



OCP Group - Khouribga Mine

PHOSPHATE FORWARD





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Sustainably Future-Proofing Khouribga Mine

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At Khouribga, one of the oldest phosphate mines in Morocco, the OCP Group is working overtime to ensure its operations are fit for purpose for the future and the environmental impact is lessened every year.

As the global population continues to expand, the demands on farming methods increase exponentially. Being able to maximize yield, the most efficient source is to use fertilizers to help enrich the nutrients in the soil.

Phosphate is a vital component which can be produced into phosphorous, one of the primary nutrients commonly used in fertilizers. It can also be turned into phosphoric acid, which is used in everything from food and cosmetics to animal feed and electronics.

The global demand for phosphate rock has ensured that OCP's 103-year-old Khouribga mine remains at the cutting edge of modern industry standards.

Overview of OCP and Khouribga

Morocco is a significant player in the phosphate rock and fertilizer sectors, producing over 70% of the world's reserves. OCP's first mine, Khouribga, opened in

OCP's first mine, Khouribga, opened in 1921 in northwest Morocco. It is home to most of Morocco's phosphate reserves and produces 70% of OCP's output

Construction of bulk product handling & processing facility

WHAT WE DO



Engineering Studies



Civil Engineering



Boilermaking



Metallic Structure



Piping



Assembly



Maintenance

STROC INDUSTRIE

Your Partner in Mining Engineering and Construction

Founded in 1989, STROC INDUSTRIE has established itself as a beacon of construction engineering in Morocco and Africa for over 35 years. Listed on the Casablanca Stock Exchange since 2011, STROC has exemplified transparency and resilience in its operations. Specializing in EPC (Engineering, Procurement, and Construction) projects, the company operates in three key sectors: Oil & Gas, Mining & Cement, and Chemical & Industrial Building and Civil Works.

Mining Sector Expertise

STROC INDUSTRIE has garnered a formidable reputation for its proficiency in constructing and maintaining mining installations. The company's expertise encompasses the engineering manufacturing, installation, and maintenance of vital industrial components necessary for mining operations. These include belt conveyors, hoppers, silos, storage machines, screening stations, grinding stations, and handling machines. STROC's comprehensive services cater to various sectors, including phosphate, iron, gold, and copper mines, fertilizers, energy, cement, construction materials, agro-industry, and port terminals. The company offers both new construction and repair and maintenance services.

STROC INDUSTRIE's services include:

- **Engineering and Studies:** Basic and detailed engineering.
- **Project Management:** Comprehensive project management, coordination, and supply management.
- **Boilermaking:** Manufacturing of atmospheric tanks, hoppers, cyclones, mixers, and pressure vessels.
- **Metal Structures:** Structures for all types of buildings and equipment.
- **Piping:** Connection of complex mechanical systems.
- **Civil Engineering:** Construction of silos, tanks, and industrial buildings.
- **Industrial Assembly:** Assembly of various equipment and industrial units.
- **Maintenance:** Proximity maintenance, rapid interventions, and preventive maintenance contracts.

Collaborations with OCP Khouribga Mine

STROC INDUSTRIE has been pivotal in several major projects with OCP (Office Chérifien des Phosphates) Khouribga Mine. Their partnership has resulted in the successful completion of multiple large-scale EPC projects, enhancing the mine's operational efficiency and productivity.

1. Phosphate Handling Circuit:

- **Objective:** Optimize transportation and handling of phosphates.
- **Scope:** Engineering, procurement, construction, and maintenance of conveyors, silos, and supporting infrastructure.
- **Impact:** Improved logistical efficiency, reduced costs, and increased productivity.

2. Phosphate Processing Plants:

- **Objective:** Modernize and increase processing capacity.
- **Scope:** Design, manufacture, installation, and commissioning of new equipment and modernization of existing infrastructure.
- **Impact:** Enhanced production capacity and product quality.

3. Storage and Transport Facilities:

- **Objective:** Improve storage and transport for phosphate-derived products.
- **Scope:** Construction of storage tanks.
- **Impact:** Strengthened logistical capacity and optimized export operations.

4. Construction of Storage Depots:

- **Objective:** Provide secure storage facilities.
- **Scope:** Design and construction of depots with safety and surveillance systems.
- **Impact:** Increased storage capacity and efficient stock management.

Innovative Technologies

STROC INDUSTRIE has embraced innovation to boost efficiency, safety, and productivity. Key advancements include their modernized and automated steel structure manufacturing line, featuring robotic welding, CNC machines, and automated assembly lines. These technologies have improved precision, reduced production times, and increased safety by minimizing manual handling of heavy components.

Future Opportunities

STROC INDUSTRIE envisions significant growth opportunities by expanding into emerging markets in Africa. Their strategy includes forming local partnerships, offering customized solutions, and investing in research and development. Additionally, the company aims to integrate renewable energy solutions into mining operations, aligning with global sustainability goals.

Sustaining Competitive Edge

STROC INDUSTRIE maintains its competitive edge through strategic client partnerships, continuous innovation, operational excellence, and a commitment to sustainability and corporate responsibility. By offering end-to-end solutions and investing in talent development, STROC ensures high-quality service and market adaptability.

In conclusion, STROC INDUSTRIE's proven track record, innovative technologies, and strategic approach position the company as a leading partner in the mining and construction sectors. Their commitment to excellence and sustainability ensures that they remain a reliable and forward-thinking partner for their clients



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The mine is located within the Oulad Abdoun Basin, which comprises 44% of Morocco's phosphate reserves, more than 26 billion tons. A 187-km slurry pipeline transports phosphate from Khouribga to a processing plant at Jorf Lasfar and then by rail to Casablanca for export.

At Jorf Lasfar, which is becoming the

largest fertilizer production hub in the world, the capacity to produce 11m tonnes of phosphate fertilizer per year and 6m tonnes of phosphoric acid is being phased in.

As Khouribga's output has grown, its success is inextricably linked to the growth of OCP, formerly the Office Chérifien des Phosphates. OCP now operates an integrated chain of four phosphate mines, two processing plants, and a network of



ports and wharfs.

Having become a limited company in 2008, the company underwent major upheaval. It was reported that phosphate volumes soared from 28m tonnes to nearly double to a peak of 45m tonnes.

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a 20,000-strong workforce and works closely with over 350 customers globally.

It has also invested in research and training engineers and built Université Mohammed VI Polytechnique at Ben Guerir, with its well-equipped laboratories for agronomy, nanotechnology, and soil analysis research. It also forging partnerships with the US-based Massachusetts Institute of Technology (MIT), France's Ecole de Mines de Paris and Canada's Université Laval.

A Greener Tomorrow

At every level of OCP's business, it has implemented a circular economy program based on four principles: the preservation of phosphate resources, sustainable production, education for intelligent consumption, and the creation of value through streamlined processing and recycling.

As part of this vision, OCP has developed a resource management





strategy that reflects its commitment to innovation, sustainability, and research and development. This strategy covers operational performance, phosphate recovery and recycling, and the efficiency of phosphate fertilizers.

Several R&D initiatives have enabled a holistic process in which valuable minerals are separated from unusable minerals. Phosphorus, along with carbonates, silicates, and impurities, is part of the rock matrix extracted from phosphate mines.

OCP's washing and flotation process enriches the phosphate after extraction. Due to this process, 33% of Moroccan phosphates previously considered to have very low, non-viable phosphorus content are economically viable.

Another OCP project is retrieving and using residual phosphorus from wastewater and organic waste. Collaborating with

engineering firm JESA, OCP undertook a feasibility study into recovery systems from wastewater treatment plants.

It has also invested in developing tailor-made fertilizers that enhance crop yield, limit overuse and preserve existing global mineral reserves. It has created more than 98 custom fertilizer formulas with ongoing agronomic tests ongoing.

In 2016, OCP became a founding member of the Sustainable Phosphorus Alliance, working with other members, such as mining, processing, biosolid, manure companies, wastewater treatment plants, start-ups, and academics, to solve current challenges. It also became a member of the European Sustainable Phosphorus Platform to share knowledge and resources with a network of scientists and companies.

OCP has also launched a green investment strategy dedicated to increasing fertilizer

production and investing in renewable energy. The plan foresees an overall investment of \$13 billion from 2023 to 2027, which will enable it to use 100% renewable energy by 2027 and achieve complete carbon neutrality by 2040 - Scope 1 and 2 by 2030 and Scope 3 by 2040.

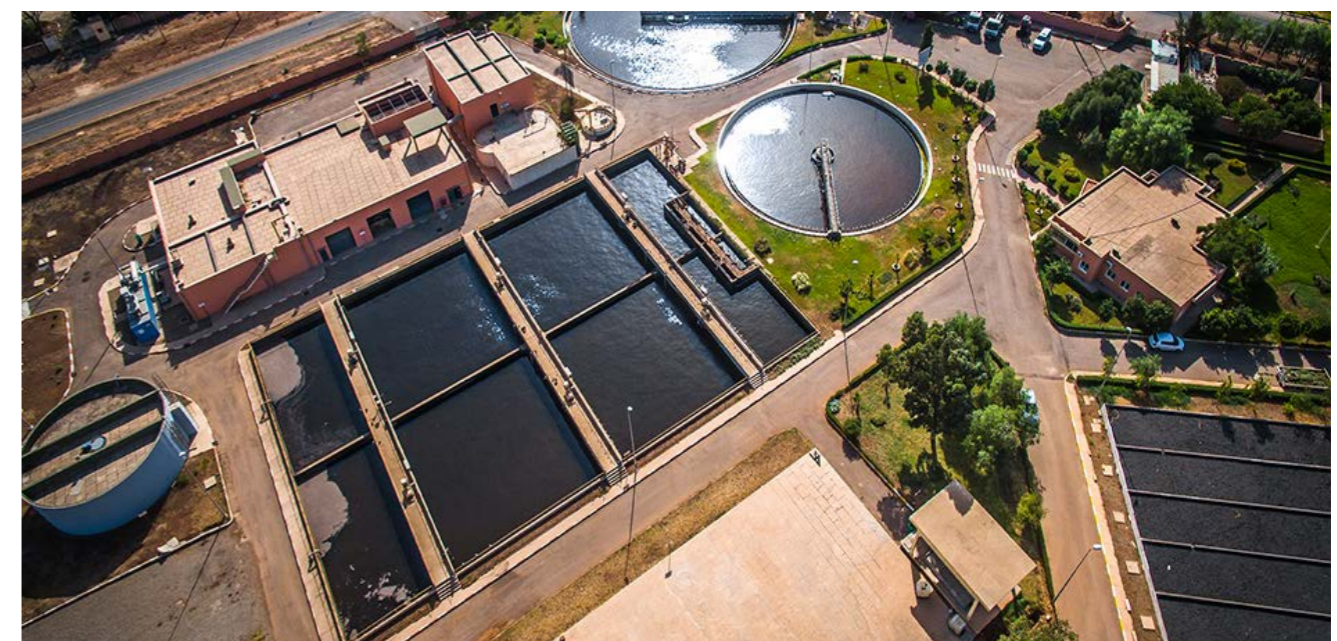
Strengthening Partnerships for Growth and Efficiency

OCP's Khouribga operations maintains strong and collaborative relationships with its suppliers and contractors, significantly enhancing the company's value through

strategic partnerships. Stroc Industrie, a prominent North African EPC contractor, provides extensive fabrication capabilities essential for the mining, oil & gas, and industrial sectors. Maroc Consulting Plastic ensures zero-leakage welding connections, while Société Générale des Travaux du Maroc executes fast-track pipeline construction for efficient water transfer. Vulmatec supports the company with metal tape repairs, and Caterpillar Inc. supplies vital equipment, ensuring the seamless operation of OCP's facilities.

Further bolstering its operations, OCP Khouribga collaborates with Vision

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Coaching Et Formation to develop the soft skills of its staff, promoting a culture of growth and conflict management. Ford Trucks Maroc and Hydrokits Maroc MAROC contribute through specialized services, including equipment provision and compressor installations, respectively. Water Innovation Africa plays a crucial role in wastewater treatment with the delivery of essential cationic polymers. Additional partners, such as AUTELEC, Ausenco Services Pty Ltd, Cummins Maroc, NGE Contracting, Engie SA, Tekfen Construction, SPIE Sud-Ouest, and LABORATOIRE PUBLIC D'ESSAIS ET D'ETUDES (LPEE), collectively ensure that OCP Khouribga remains at the forefront of operational efficiency and success.

Sustainable Development through Community Engagement

OCP Khouribga is deeply committed to sustainable development, emphasizing community growth and professional

development through various initiatives. A key focus is on education and internships, where programs offer local youth hands-on experience and expert mentorship. For example, an intern successfully completed a project designing a web-based GIS application with secure authentication. "The support from my supervisor was invaluable," the intern remarked. OCP also organizes intensive training sessions, such as fire detection systems training at the Ben Amir Wash Plant, and collaborates with partners like the Orange Digital Center to enhance young professionals' skills.

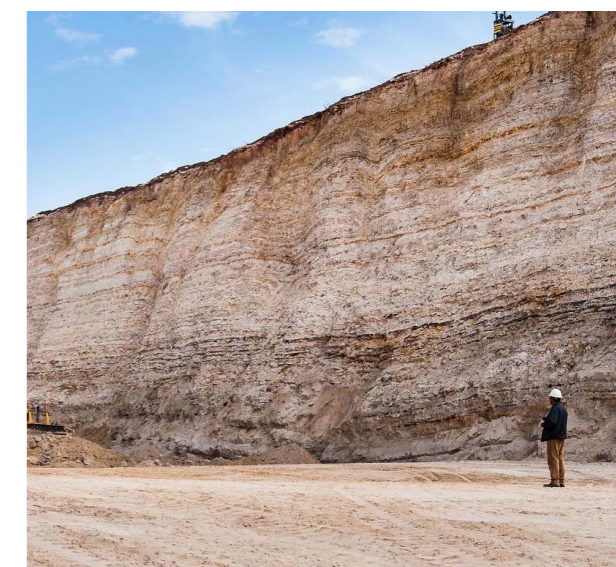


Community Development Initiatives

Beyond professional development, OCP Khouribga invests in community development through healthcare, infrastructure, and economic empowerment programs. Mobile health clinics provide essential medical services to underserved areas, improving overall community health. Infrastructure projects, including roads, water supply systems, and sanitation facilities, enhance living conditions for local residents. Additionally, OCP supports local entrepreneurs with funding and training, stimulating economic growth. "Our partnership with OCP has allowed us to grow and contribute to the local economy," stated a local business owner. A significant sustainability initiative involves investing in two solar plants to power mining operations in Benguerir and Khouribga, promoting renewable energy use and reducing the company's carbon footprint. These efforts reflect OCP Khouribga's holistic approach to community and environmental sustainability.

Water Watch

The strategy also aims to reach a water desalination capacity of 560 million m3 in 2026 and increase the production of green fertilizers. OCP has adopted cutting-edge technology to ensure that by 2028, it will only use sustainable water sources and use zero fresh water by 2030.



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BEST PRACTICE IN MINING

OCP chairman and CEO Mostafa Terrab said the agreement is a "major milestone" toward the company's target of 100% renewable energy in fertilizer production by 2027

The phosphate fertilizer industry consumes millions of litres of water in its processes per year, but OCP is adopting a greener stance. It started with investments in desalination and has since desalinated some 25 million cubic meters of water for its industrial use.

However, the company has taken a step further by investing in green energy to meet its growing energy needs. OCP now produces 86% of its energy needs by green energy, which is set to rise to 100%

by 2030. It currently uses recycled water for 80% of its phosphate enrichment process and has rapidly built vast plants to feed its operation with sustainable water.

Perpetual Innovation

To continue evolving its mining operations, OCP has inked a \$106 million contractual loan from the International Finance Corporation (IFC). The money will partially fund the construction of €360 million twin solar PV plants located in Khouribga and Benguerir.



The projects are expected to have a combined capacity of 400 MW and to be linked with 100 MWh of battery storage. The two solar plants will provide energy to the mine's operations.

OCP chairman and CEO Mostafa Terrab said the agreement is a "major milestone" toward the company's target of 100% renewable energy in fertilizer production by 2027. The Khouribga and Benguerir open-pit mines form the Gantour system, the third-largest phosphate mine in the world.

To underpin OCP's operational performance are many partnerships and supplies that ensure continual efficiencies. OCP recently announced a landmark joint venture with Fortescue Energy, part of the global green energy, metals and technology company Fortescue Ltd.

This partnership aims to supply green hydrogen, ammonia, and fertilizers to Morocco and international markets. It includes the potential development of manufacturing facilities and an R&D hub to advance Morocco's rapidly growing renewable energy industry. The partners have laid out proposed plans for four cornerstone projects in Morocco. These include large-scale integrated green

ammonia and green fertilizer production capacity, including renewables, energy generation, electrolysis, ammonification and fertilizer production, and green technology and equipment manufacturing.

Mr Terrab commented: "Our strategic partnership with Fortescue is a testimony to our joint commitment to decarbonization, driving the development of cutting-edge facilities and delivering competitive renewable energy, products and technology. This is a key step towards fulfilling our vision of simultaneously ensuring global food security and combating climate change."

Future-Proofing Khouribga Mine

OCP Khouribga's commitment to sustainability and innovation ensures that the mine remains at the forefront of the phosphate industry while reducing environmental impact. Through strategic partnerships, community engagement, and investment in renewable energy, OCP Khouribga is not only meeting the demands of today but also paving the way for a greener, more sustainable future. By fostering education, professional development, and community growth, OCP Khouribga exemplifies how a century-old mine can adapt and thrive in a modern, environmentally-conscious world.

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