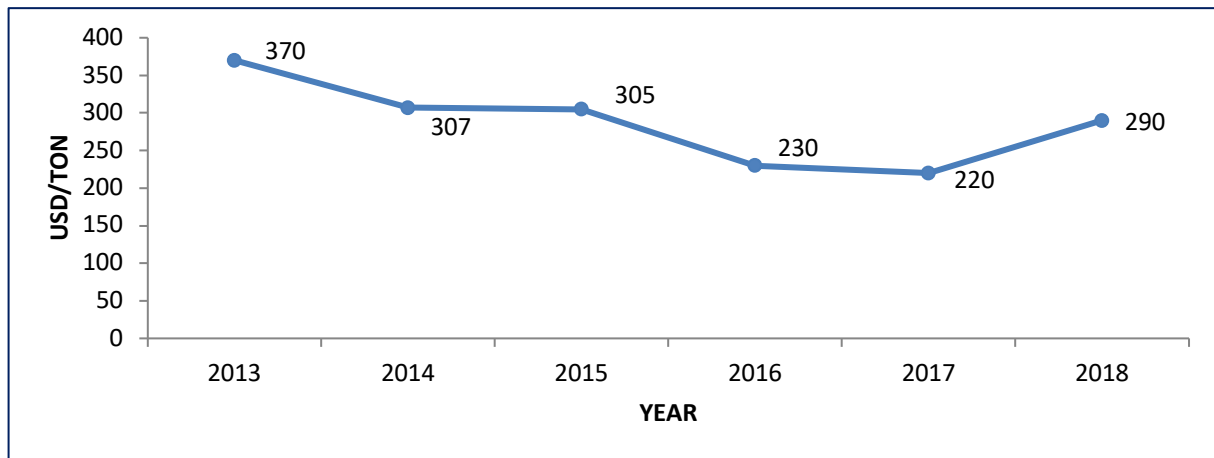
*Source: Central Bank of Jordan, Annual Reports for Arabian Potash Company 2014-2018*



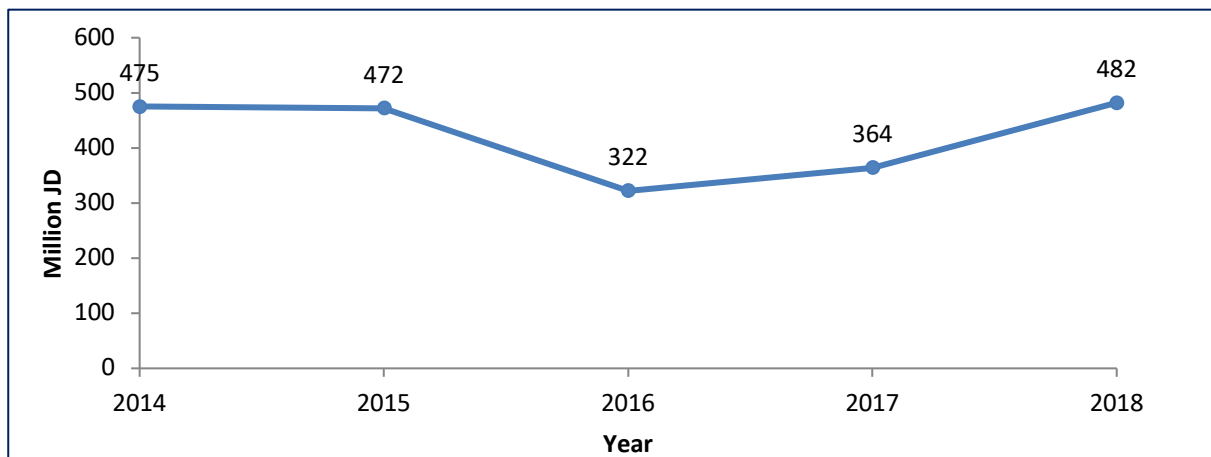


## Economic Indicators

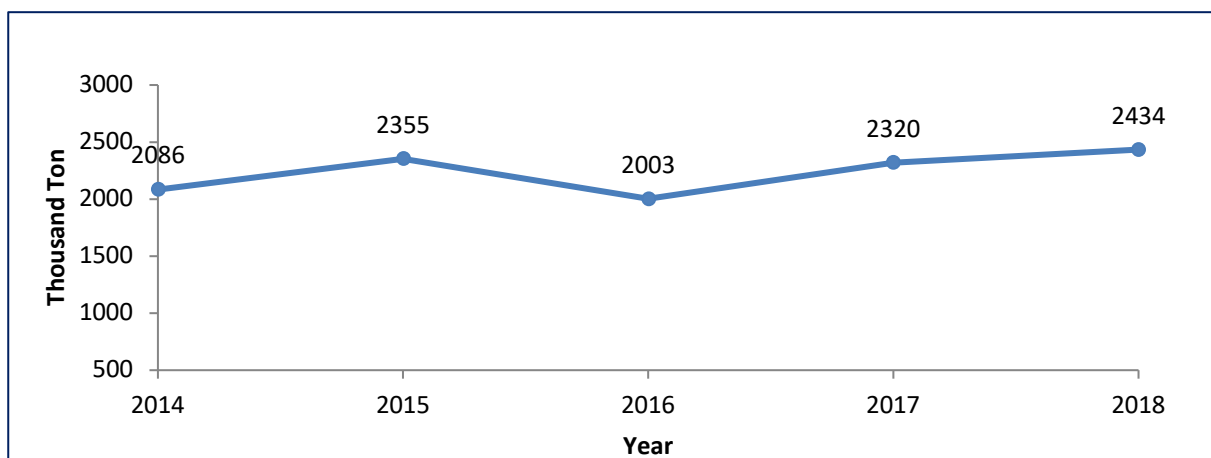
**Figure (4): Development of Global Potash Price (USD/Ton) for 2014-2018**



**Figure (5): Potash Sales Revenue (Million JD) during 2014-2018**

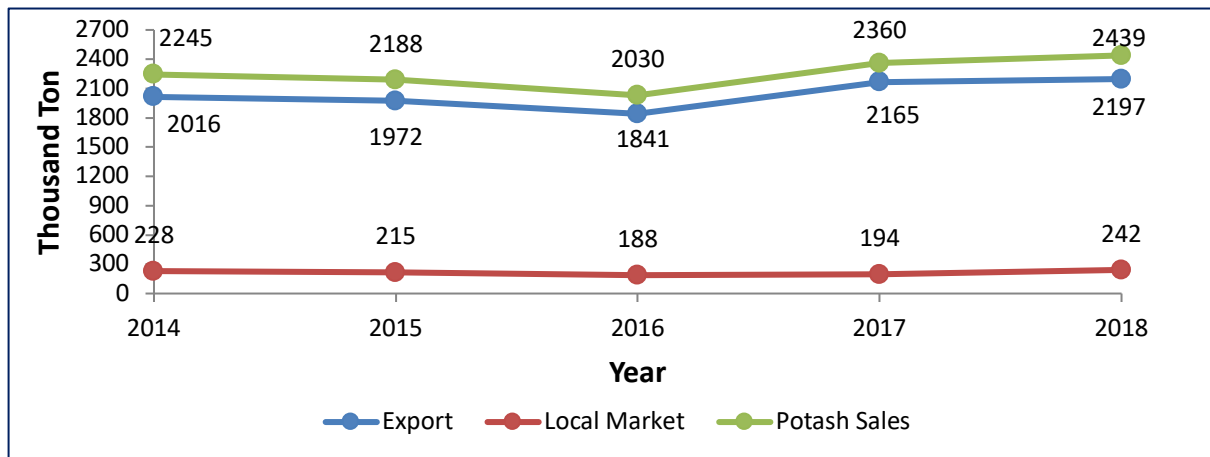


**Figure (6): Potash Produced (Thousand Ton) during 2014-2018**





**Figure (7): Potash Sold, Exported and Domestic Market (Thousand Ton) during 2014-2018**



- Potash revenue decreased in 2016 and 2017 due to the low global Potash prices.
- The 2016 Potash production has decreased by about 300 Thousand Tons, which was reflected to the sold Potash quantities, revenues and net profits also due to the prolonged suspension of activities for maintenance and upgrading operations in the Hot Crystallization Factory.
- (Source: Annual Reports for Arabian Potash Company 2016)

### 3.1.3 Bromine

Jordan Bromine Company extracts chemicals from Dead Sea since 2002, where these chemicals are used in different chemical industries such as: medicines, electronics and oil industry.

These products are exported to over 30 countries all over the world. Bromine Company contribution in Gross National Product "GNP" in 2018 was about 0.67%.

**Table (4): Production of Bromine (Thousand Ton) and Sales Revenue (Million JD) during 2014-2018**

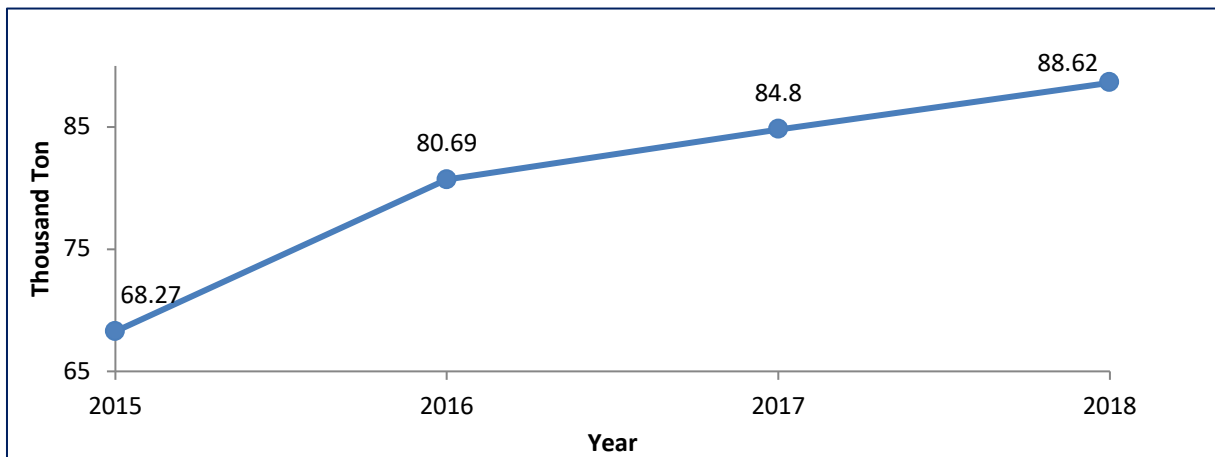
| Year                                    | 2014   | 2015  | 2016   | 2017  | 2018  |
|---|--------|-------|--------|-------|-------|
| <b>Produced Bromine (Thousand Tons)</b> | *      | 68.27 | 80.69  | 84.80 | 88.62 |
| <b>Bromine Sales (Million JD)</b>       | 161.97 | 149.5 | 175.49 | 182.3 | 202.1 |

Source: Annual Reports for Arabian Potash Company 2014-2018, and Energy and Minerals Regulatory Commission (EMRC)

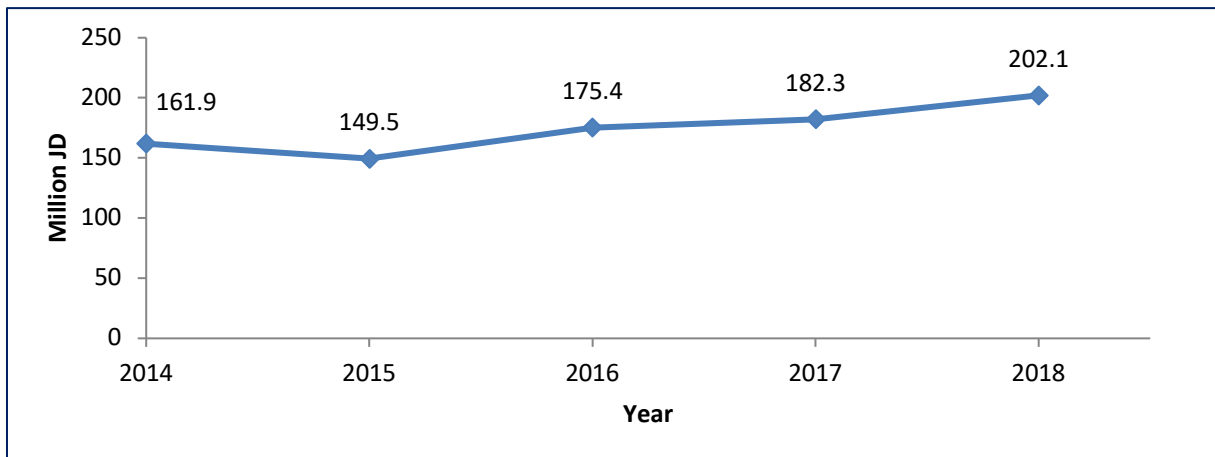
\* Not Available



**Figure (8): Bromine Production (Thousand Tons) During 2015-2018**



**Figure (9): Bromine Sales Revenue (Million JD) during 2014-2018**



From The Figure above it is noticed that Bromine Sales Revenue are increasing.



### 3.1.4 Quarries and Mines Products

The production and the local sales of construction materials are directly related to the building and construction sector, as these materials are used in construction, street paving, tile manufacturing, and others. These products are widely used to cover the needs of the local market and part of it is exported to the external market.

The contribution of these products in Gross National Product "GNP" in 2018 was about 2.11%.



**Table (5): Production Quantities of Quarries and Mines Products (Tons) during 2014-2018**

| Ore                    | 2014      | 2015      | 2016      | 2017      | 2018      |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Dimension Stone        | 292,500   | 252,500   | 245,000   | 342,500   | 587,500   |
| Marble                 | 50,000    | 70,000    | 80,000    | 80,000    | 17,500    |
| Pozolana/Volcanic Tuff | 1,071,337 | 904,131   | 848,774   | 803,525   | 917,490   |
| Dead Sea Mud           | 324       | 213       | 225       | 245       | 276       |
| Lime Stone             | 5,142,005 | 2,013,988 | 1,681,736 | 4,087,122 | 2,738,942 |
| Pure Lime Stone        | 212,903   | 298,515   | 348,778   | 417,680   | 529,765   |
| Natural Sand           | 3,000,000 | 3,230,000 | 3,420,000 | 3,610,000 | 3,800,000 |
| Travertine             | 23,897    | 19,970    | 22,994    | 11,542    | 18,520    |
| Gypsum Ore             | 134,562   | 212,839   | 1,906,979 | 344,191   | 190,606   |
| Granite                | -         | -         | -         | 200       | 3,400     |
| Clay                   | 636,647   | 888,283   | 109,105   | 711,674   | 187,798   |
| Silica Sand            | 278,823   | 127,296   | 136,853   | 563,998   | 136,483   |
| Basalt                 | 4,900     | -         | 100,710   | 62,500    | 562,500   |

*Source: Energy and Minerals Regulatory Commission (EMRC)*



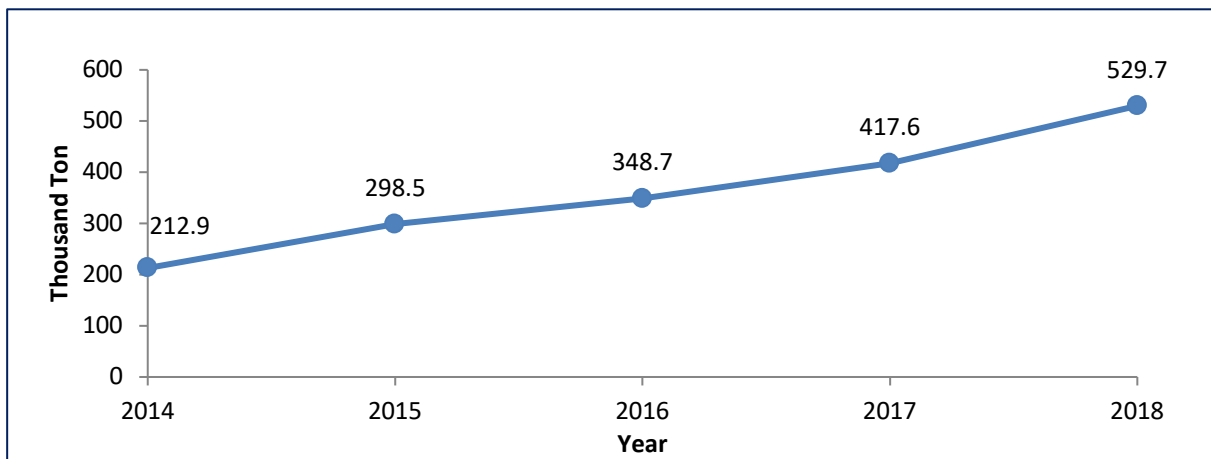
### 3.1.5 Calcium Carbonate Industry

The Calcium Carbonate industry in Jordan is based on the exploitation of Pure Limestone in the central and southern regions of Jordan, where several local companies produce this substance with high economic value, most of which goes for export purposes, especially for the Saudi market.

**Table (6): Pure Limestone Produced (Thousand Tons) during 2014-2018**

| Year   | 2014  | 2015   | 2016   | 2017    | 2018   |
|--|-------|--------|--------|---------|--------|
| Production of Pure Limestone (Thousand Tons) | 212.9 | 298.51 | 348.77 | 417.680 | 529.76 |

**Figure (10): Production of Pure Limestone (Thousand Tons) during 2014-2018**



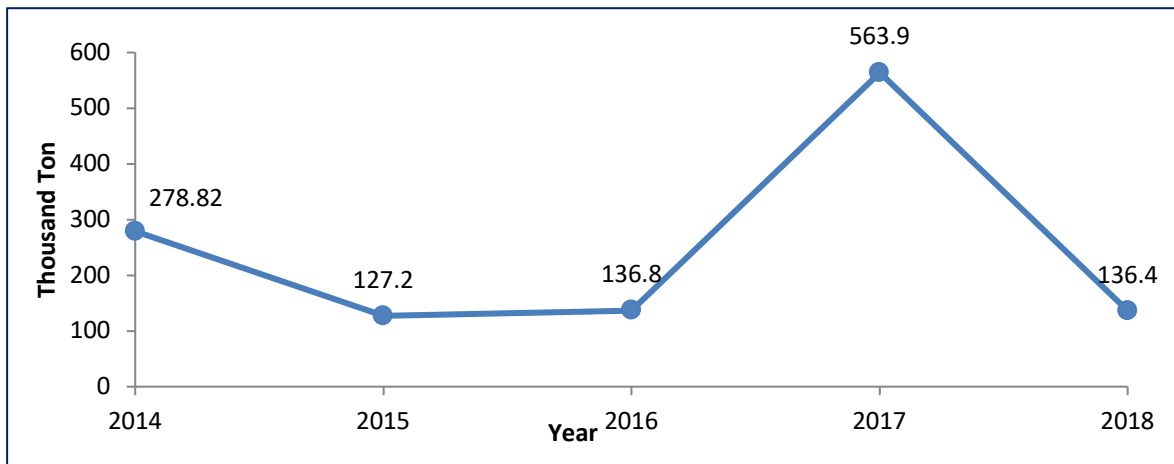
### 3.1.6 Silica Sand

**Table (7): Silica Sand Production (Thousand Ton)**

| Year                                     | 2014   | 2015   | 2016   | 2017   | 2018   |
|--|--------|--------|--------|--------|--------|
| Production of Silica Sand (Thousand Ton) | 278.82 | 127.29 | 136.85 | 563.99 | 136.48 |



**Figure (11): Production of Silica Sand (Thousand Tons) during 2014-2018**



**Table (8): Sales Revenue from Quarries Products (Million JD)**

| Year  | 2014  | 2015  | 2016  | 2017  | 2018  |
|---|-------|-------|-------|-------|-------|
| Sales Revenue of Quarries Products (Million JD) | 579.9 | 666.6 | 556.1 | 563.8 | 631.5 |

### 3.1.7 Salt

**Table (9): Sales Revenue and Production of Salt During 2014-2018**

| Year | Production(Ton) | Sales Revenue(JD) |
|------|-----------------|-------------------|
| 2014 | 39693           | 3212345           |
| 2015 | 46020           | 3630573           |
| 2016 | 41309           | 3630572           |
| 2017 | 48985           | 3780869           |
| 2018 | 48901           | 4224052           |



## 3.2 Mineral Manufacturing Industries

### 3.2.1 Fertilizers and Chemical Acids

Table (10): Sales Revenue and Production of Fertilizers and Acids in 2018

| Year                                   | 2014   | 2015   | 2016   | 2017   | 2018   |
|--|--------|--------|--------|--------|--------|
| Fertilizers Production (Thousand Ton)  | 886.0  | 619.4  | 547.4  | 695.3  | 882.0  |
| Fertilizers Sales Revenue (Million JD) | 213.7  | 113.5  | 99.2   | 101.9  | 174.6  |
| Acids Production(Thousand Ton)         | 1441.5 | 1205.8 | 1083.0 | 1308.6 | 1375.4 |
| Acids Sales Revenue (Million JD)       | 154.3  | 186.4  | 76.7   | 142.2  | 164.7  |

Source: Central Bank of Jordan

Figure (12): Production of Fertilizers and Acids (Thousand Tons) during 2014-2018

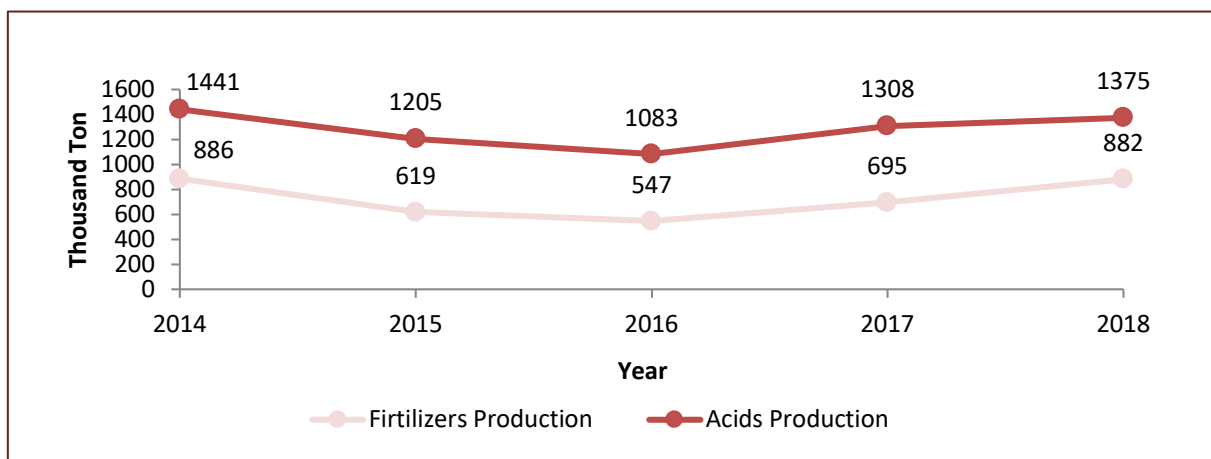
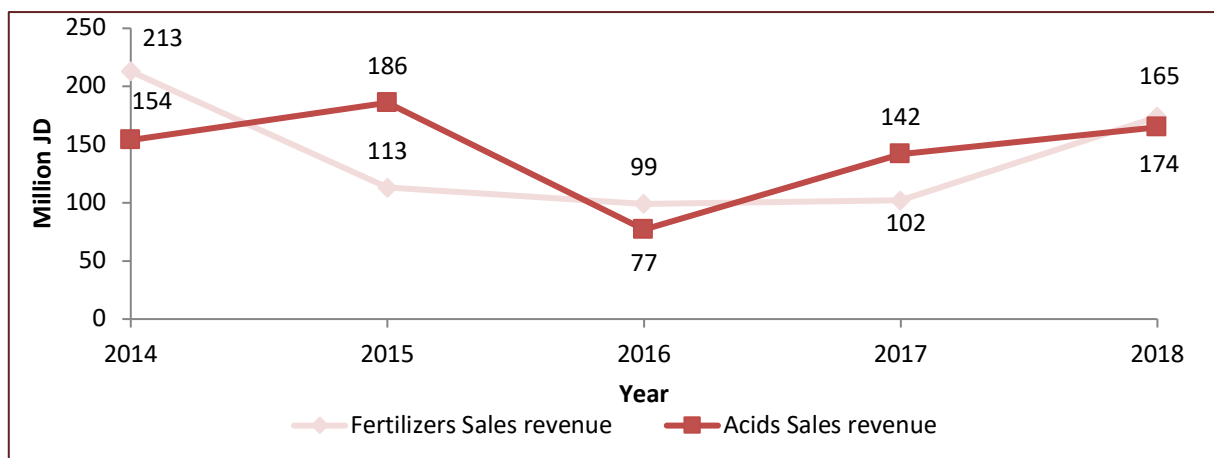


Figure (13): Fertilizers and Acids Sales Revenue during 2014-2018







- It is noted that the revenues from fertilizers and acid sales decreased in 2016 due to the decrease in the prices of fertilizers and acids in that period. Where the year 2016 witnessed a sharp decline in the prices of these products compared to 2015, when the prices of Phosphate ore decreased by 19%, the prices of Phosphate and compound fertilizers decreased by 27%, and the prices of Phosphoric Acid decreased compared to prices at the end of 2015 by 28.4%.

(Source: Jordan Phosphate Company 2016 Annual Report).

### 3.2.2 Cement Industry

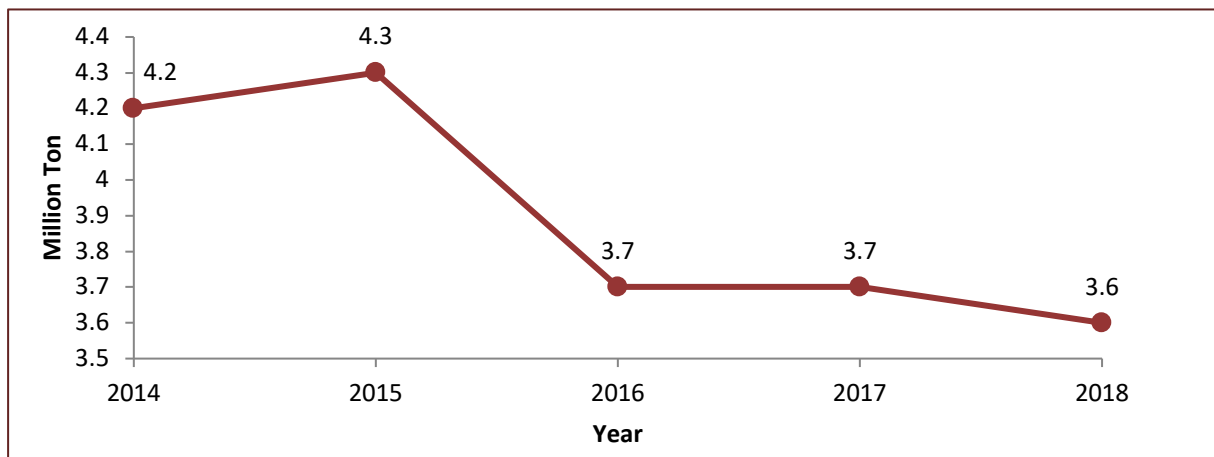
#### A. Ordinary Cement

Table (11): Cement Sales Quantities and Sales Revenue (Million JD)

| Year | Local Consumption (Million Ton) | Sales Revenue (Million JD) | Note  |
|------|---------------------------------|----------------------------|---|
| 2014 | 4.2                             | 378                        | Sales Revenue Based on Cement prices at that time |
| 2015 | 4.3                             | 380                        |   |
| 2016 | 3.7                             | 370                        |   |
| 2017 | 3.7                             | 333                        |   |
| 2018 | 3.6                             | 288                        |   |

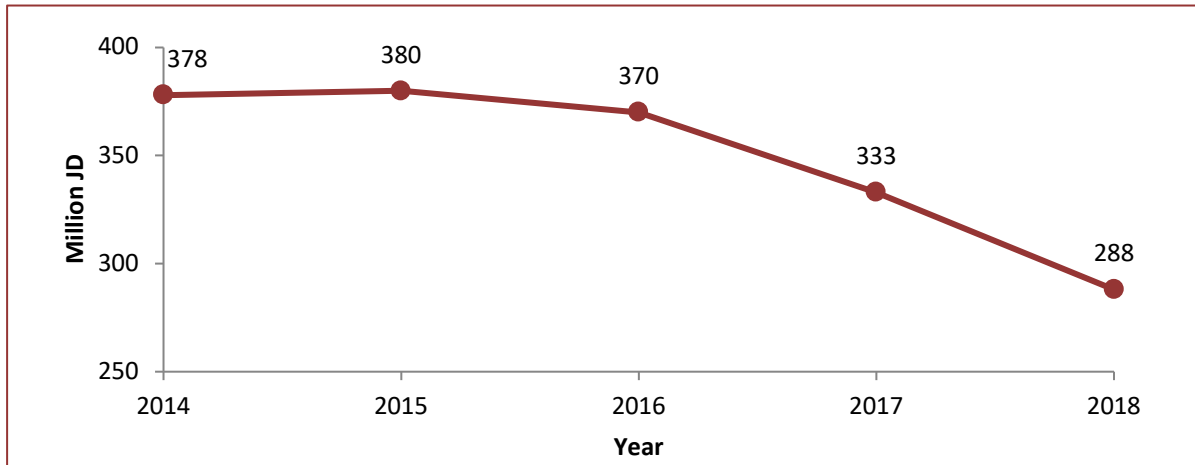
Source: Jordan Cement Producers Association

Figure (14): Local Market Consumption of Cement during 2014-2018





**Figure (15): Cement Sales Revenue during 2014-2018**



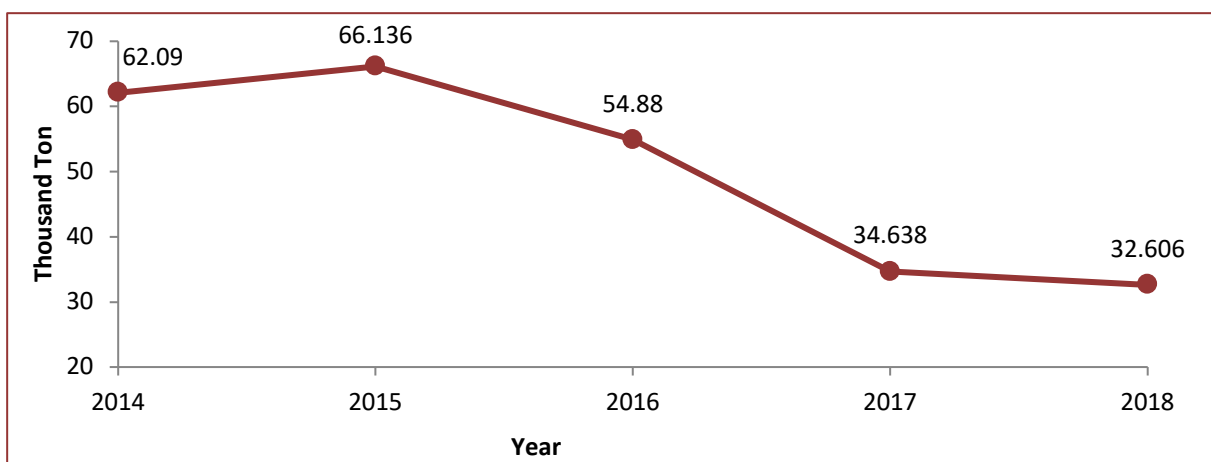
## B. White Cement

**Table (12): Production of White Cement (Thousand Tons) during 2014-2018**

| Year                                      | 2014      | 2015      | 2016      | 2017      | 2018      |
|---|-----------|-----------|-----------|-----------|-----------|
| Production of White cement (Thousand Ton) | 62.09     | 66.136    | 54.882    | 34.638    | 32.606    |
| Sales Revenue from Domestic Market (JD)   | 7,764,045 | 7,103,537 | 6,247,181 | 4,687,988 | 4,678,965 |
| Sales Revenue from Export (JD)            | 906,804   | 1,335,118 | 496,495   | 1,950     | -----     |

Source: ACWCI Company

**Figure (16): Production of White Cement (Thousand Tons) during 2014-2018**





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It is noticed that the sales of the local market decreased in the years 2017 and 2018 due to:

- Allowing some of the Ordinary Cement factories in Jordan to manufacture White Cement.
- Decrease in sales volume for the external market from 2016 due to:
  - The inability to market the products to the Syrian market due to the political situation.
  - Opening new similar factories in Saudi Arabia, which was the main importer of White Cement from Jordan.



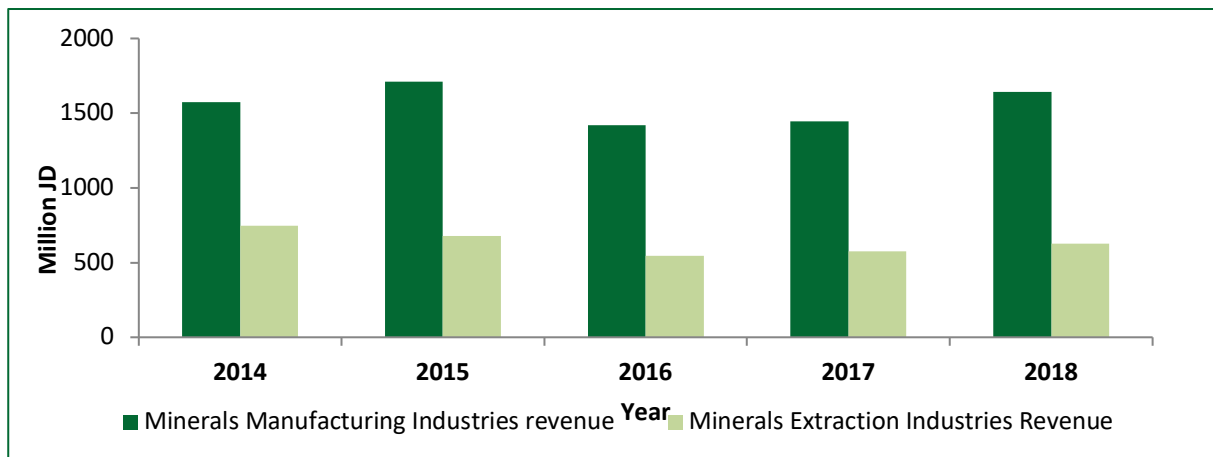
## 4. Mining Sector Economic Indicators

### 4.1 Sales Revenue for Mining Sector

**Table (13): Sales Revenue for Mining Sector (Extraction & Manufacturing) During 2014-2018**

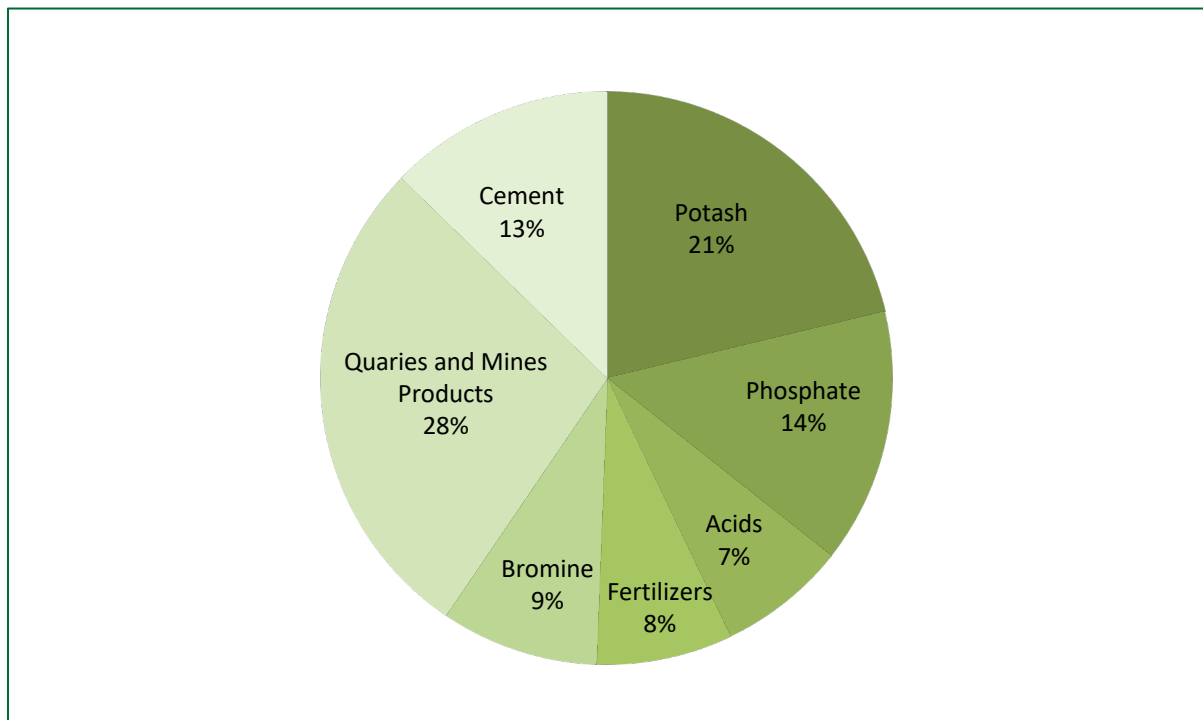
| Year  | 2014          | 2015          | 2016          | 2017          | 2018          |
|---|---------------|---------------|---------------|---------------|---------------|
| <b>Minerals Extraction Industries<br/>(Million JD)</b>    | <b>1574.5</b> | <b>1712.5</b> | <b>1420.8</b> | <b>1445.9</b> | <b>1643.5</b> |
| <b>Minerals Manufacturing Industries<br/>(Million JD)</b> | <b>746</b>    | <b>679.9</b>  | <b>545.9</b>  | <b>577.1</b>  | <b>627.3</b>  |
| <b>Total (Million JD)</b>                                 | <b>2320.5</b> | <b>2392.4</b> | <b>1966.7</b> | <b>2023</b>   | <b>2270.8</b> |

**Figure (17): Mineral Extraction and Mineral Manufacturing Revenues in Mining Sector (Million JD) during 2014-2018**

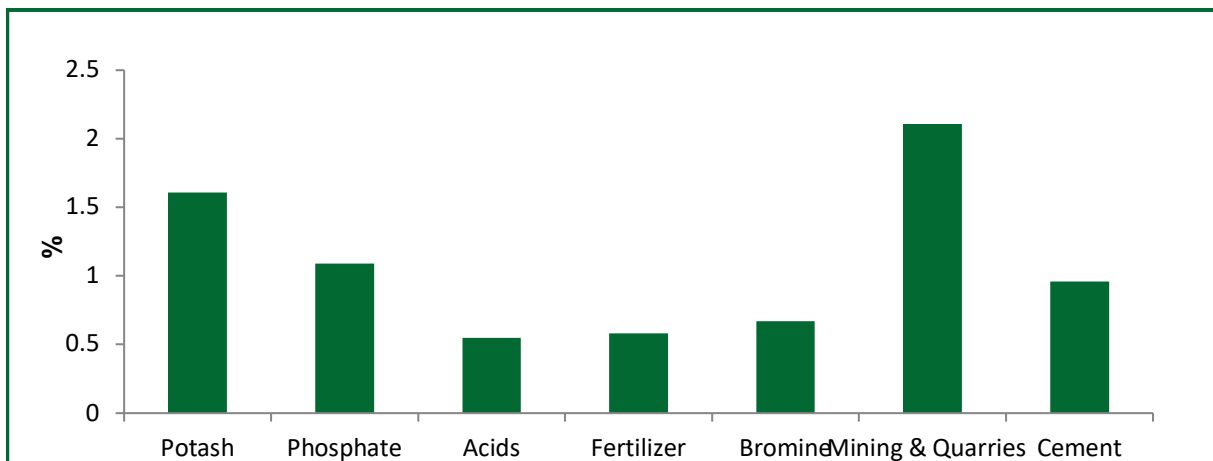




**Figure (18): Mineral Products Contribution in Mining Sector during 2018**



**Figure (19): Mineral Products Contribution of GNP during 2018**





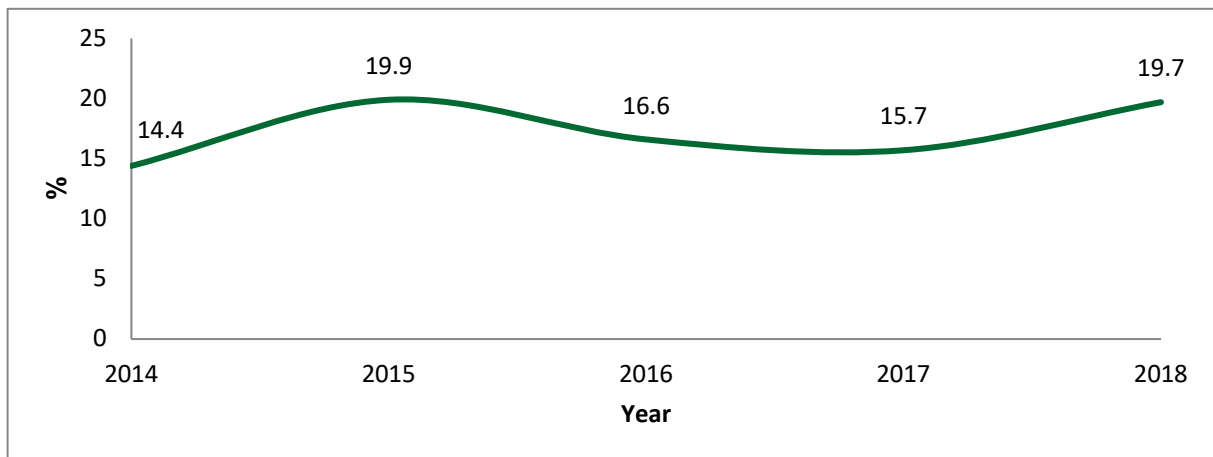
## 4.2 Sales Revenue for Export of Mining Sector

**Table (14): Mining Sector Exports Compared to National Exports and its Contribution.**

| Year | National Exports<br>(Million JD) | Mining Sector<br>Exports (Million JD) | Mining Sector % in<br>National Exports |
|------|----------------------------------|---------------------------------------|--|
| 2014 | 5953                             | 859                                   | 14.43                                  |
| 2015 | 5797                             | 1151                                  | 19.9                                   |
| 2016 | 5712                             | 946                                   | 16.6                                   |
| 2017 | 5629                             | 882                                   | 15.7                                   |
| 2018 | 5561                             | 1098                                  | 19.7                                   |

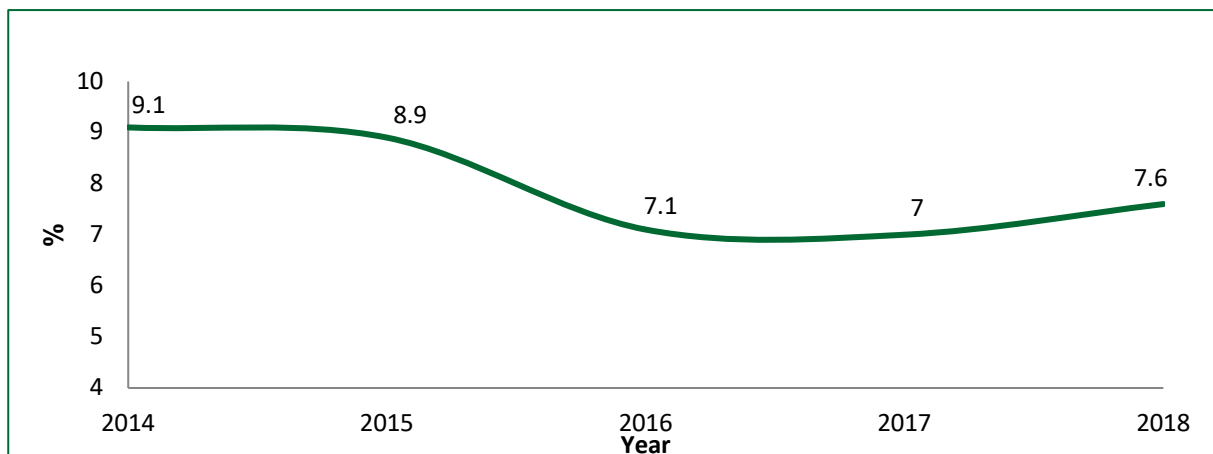
Source: Amman industrial chamber/Mining Sector Exports Data/ National Exports data

**Figure (20): Mining Sector Export as % of National Exports (2014 - 2018)**



## 4.3 Mining Sector Contribution in Gross National Product

**Figure (21): Mining Sector Revenue % of GNP (2014 - 2018)**





## 5. References

- **Central Bank of Jordan - Official Website**
- **Energy and Minerals Regulatory Commission**
- **Department of Statistics**
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- **International Silica Industries Company, annual report 2016**
- **The Arab Company for White Cement**
- **Jordan Country Report for Jordan Mineral Resources (2019), (in Arabic)**
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