



MINERAL RESOURCES IN ANBAR, AKASHAT FACTORY AS A MODEL

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Article history:	Abstract:
<p>Received: 6th November 2022 Accepted: 8th December 2022 Published: 6th January 2023</p>	<p>The Akashat area of the town of Al-Walid within the city of Al-Rutba, in the far west of the Iraqi province of Anbar, includes the largest phosphate mines in the country, which before the US invasion of the country in 2003 was one of the main mining spots besides oil and gas, providing the needs of internal demand.</p> <p>Before the first Gulf War in 1991, Iraq was exporting phosphate to East and Northeast Asian countries and several European countries, but the hand of neglect and terrorism represented by the "American occupation" and then the invasion of "ISIS" organization, Anbar Governorate, caused the destruction of the infrastructure in the mines, which contributed to companies Yugoslavia in the seventies of the last century developed at that time.</p> <p>Therefore, the mines as a whole suffer "from government neglect from Baghdad, which made it an abandoned area, in addition to the fact that the control of armed parties over the area hinders the completion of any operation to invest the mine, which is owned by the Ministry of Industry."</p> <p>"The Iraqi Ministry of Industry and Minerals refused to accept several offers to invest in mines by a British company, and despite the company's attempts to obtain the ministry's approval, over the past five years, it failed."</p> <p>Therefore, we find that "the facilities affiliated to the Ministry of Industry and Minerals in Anbar suffer complete neglect, especially the Akashat phosphate mines, which have been shut down since 2003, although the imports that come from the mine, if it is operational, are not less than the oil export imports that the Iraqi government relies on to finance. Government Budget".</p> <p>Therefore, we find that "investment in such major mines or factories is done through the central government and the Geological Survey Company, and local governments are not allowed to approve investment or not, not even to deal with investors." He stressed that "the local government in Anbar has approached several times in order to invest the Akashat mines, but the Ministry of Industry and Minerals is like a dead man".</p>

Keywords: mineral , resources , Anbar, Akashat factory

INTRODUCTION.

The Anbar desert, in western Iraq, represents a "wealthy" area of various minerals and precious and rare elements, while the head of this wealth stands, the phosphate metal from which Iraq has quantities equivalent to 9% of the global reserves as the second largest country with phosphate reserves, while the Ministry of Industry recently announced the status of the hand on New "enormous" reserves of phosphate exceeding 7 billion metric tons, in addition to two billion tons, confirming that they have not been invested until now and embraced 4 fields, all of which are located in Anbar Governorate.

"The chemical complex in the General Phosphate Company includes a number of integrated and interconnected laboratories with each other to produce phosphate fertilizers as a final product, and these laboratories include the raw materials laboratory from the Akashat mine, the material concentration factory, a sour production plant Sulfuric, phosphoric acid production plant, industrial services units, fertilizer laboratory, ammonia laboratory, fluorine salt plant, and trading unit.

He added in an interview with (Al -Mada) that "the purpose of these laboratories is the production of a single ammonium fertilizer as a middle product and the super phosphate fertilizer and composite fertilizers,"



noting that "all of these laboratories are suspended from work and production since June 2014 until now where they have been stolen and destroyed in addition to The damages they suffered during the military actions that accompanied the restoration of control of the areas of western Anbar.

The first topic: is the natural side.

1. Phosphate deposits in Wadi Sawab.

Iraq is ranked second in the world among the countries that have the largest phosphate reserves in the world, where the reserve in Western Sahara is estimated at more than (10) billion tons, this means (9%) of the global phosphate reserve.

Location: It is located (110) km north of the city of Al - Rutba and (5) km west of Akashat mines.

Reserve: (3.5) billion tons, according to the C1 class ... knowing that the concentration of phosphate oxide (P₂O₅) as a rate is (21.7%).

The purpose: for the manufacture of phosphate fertilizers, phosphoric acid, and other phosphate industries.

2. Phosphate deposits in Wadi Al -Hari.¹

Location: It is located (15-20) km northeast of Akashat mines.

Reserve: (195) million tons of raw phosphate and (B) is ready for investment. Note that the concentration of phosphate oxide (P₂O₅) is between (21-22)%.

¹ - Abouzeid, A.Z.M., 2008. Physical and thermal treatment of phosphate ores-an overview. *International Journal of Mineral Processing*, Vol.85, p. 59 – 84.

The purpose: for the manufacture of phosphate fertilizers, phosphoric acid, and other phosphate industries. See Map No. 1- Akashat website



The city of Akashat is one of the cities that are not inhabited in the state of Iraq and does not contain a large number of inhabited, and its importance is due to the state of Iraq to the raw materials and minerals that are found in the desert of the region, and that made the State of Iraq one of the countries with centers in the presence of reserves from that Raw materials, learn more via a surrounding site.² The city is one of the Iraqi cities, which is located in the west of the State of Iraq, its location between the city of Al -Qaim and the city of Al -Rutba. The city also contains many other minerals, unlike phosphate, including dolomite and quartzite, and also contains glass sand, through which the finest types of glass that are manufactured are made³. It also has a sandy type that is not available in many regions, which is heavy sand, a distinctive type of sand that is found only in the Kara and Wadi Amer area,

² - Al-Bassam, K.S., 2007. Mineral resources of the Western Desert, Iraq. Iraqi Bulletin of Geology and Mining, Special Issue, p. 145 – 168.
³ - Al-Bassam, K.S., Karim, S.A., Mahmoud, K., Yakta, S.A., Saeed, L. K... and Salman, M., 1990. Geological survey of the Upper Cretaceous – Lower Tertiary phosphorite-bearing sequence, Western Desert, Iraq. GEOSURV, int. rep, no.2008.

characterized by the presence of many important minerals in it, such as our scale, monarda, freshmaline and zero on. Phosphate metal is not available in all cities of Iraq, as it is not available in areas other than Western Sahara located in the Akashat region. Although there is only the material in the city of Akashat, it was credited with making the State of Iraq the second largest country that contains a physiological reserve.⁴ The type of phosphate that is extracted from the ground is of medium quality, so until it is used it must be processed first and focus more until the phosphate material is valid for the industry, the industrial reserve was calculated in two areas: the first region and is close to the H3 station, and the second region is the area Akashat, from which phosphate is extracted for the manufacture of phosphate fertilizers where a phosphate metal has been extracted and reached more than a million tons annually.

⁴ - Al-Bassam, K., Fernette, G. and Jasinski, S., 2012. Phosphate deposits of Iraq. PHOSPHATES, 2012, El-Jadida, Morocco



The city contains a railway that connects it to the city of Al-Qaim. Certainly, the length of the railway is different stations, all of which are connected to the Iraqi railway.

In order to transfer phosphate in the city of Akashat, the means of transporting that of the railway was used, so the material was transferred from the location of the excavation through the railway to the place of storage or processing.⁵

The railway bars extend on the eastern roads, reaching the south to the Arabian Gulf and the north, northern cities of Iraq.

The city contains uranium mines called Akashat mines. The mines are 420 km from the city of Baghdad in its western direction, and it is a facility that is produced uranium ore associated with the location of the Qaim. Unlike phosphate material, Iraq contains a reserve of uranium ore, and it is also kept in the city of Akashat in its location, which is 100 km from the northeastern direction, which is on the borders of Syria, and the raw material is still purified so far.

You can enrich your information through the following: The most important information is the city of Ghayathi. Uranium was found in the city of Akashat and was treated in the Al-Qaim area of Iraq.

Phosphate in inorganic chemistry is the salt of phosphoric acid. In organic chemistry, phosphate or organic phosphate (in English: Organophosphate) is a phosphoric acid. Phosphate is of great importance in biochemistry and biological chemistry. It is one of the metals wealthy in the Islamic world, especially in Morocco, Egypt, Jordan, and Palestine.

Phosphate is a metal compound that contains the fourth ion phosphorus (PO₄) and phosphorus is one of the nitrogenous non-nitrogenous materials its atomic number (15) and its atomic weight (30,97 and does not exist in nature in its self-form as it is fast interacting with oxygen.⁶

The word phosphorite is called the phosphate deposits that can be mined and exploited economically, while the term phosphate rocks are called rocks that contain non-high levels of phosphate. Jordan is one of the largest producers and exporters of phosphate and chemical fertilizers globally. As Jordan produces about 5175 thousand Annually ton through four companies, in addition to the production of the Jordan Fertilizer

Fertilizer Company, which produces 1350 tons of ammonium phosphate and 1670 tons of urea.

The industrial fertilizer complex in which the Jordanian government and the dual phosphate mines, ammonium phosphate, sulfuric acid, phosphoric, and aluminum fluoride are produced, and the Indian Canadian Chemical Company produces phosphoric acid In addition to the production of compound fertilizers, which the Japanese Jordanian company produces and exports to Japan, the Hydro Agri Company Jordan produces phosphoric acid, composite fertilizers, and ammonium phosphate.

Characteristics and qualities:

Chemical composition: Phosphate rocks include about (200 minerals) of the staple group and its chemical composition (CA (PO₄) 3F

(In most cases. Phosphate does not dissolve in water while interacting with sulfuric acid to give the superphosphus phosphate and phosphoric acid and gives nitrogen phosphate to interact with ammonia. It also gives phosphoric acid in interaction with hydrochloric acid

.Natural properties: The colors of the phosphate rocks varies between dark and light as a result of the presence of organic materials and appear either in the form of a cruise or solid deposits so that the solid material in it is either limestone or celery and often these sediments contain some radioactive elements such as uranium. And the natural properties of the group of dating minerals are: Blor form: hexagon.

-Color: yellow or black, green, blue, scratch: white - hardness: 5

-specific density⁷:

Watch in nature: Most phosphate rocks are found in nature in one of the following pictures:

1. Phosphate rocks of failure: It is the most important deposit in terms of spread, size and exploitation, as they are formed from global sediments. In Egypt and North African countries and phosphate deposits in the north of the Kingdom of Saudi Arabia and in Iraq and Jordan.
2. Phosphate rocks of fire origin: They are caused by ellipthery ellipthery, carbonate rocks and pyrooxes containing a large amount of phosphate minerals, the most important of which are the mines of statitite and these sediments are uncommon, and the most likely is the deposits of a khnby in Russia.

Uses:

⁵ - Al-Khalil, A., Zainal, Y, Al-Obaidi, H. Al-Waili, M. Al-Maini, J., Jargees, S. and Toubasi, A., 1973. Geological report on the primary development areas (Quarry 1 and 2) and the estimation of reserves (Akashat phosphate deposit). GEOSURV, int. rep. no. 595.

⁶ - Toama, H.Z. Al-Ajeel, A.A., Waheeb, H.H., 2015. Beneficiation of Akashat phosphate rocks by flotation process. Engineering and Technology Journal, Vol.33, Part (A), No.9.

⁷ - Kawatra, S. Komar and Carlson, J.T., 2014. Beneficiation of Akashat phosphate ore. Society for Mining Metallurgy and Exploration Inc, 170 pp.



Phosphorous is one of the most important chemical elements of the plant and animal and enters all vital functions, and the plants get phosphorous from the soil while animals get the phosphorous from the plants that feed on them, and from here the importance of phosphate in human life is highlighted, and some phosphate uses can be reviewed as follows:

1. Fertilizer Industry: It represents about (77%) of the uses of phosphates, where phosphate is interacting with acids to produce super phosphate, nitrogen phosphate and composite fertilizers. Phosphate rocks can also be grinded and added directly to the acidic soil. This method represents about (4%) of phosphate uses and contains Super phosphate
2. On (14-25%) of the fifth phosphorous oxide, while both nitrogenous phosphate and compound fertilizers contain (40-45%) of the fifth phosphorous oxide, decomposing and absorbing.

In the phosphorous manufacturer and phosphoric acid: This industry represents about (8%) of phosphate uses and is used in the treatment of mineral surfaces such as aluminum Copper, nickel-iron, chemical detergents, and pesticides. 3. Preparing phosphate as food for livestock: This industry represents about (6%) of the uses of phosphate, as it uses the clutch and contains phosphate containing a small percentage of fluorine in feeding livestock. And multiple phosphate industries, represent (5%) of phosphate uses and are used in industrial and home washing detergents.

The international interest in phosphate is normal, as it is included in a number of manufacturing industries, the most important of which are chemical fertilizers, which makes it an important resource that enjoys an increasing demand by the majority of the countries of the world, especially those concerned with agricultural production and defending its food security, which has become somewhat linked to the ability The country is to obtain these fertilizers as this is a factor to raise the amount of agricultural production, and this is what makes the demand for chemical fertilizers very carefully in the international market, and therefore it is not strange that Morocco seeks the total monopoly of phosphate fertilizers that constitute in the current circumstance approximately 80% of global production For fertilizers⁸.

The second topic is the human side.

⁸ - Kawatra, S. Komar and Carlson, J.T., 2014. Beneficiation of Akashat phosphate ore. Society for Mining Metallurgy and Exploration Inc, 170 pp.

Akashat is an Iraqi city located in the west of Iraq between the city of Al -Rutba and the city of Qaim. Among the important minerals such as trianmaline, monastery, and porcelain. The presence of phosphates in Iraq is limited to Western Sahara, especially in the Akashat region, and Iraq is the second country in the world in terms of reserves, but its quality is medium and needs to be treated and focused to become valid for the industry. The industrial reserve was calculated in two areas, the first near the H-3 station and the second in Akashat, which is investing in financing the phosphate plant for the purpose of making phosphate fertilizers with a capacity of more than a million tons annually.⁹

These mines in general suffer from "government neglect that made it an abandoned area, in addition to the control of armed authorities on the region, hinders the completion of any process for the investment of the mine, owned The company is to obtain the approval of the ministry, for the past five years, but it has been unsuccessful. It has also become clear that "the facilities affiliated with the Ministry of Industry and Minerals in Anbar are fully suffering from neglect, especially the Akashat phosphate mines, which are stopped from work since 2003, although the imports that come from the mine if operating, are no less than the imports of exporting oil adopted by the Iraqi government. In financing the state budget. "

The mines were working fully, before 2003, as they contain a residential city, in addition to global-made mechanisms and in huge sizes, but it has become an abandoned area, and there are no even working hours for employees there and it suffers from poor management, and it also needs to support A complete country and not only on a governorate level. "

Through simple information, we provide to the citizen order to know that Iraq is the second country in the world in terms of reserves, but its quality is medium and needs to be treated and focused to become valid for the industry, and the industrial reserve has been calculated in two regions, the first near the H-3 station and the second in Akashat and investing in financing a laboratory Phosphate for the purpose of making phosphate fertilizers with a capacity of more than a million tons annually.

In September 2011, the American Geological Survey revealed that huge amounts of phosphate of "good quality" in the Anbar region said the British newspaper "The Independent" said that the authority estimated

⁹ - UNEP, 2001. Environmental aspects of phosphate and potash mining, United Nations environment program, division of technology. Industry and Economics, France



the Iraqi reserves of phosphates at 5.75 billion tons, or 9% of global reserves.¹⁰

There is a train station in Akashat, which is connected to the upright and modern, which is linked to the Iraqi iron rail network, which was used to transport phosphate from the places of exploration.

Akashat mines contain an facility for the production of uranium ore associated with the position of the Qa'im, and Iraq has reserves of uranium ore in mines in Akashat on the border with Syria that is still able to purify uranium ore.

It is well known that Iraq until the mid -eighties of the twentieth century has produced at least 164 tons of yellow cake, which was obtained in the Akashat mine and processed in the Qa'im area, and the site built by the Swiss company.

Before the first Gulf War in 1991, Iraq was exporting phosphates to the countries of East and Northeast Asia and several European countries, but the hand of neglect and terrorism represented by the "American occupation" Then, by invading ISIS, Anbar Governorate, it caused the destruction of infrastructure in the mines, which Yugoslav companies in the 1970s contributed to their development at the time.

"Investing in such mines or major laboratories is carried out through the central government and the geological survey company, and local governments are not allowed to approve the investment or not, not even dealing with investors.

Last but not least, "the Ministry of Industry and Minerals has strived to operate the facilities of the phosphate company until it launched a project to rehabilitate it instead of investing so that its imports return to the state budget, and the project was included in the federal budget for the year 2021, but it was unable to obtain approval on That is, on the pretext of the lack of sufficient amounts.

Iraq is ranked second in the world in terms of phosphate reserves, which is concentrated in the city of Akashat, where the American Geological Survey announced in 2011 that it has discovered very large quantities of phosphate in Anbar province, and according to the statements of the British Independent newspaper, the Geological Survey Authority estimated reserves Iraq is about 5.75 billion tons, equivalent to 9% of the world's reserves. Nevertheless, the phosphate in the city is considered an average quality and needs to be treated and focused, in order to fit the industry, knowing that the industrial reserve in the

city of Akashat and the area that approximates the H-3 station is more than a million tons per year.

As a result of the sanctions imposed by the United Nations after 1991, the Iraq war, and the coalition forces in 2003, phosphate production was dramatically disrupted until it became the production line, equivalent to approximately 10%.¹¹

Phosphate transfer.

A train station in the city of Akashat, especially the transport of phosphate from the places of its excavation, has been allocated, and this train station links between Akashat, Qaim, and Haditha, which in turn is linked to the Iraqi railway network, which extends along the road from the eastern side to a modern direction, to reach the south and then to The Arabian Gulf, and from the northern side heading to Baiji and northern Iraq, the city of Akashat in Anbar Governorate

CONCLUSION:

The researcher in Iraqi economic affairs, Nabil Jabbar, believes that the raw phosphate industry in Iraq must achieve an annual production return of approximately 20 million tons annually, and it represents its market share in accordance with the production reserve equation, in order to enhance the revenues of the Iraqi state with no less than two billion dollars annually.

Jabbar notes to Al -Arabi Al -Jadeed that production levels have reached more than a million tons annually before the United States imposed the economic blockade on Iraq in 1991.

The member of the Economic Committee in the former parliament, the Charter of Al -Hamidi, confirms that investment in Iraq has not been worked on in a healthy way, nor did the national industry take its role in developing and advancing the Iraqi economy, due to external interventions and the endeavors of internal parties to obstruct the growth of the investment and industry sectors.

Al -Hamidi adds to Al -Arabi Al -Jadeed that many Iraqi industrial and economic projects are idle, and there are systematic plans to kill industry and investment in the country. It turns out that corruption shackles the Iraqi national economy, as "investors want to work, but corruption and extortion prevented many companies from entering or continuing the market. In addition to the presence of many obstacles related to granting licenses and not providing the appropriate investment environment."

¹⁰ - Zainal, Y., 1970. Preliminary report on the geological investigation of the Akashat phosphate deposit and estimation of reserves. GEOSURV, int. rep. no. 371.

¹¹ - Zapata F. and Roy R.N., 2004. Use of phosphate rocks for sustainable agriculture, Fao fertilizer and plant nutrition Bulletin 13, Food and Agriculture Organization of the United Nations, Rome



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