

# Libya



energy, society, sustainability

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## Enrico Mattei: it's their oil

"It's their oil", said Enrico Mattei in 1957.

**eni's** first Chairman is often remembered as "the man of the future" due to his ability to imagine what would come to pass and thus create a valuable legacy for those who would follow him.

He believed that energy resources belong first and foremost to the oil-producing countries and that the most profitable arrangements would arise out of the shared interests of all the actors involved. Mattei's great success lay in his passion for challenges, his strategic vision, his powers of innovation, respect for others, spirit of cooperation and confidence in new generations.

It was his firm conviction that dialogue and respect for cultures constitute the cornerstones for long term partnerships and mutual growth. From a perspective of forty years, it is possible to see that Mattei's values have endured and his philosophy still forms part of **eni's** corporate philosophy. His guiding principles are today captured in the modern concept of sustainable development.



| Enrico Mattei, **eni's** Chairman in 1953

## Claudio Descalzi: living in the world

The principles created and established by Enrico Mattei remain part of **eni's** genetic code. Of particular significance, reflected in both the company's global strategic thinking and its relationship with the communities in which it operates, is the importance of dialogue.

Such dialogues commence even before the company becomes established in a new territory and through the pursuit of dialogue it is possible to establish the conditions for living together. For **eni**, living in the world means integration and sharing of mutual benefits. It also means the creation of a powerful engine that has made **eni's** worldwide development possible.

Sharing has allowed us to grow and to contribute to our host's growth. We see it as imperative to develop relationships with nations, environments, cultures and people with which we interact and in which we live. **eni** has, over many years, developed an organizational culture, without parallel, which is designed to build lasting, long-term relationships within the territories in which we operate.



| Claudio Descalzi, **eni** CEO



## eni in Libya

**eni** has been engaged in oil and gas exploration and production in Libya since 1959. The company is also active in the oil field services, construction and engineering sector.

**eni** obtained its first exploration license in an area located 500 km Southeast of the city of Benghazi (named area 82). Since then, the company has consolidated its position in the country through the effective partnership with National Oil Corporation (NOC), the Libyan state-owned oil company.

**eni north africa** bv is a holding engaged in exploration activities and fully owned by **eni**. Once the discovered prospect is successfully appraised, production activities are handed over to the Mellitah Oil and Gas (MOG).

Established in 2008, MOG is a non-profit joint venture operating company between **eni** and NOC (50-50). MOG's core business is to develop the oil and gas fields previously discovered and appraised by **eni north africa** and bring them onstream.

Currently MOG is the most important operator in terms of production both in Libya and in the whole of North Africa, with a gross daily production of over 400 kboe/d.

**greenstream** bv and its branches were established in order to convey the natural gas from the Libyan coast (Mellitah, approximately 80 km West of Tripoli) to the Italian coast (Gela, in Sicily), thus physically connecting Libya and Italy through the Mediterranean Sea.

Its main activities include the construction, ownership, management and maintenance of its assets and the interconnection with the upstream and downstream operators.

The Greenstream assets are part of the Western Libya Gas System, which includes:

- a Gas Compression Station at Mellitah (MGCS), next to the Gas Treatment Plant;
- a 516 km Offshore Pipeline (OPL) to export the gas from Gas Compressor Station at Mellitah. The maximum water depth along the route is 1150 m;
- a 7.4 km offshore spur laid in the Sicilian shore from the Receiving Terminal to a water depth of 19.5 m;
- the Receiving Terminal in Sicily (SRT), to receive the gas from the OPL and to pump it into the Italian Gas Transport Network.

The shareholders of the company are **eni north africa** bv and NOC which own 50% each.

The company has a branch in Libya named **greenstream** bv - libyan branch and a branch in Italy named **greenstream** bv - gela branch.

Concurrently with the discovery and production of hydrocarbons, **eni** has developed strong relationships with different local stakeholders, including Libyan official bodies, authorities and institutions.

Synergies with the communities living close to the assets were created, and this led to scores of interventions as a result of an effective partnership with the above mentioned institutions. Local Content is also promoted in **eni**'s activities in Libya, with a workforce including local people and the requirement for a mandatory Libyan presence in the procurement of services.



## overview of actual contract areas, production sites and assets

**eni north africa** and NOC has entered into Exploration and Production Agreements covering different areas of the country, which are:

**Area A** is located in the eastern-central portion of the Libyan Desert, 500 km South of the city of Benghazi.

The first exploration and production agreement was signed in 1959 (Concession 82) and first oil was produced in 1984. The planned gross daily production rate was 7,700 bbl/d for 2014, but due to the ongoing conflict, the fields were shut in. Production is treated at the Abu Attifel oil centre (Area B) and the stabilized oil is then conveyed to the coastal terminal of Zuetina, where it is stored and exported by oil tankers.

**Area B** is located in the eastern-central portion of the Libyan Desert and includes the Abu Attifel and NC125 oil fields. The Abu Attifel field was discovered in 1967 and first oil was pumped in 1972. The planned daily production for 2014 was about 52,100 bbl/d of oil and 5,000 bbl/d of NGLs, but due to the ongoing conflict, the field was shut in. The entire production is treated in the Abu Attifel oil centre and is then conveyed through pipeline to the coastal terminal of Zuetina, where it is stored and shipped by oil tankers.

**Area C (former NC41)** is located offshore.

The structure is situated in the Strait of Sicily, 130 km Northwest of Tripoli with a water depth of around 165 m. The production structure includes the Bouri oil field. First oil was extracted in 1988. Current daily production is at around 36,000 boe/d.

The present development scheme includes two offshore rigs (DP3 and DP4), seven subsea wells and an FSO to offload the oil directly into oil tankers for shipment.

A project for the recovery of associated gas and its export via the existing Sabratab platform to enhance production and field performance and to reduce greenhouse gas (GHG) emissions (flaring down) is under execution.

**Area D (former NC41 & former NC169A)** includes:

- Bahr Essalam gas field, located in the Libyan waters, is in the Strait of Sicily, in the southern Mediterranean Sea. Water depth is 90 m, 100 km North of Mellitah. Production from the Bahr Essalam Field started in August 2005. The current production rate is around 185,000 boe/d.
- Wafa onshore gas and oil field is located 590 km South of Mellitah in the Libyan Sahara desert, very close to the Algerian border. Oil production from the Wafa Field started in June 2004, while gas production started in September 2004. The current production rate is around 130,000 boe/d.

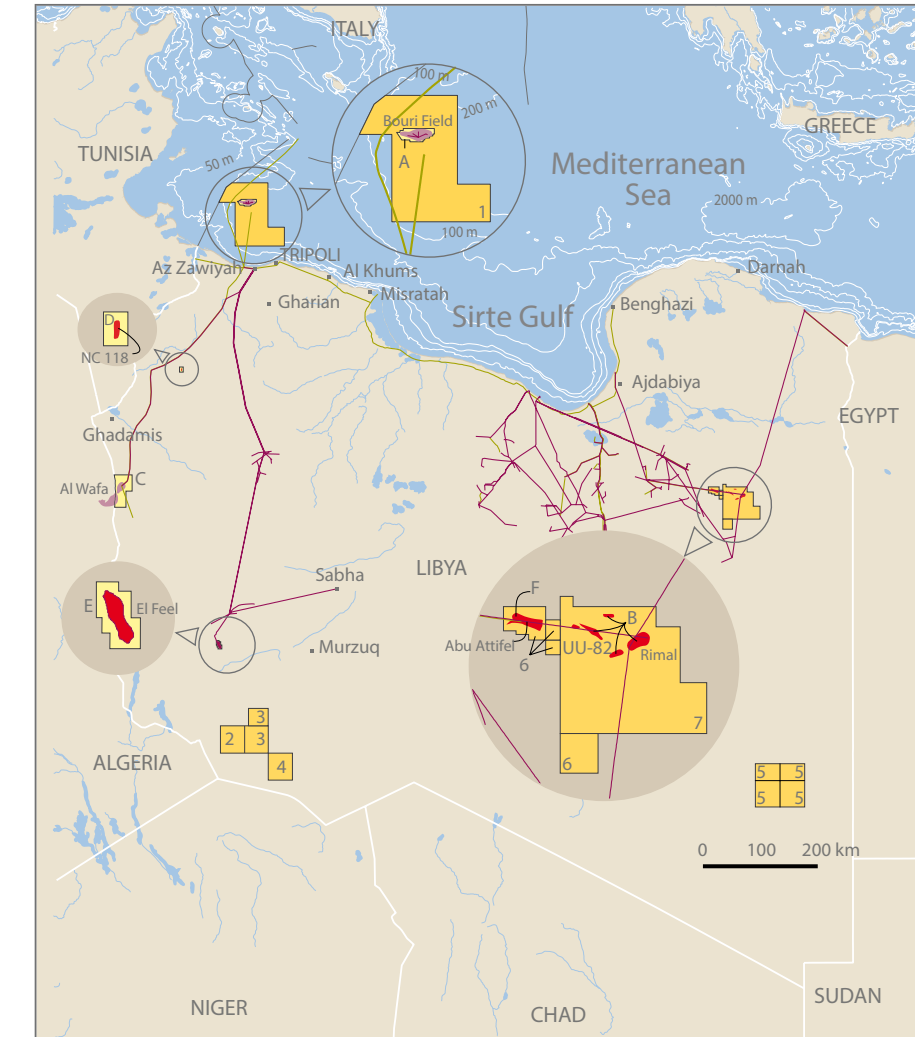


**Area E El Feel Field (former NC174)** is located in the Murzuq Basin, 800 km South of Tripoli. Its discovery was made in October 1997 and production started in 2004. Current daily production is around 80,000 boe/d. The assets are part of an oil centre, where production from about 20 oil wells is collected and treated. A Water Injection System has been operational since July 2008, when early oil production started. MOG (operator) has the following partners: **eni**, Korean National Oil Co. (KNOC) and NOC.

**Area F (former NC118)** is located in the onshore Ghadames Basin, about 250 km Southwest of Tripoli and about 300 km Northeast of the Wafa field. Furthermore, it lies about 58 km East of the 550-km Wafa-Mellitah (WM) condensate and gas pipelines. The field's altitude above sea level is about 565 m, soil condition is rocky and sedimentary (gravel) and land relief is a regular tableland. Following the evaluation phase and through concept selection activity, it was decided to suggest a development concept based on two different phases:

- phase 1: early production period in natural depletion, mitigated by gas injection into the reservoir. During this phase, two exploration wells, A1-NC118 and A2-NC118 (temporarily abandoned), will be re-entered and converted into oil producers at an average Total Vertical Depth (TDV) of about 2600 mssl. One gas injection well suitable for future Water Alternate Gas Injection (WAG) use and one water disposal well will be drilled and completed.
- phase 2: WAG to enhance ultimate recovery. During this phase, three water supplier wells, one WAG injector well and one gas producer well will be drilled and completed. A water treatment and injection system will be added to the phase 1 GOSP (Gas-Oil Separation Package) facilities.

The development plan was approved by NOC, but due to security issues in Libya the project was suspended.



■ exploration permit     ● oil & gas field     — gas pipeline  
■ dev./prod. area     ● oil field     — oil pipeline

## eni's approach to sustainability

Being sustainable for **eni** means conducting our operating activities while creating value for stakeholders and using resources in such a way as to avoid compromising the needs of future generations.

We consider sustainability to be a driver in the process of continuous improvement that guarantees results over time, while reinforcing business performance and reputation. It is committed to taking actions aimed at promoting respect for people and their rights, the environment and the broader interests of the communities in which we operate.

We conduct our activities by creating relationships that are based on correctness and transparency and continuous dialogue with stakeholders in order to pursue shared objectives for the creation of value and opportunities for sustainable development and being aware that dialogue and shared objectives are the way to create reciprocal value.

### sustainable value creation

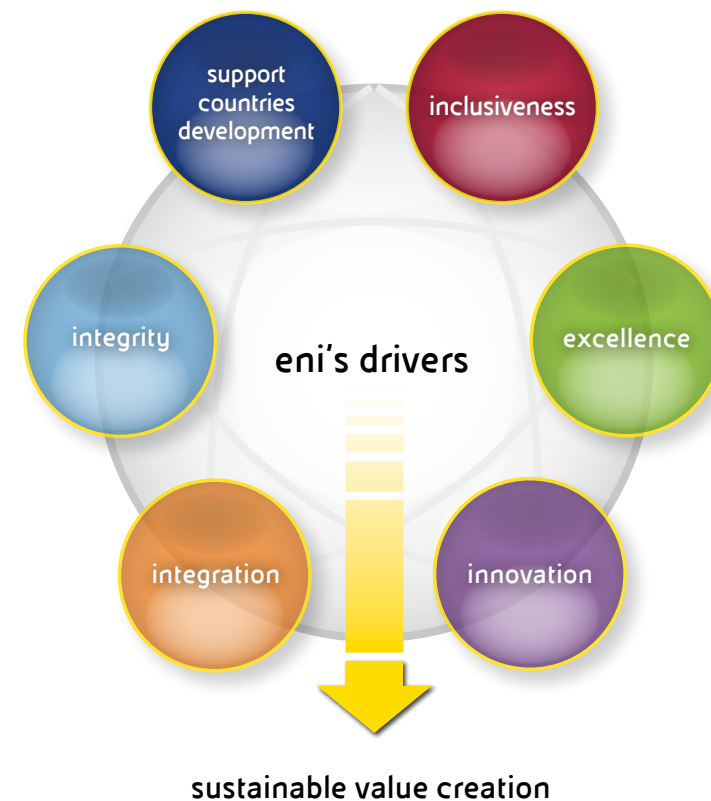
**eni's** excellent strategic positioning and competitive advantages leverage on an integrated business model for the creation of sustainable value founded on a wealth of distinctive assets, strategic guidelines and sustainable drivers deriving from crucial management choices consistent with the long-term nature of the business.

**eni's** business model is supported by a framework of clear and straightforward rules of corporate governance and respectful of the highest ethical standards and rigorous risk management.

The six drivers that guide **eni** in delivering sustainable value are:

- integrity in business management

- support countries development
- excellence in conducting operations
- innovation in developing competitive solutions to face complexity
- inclusiveness of **eni's** people and development of know-how and skills
- integration of financial and non financial issues in the company plans and processes.



## sustainability in Libya

**eni** promotes sustainability through its involvement in projects aimed at strengthening local socio-economic conditions as well innovative business practices.

### community development

In line with this, a Memorandum of Understanding (MoU) was signed between **eni north africa** and leading Libyan institutions in 2006. The MoU defined a wide set of activities in key local sectors. The objective of the MoU was to deploy community investment programs with a positive impact on communities affected by oil and gas projects. The initiatives, associated to the MoU, were conceived in order to go beyond the mitigations of the identified social impact. The MoU covered the investment period between 2006 and 2014.

### building local skills and capacities

Training is one of our company's core strategic activities, intended to continuously develop and enhance each employee's professional competencies and skills. In 2009, the company held most of its training initiatives locally. This new approach resulted in outstanding achievements, such as an increase in the number of participants and cost reduction, enhancing quality.

A project to train 18 Libyan doctors in occupational health and medicine was carried out with the support of **eni corporate university**, the University of Pretoria - School of Health Systems and Public Health and International SOS Global Medical Services. The training involved 18 Libyan graduates in medicine selected from among the students who attained the highest scores. Training modules consisted of one-year intensive classroom courses, coupled with on-the-job training sessions both in Italy, at **eni's** headquarters, and in South Africa, at the University of Pretoria. At the end of the training, the trainees were awarded internationally recognized certificates. One of these is the Diploma in Occupational

Medicine and Health (DOMH) issued by the University of Pretoria. They are the first Libyan specialists in the Occupational Health discipline in the oil and gas sector.



## health program

As part of **eni**'s initiatives for the access to health services, the construction of an emergency clinic in the town of Jalo is one of the most important contributions. The general objective of the project is to improve the health of local neighbouring communities. The clinic was handed over to the Ministry of Health (MoH) and in October 2013 it became part of the National Health System. Community participation is pursued through direct dialogue with the representatives of the Local Council, in coordination with NOC. Before the construction of the clinic, the closest health center was in Benghazi, 400 km away. The project area is close to the Abu Attifel site, where **eni** and MOG conduct their operations.

The health program also includes a specific training initiative involving local hospital managers on the use of equipment for improving hospital governance, coupled with advanced management and organizational models in the hospital.



## preserving local cultural heritage

History has left a deep and indelible mark on Libya. There are innumerable archaeological sites that keep fascinating visitors and that, for their beauty and historical value, are part of the cultural heritage of humanity. For **eni**, the protection of this unique and invaluable legacy represents a strong asset for sustainable development, as well as a great opportunity for local socio-economic development. In 2009, many archaeological initiatives supported by **eni** were completed, including:

### the roman mosaics of Lebda

**eni** sponsored the restoration of the ancient Roman mosaics of the Lebda Villa, carried out by a team of Italian restoration experts under the technical supervision of the Italian University Roma Tre and the Libyan Department of Archaeology (DoA). The mosaics represent a unique and valuable artistic finding due to their precious decorations and their state of preservation. The mosaics, dated between I and II century AD, consist of 5 colorful and large panels which clearly portray a warrior in combat with a deer, four young men knocking

a wild bull to the ground, and an exhausted gladiator resting, staring at his opponent. In particular, the gladiator mosaic is regarded by scholars as a masterpiece, and one of the finest examples of representational mosaic art has ever seen. The mosaics decorated the walls of a cold plunge pool (frigidarium) in a bath house within a Roman villa at Wadi Lebda in the city of Leptis Magna.

### construction of a new pavilion of the museum

Along with the restoration of the mosaics, the program envisaged the construction of a new pavilion of the museum on the archeological site, civil works for the maintenance and restoration of the old museum, and the issue of archeological publications. The pavilion was designed, built and internally equipped in full compliance with international quality standards, and the mosaics are currently exposed in the pavilion. A publication on the Hunting Baths restoration was issued by **eni** in November 2012. The project strategy was oriented towards safeguarding cultural heritage and enhancing the capabilities



of DoA, the main National Counterpart. The technical and scientific supervision of the program was carried out by Università Roma Tre, as envisaged by DoA.

The University's archaeological mission in Libya has been ongoing for several years and major projects in the country were undertaken under its supervision.

### revamping of Sabratah museum complex

**eni** promoted a partial external revamping and internal refurbishment of the Sabratah museum complex (the Punic and Roman Museums, and the striking Justinian hall containing the floor mosaics of the original basilica), fully respecting the original asset and characteristics of the old buildings. Work was carried out in cooperation with Università Roma Tre.



## medical waste management system

In Libya, as in many developing countries, little information is available regarding generation, handling and disposal of hospital waste. This fact hinders the development and implementation of hospital waste management schemes. With the support of **eni**, the University of Seventh of April, the Libyan Environmental General Authority (EGA), the NOC and international consultants, procedures and techniques, methods of handling, and disposal of waste were screened throughout 2009. In such a context, six main hospitals and waste disposal sites of the two regions were assessed. This was done in order to evaluate the current waste handling and management cycle situation and recommend solutions for improvement of medical and special waste management and their disposal. With this initiative, the concept of "continuous improvement" with respect to waste management at hospital level was introduced.

Based on the results of the assessments, the experts developed a detailed plan of action for hospital waste management to be implemented, as a pilot, at Az-Zawiyah Educational Hospital. The plan, which was made available and distributed to all concerned institutions, included the scope of work detailing the second phase of the project specifically designed to provide technical assistance to the targeted hospital in setting up the system for hospital waste management and to deliver the training needed for its full and accurate application. This project followed some of the main concepts of **eni's** sustainability strategy with a "dual flag" approach: the use of "environmentally friendly" technologies was coupled with the transfer of know how to local content and with fostering the development of local skills through an active involvement of the main stakeholders, which are the hospitals as waste generators, the waste-service providers involved in waste collection and disposal, and the regulators, i.e. the Libyan Environmental General Authority and MoH.

## school project

The school project consisted of a complete internal and external revamping of 5 primary and primary-high schools in the cities of Zuwarah (7<sup>th</sup> of October Preparatory and High School), Zliten (Central Primary/Preparatory and High School and Abdallah Ben Massoud Primary/Preparatory school), Benghazi (Alettehad Al Afriqui Preparatory and High School) and Sirt (Okba Ben Nafaha Preparatory and High School). Besides structural refurbishment, each school was equipped with high-tech ICT for e-school learning network deployment and usage.

In particular, the schools underwent external structural revamping and a complete refurbishment. New classrooms, desks, blackboards, chairs, carpets and furniture were provided, new thematic laboratories were inaugurated and the external areas and play-yards were refurbished using best in class quality materials and eco-sustainable solutions. More than a capacity of 3000 students are able to benefit from **eni's** support for this proect.



## operational excellence

### HSE integrated management system

The project, fully funded by **eni north africa**, aims to promote the introduction of HSE Integrated Management System (IMS) in NOC. The project has a crucial value in terms of building capacity and strengthening institutions and is a good example of institutional sustainability promotion. The project's general objective is to strengthen the NOC's capabilities in the HSE area and related management. In fact, the IMS implementation is a fundamental requirement to ensure compliance with international standards and consistency in the management of the HSE issues across the different business areas (upstream, downstream).

With the implementation of the IMS, the following goals were also achieved:

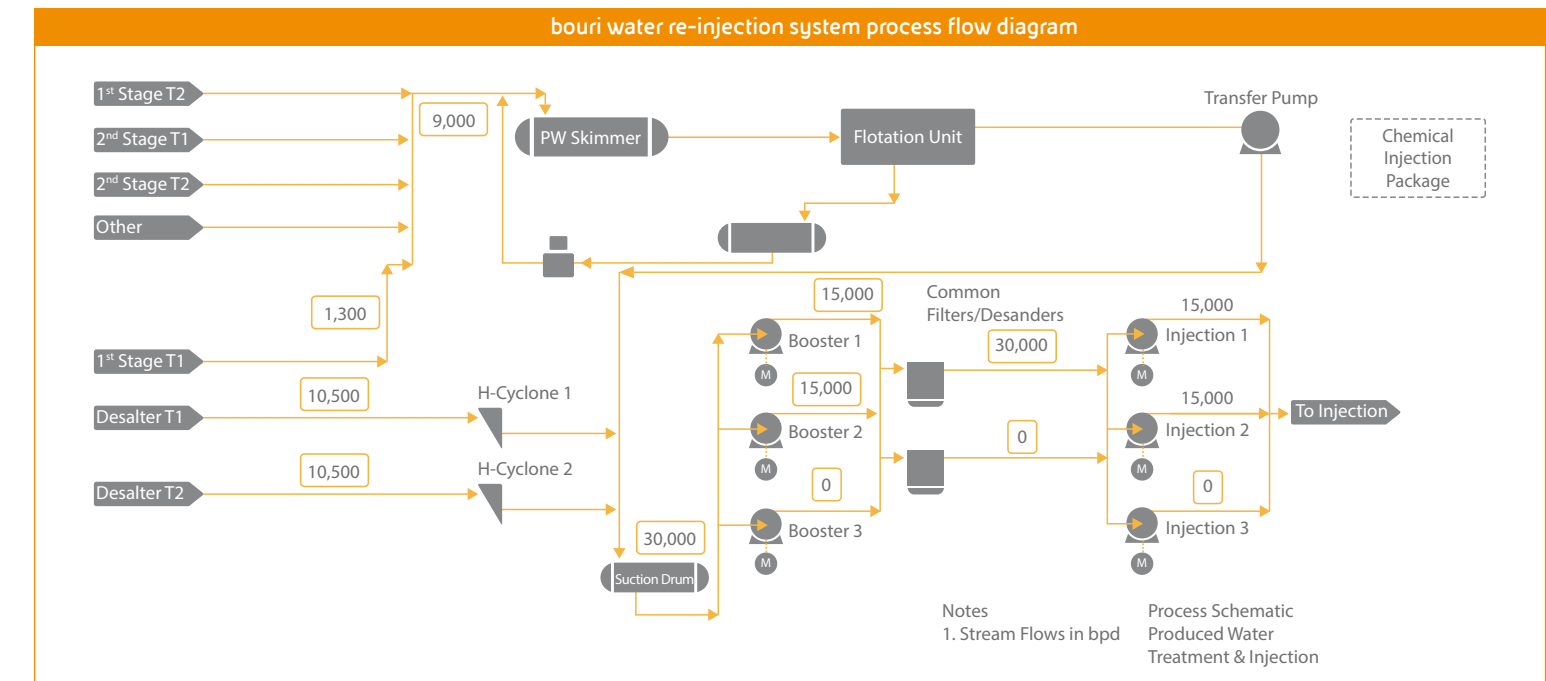
- standardization of the monitoring and evaluation (m&e) processes of HSE performance, on the basis of which NOC's HSE Department will adopt appropriate m&e procedures;

- a reference model for the development and implementation of the HSE IMS within NOC companies (around 15);
- improvement of HSE performance of NOC companies and joint ventures with international oil companies (around 25).

### water resources management

**eni** pays particular attention to reducing the consumption of water by adopting dedicated technologies such as the re-injection of production water.

Re-injecting production water into the subsoil allows the pressure to be maintained in deposits, while reducing both the environmental impact caused by the dumping of production water from oil-related activities and the required amount of brackish water. The re-injection of production water is particularly important in sensitive areas such as the Libyan desert. For the MOG water re-injection project in the onshore Abu Attifel field (EPSA IV - Area B), a new water treatment



plant was installed with a capacity of 140,000 BWP (Barrels of Water Per Day), together with 2 new injection pumps connected with the existing control system.

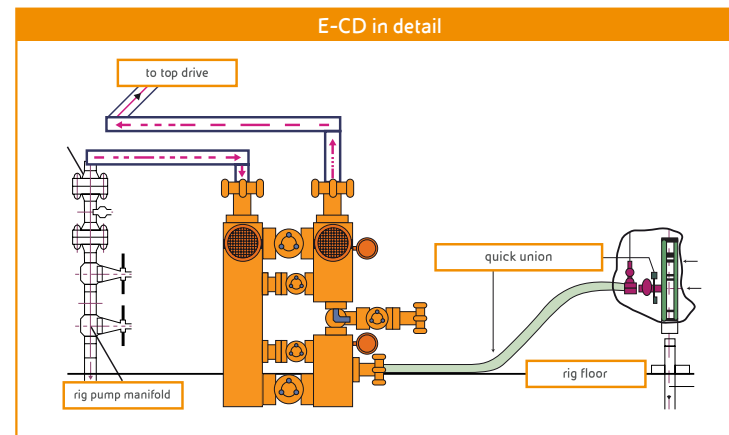
The implementation of this project eliminated any need for open basins (evaporation pits) for the disposal of the produced water, and minimized the water intake from the aquifers, with an estimate average of 42.8 million bbl/y of water re-injected and no longer disposed into the pits.

Another MOP project is the Bouri DP4 water disposal developed in the offshore El Bouri field (EPSA IV - Area C), which consists of re-injecting the production water that was previously discharged into the sea, through a new system capable of treating up to 30,000 bbl of water per day. The project became operative during the second half of 2009 with an estimated average of 5.6 million bbl/y of water re-injected.

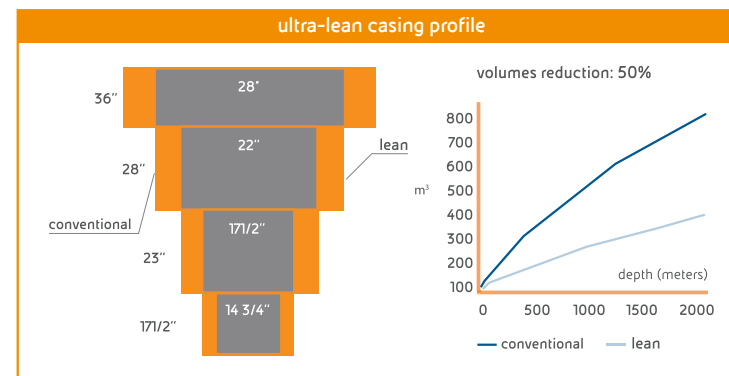
**innovation and technology in exploration activities**

When conducting exploration activities, **eni north africa** adopts the most effective and sustainable technologies available in-house and on the market, in order to increase the accuracy of the seismic activities and drilling efficiency, while reducing the ecological footprint of its operations.

During the 2009 offshore drilling activities (Area D), **eni north africa** adopted the Managed-Pressure Drilling (MPD), applied for the first time to a semi-submersible rig, along with **eni** patented Circulation Device (E-CD). This technology was developed with the objective of keeping pressure values at optimum levels inside the well during each drilling stage. It uses an innovative system which allows the drilling fluid to circulate continuously and the relevant pressure to be controlled, thus dampening the typical oscillations due to the circulation interruption during pipe connections or any operation performed in the wells. It is, therefore, possible to drill formations characterized by high over pressures or sloped/horizontal wells, in which continuous fluid recirculation guarantees better cuttings removal.



Another applied technology during the 2009 drilling campaign is the **eni** proprietary ultra-lean casing profile, which allows drilling time, costs, drilling by-products and wastes to be reduced by drilling a smaller hole for running the same casing diameter.



As for the seismic activities, it is worth mentioning the Geostreamer technology, used during the acquisition of 3D seismic surveys in Area D from December 2010 to February 2011. Based on a dual sensor (hydrophone and geophone) acquisition system, the Geostreamer allows for a real minimum impact, both in terms of environmental and navigation disturbance. Results of the test have been encouraging and suggest considering such a technology for future offshore seismic acquisition.







The Ancient Roman mosaic of Lebda Villa at Leptis Magna (dated between I and II century AD), restored by eni as part of a sustainable project of Libyan cultural preservation.

The gladiator mosaic, resting in a state of fatigue and staring at his opponent, is considered by scholars as a masterpiece, and one of the finest examples of representation mosaic art ever seen.



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## eni at a glance

**eni** is an integrated energy company employing more than 84,000 people in 83 Countries in the world.

**eni** engages in oil and natural gas exploration, field development and production, as well as in the supply, trading and shipping of natural gas, LNG, electricity, fuels and chemical products.

Through refineries and chemical plants, **eni** processes crude oil and other oil-based feedstock to produce fuels, lubricants and chemical products that are supplied to wholesalers or through retail networks or distributors.

**eni** operates in engineering, oilfield services and construction both offshore and onshore, focusing on the execution of technologically-advanced mega-projects mainly located in frontier areas.

**eni's** strategies, resource allocation processes and conducting of day-by-day operations underpin the delivery of sustainable value to all of our stakeholders, respecting the Countries where the company operates and the people who work for and with **eni**.

Cooperation, integration, innovation, inclusion of people, operational excellence and responsibility drive **eni's** work in the continuous interaction with all the stakeholders. These elements lead to wise investment choices, prevention of risks and the achievement of strategic objectives in the short, medium and long term.

In 2014 **eni** confirmed its presence in the Dow Jones Sustainability indices and in the FTSE4Good index.

### main figures for 2014

- adjusted net profit: € 3,707 mln
- cash flow from operations: € 15,110 mln
- net borrowings: € 13,685 mln
- dividends paid to shareholders: € 4,006 mln
- leverage: 0.22
- hydrocarbon reserves: 6.60 bln boe
- hydrocarbon production: 1,598 kboe/d
- worldwide gas sales: 89.17 bcm
- retail oil products sales in Europe: 9.21 mmt tonnes
- service stations in Europe: 6,220



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