



**PROJECT SUSTAINABILITY REPORT**  
**EGYPT**  
**WEST DELTA DEEP MARINE PHASE IV**  
**AND SEQUOIA JOINT DEVELOPMENT**  
**PROJECTS**

## ABOUT THIS PROJECT REPORT

*The present report is part of the Sustainability Reports that Saipem started to publish in 2003, being aware of the importance of informing the stakeholders on the sustainability approach Saipem implements in the projects it conducts and in the areas of the world where it operates.*

*This report focuses on two specific projects and describes the principles, activities and performance that have been achieved by Saipem towards sustainable development.*

*The report is structured to provide easy access to key indicators and information. It is divided into two parts: the first part gives an overview of Saipem and its business around the world, while the second part focuses on the two projects, by giving a description of them, the area where they were conducted and a description of the projects' sustainability performance, addressed to different stakeholders.*

*The Project Sustainability Report, together with the annual Saipem Sustainability Report and the Country Sustainability Report, represent the main Saipem tools to communicate its vision for Sustainability to all its stakeholders.*

## METHODOLOGY

*This Project Sustainability Report has been developed in accordance with the principles of materiality, stakeholder inclusiveness, sustainability context and completeness. As for the yearly Corporate Saipem Sustainability Report, this Report is strongly focused on stakeholders. This Report is intended to describe Saipem performance and its engagement with stakeholders in Egypt, during the West Delta Deep Marine Phase IV and Sequoia Joint Development Projects.*

*A set of Key Performance Indicators (KPIs) was selected to support the information to be provided to stakeholders. Data are taken from the information systems used for the general management and accounting of companies' operations or from public data made available by recognised Institutions.*

*This Sustainability Report illustrates Saipem activities concerning the West Delta Deep Marine Phase IV and Sequoia Joint Development Projects, which represent the consolidation area of the data. Data are usually reported for the entire period of the projects (June 2006/February 2008 and April 2008/August 2009) if not otherwise indicated.*

*Information and data updated at 2009.*

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# MESSAGE FROM THE CEO



*Umberto Vergine*

Saipem is an international Oil&Gas contractor with approximately 48,000 employees and operations in more than 60 countries.

Saipem plays a significant role in its market sector and contributes substantially to the economic development of the countries in which it operates.

We consider business sustainability to be an integral part of our strategy. Our commitment is to create long-term value for all our stakeholders, especially locally, by identifying common goals and agreeing on specific initiatives. Given

the wide range and complexity of our activities, our engagement with local stakeholders requires a comprehensive approach to sustainability. Furthermore, the variety of projects undertaken and the differences between countries where these activities are performed demand that a distinctive local approach be developed.

We publish these Reports on our Local Business Sustainability in order to favour open dialogue and enhance the development of local relationships, helping us to ensure that we operate at all times in an increasingly sustainable manner.

## MISSION

*Pursuing the satisfaction of our clients in the energy industry, we tackle each challenge with safe, reliable and innovative solutions. We entrust our competent and multi-local teams to provide sustainable development for our Company and the communities in which we operate.*



# LETTER FROM THE CLIENT



The successful completion of West Delta Deep Marine Phase IV and Sequoia Joint Development Projects marked an unprecedented success for the Egyptian oil and gas

projects history.

Both projects were delivered ahead of schedule despite the initial challenge of a fast track project schedule. Both subsea facilities EPIC contract were delivered in less than 18 months. This success was made possible by early procurement of the control system equipment, subsea trees and connectors. By taking responsibility for procurement of these Long Lead Items (LLIs) Burullus could supply critical equipment to the EPIC Contractor thereby allowing him to deliver an optimum fabrication and testing schedule. In addition Burullus delivered an excellent performance on well subsurface planning, drilling and completion on both projects. When the EPIC Contractor mobilised his construction vessels all wells were available for hook-up and commissioning. This provided the EPIC Contractor with uninterrupted access to the wells and allowed him to optimise his subsea construction program.

The Safety performance on the two Projects was excellent and they were both completed with Zero Lost Time Incidents. This remarkable record was mainly due to the strong commitment of all people involved, from the senior management of all the companies to all members of the Project Management Team and the workforces on the fabrication sites and construction vessels.

Both projects were 'brown field' involving connecting new subsea facilities to existing, producing facilities. This required detailed planning and close co-operation between the Burullus project team, the EPIC contractor and Burullus Operations in Idku to ensure operations were carried out safely and with minimum disruption to production. All operations were carried out safely and production downtime was minimised.

The close cooperation between all parties over the duration of the Projects has been the special characteristic that has contributed to the success. The open and collaborative relationships developed between Burullus Gas Co, Saipem, and the other key contractors has proven to be a key success factor in the successful delivery of these fast track projects.

In addition to the great operational achievements shared by all involved, I do believe that all companies who participated in these projects have contributed, to the economic and social development of Egypt.

The high standard of performances achieved by all parties in the executions of these projects is the cornerstone that will set for sure the basis for future developments in Egypt.

**Dr. Sherif Sousa**  
Chairman and Managing Director  
Burullus Gas Co



# LETTER FROM SAIPEM PROJECT DIRECTOR



The acquisition and execution of Burullus Phase IV Project in June 2006, the first large scale EPIC project in Egypt for Saipem, was a real challenge. Technical installation issues due to the very congested subsea area together with the logistic/organisational endeavours mainly in term of technical challenges due to the 'anaerobic' efforts to be spent in such compressed schedule appeared to be major issues to overcome.

The award of Sequoia project, the continuation of the previous development, was seen as the normal follow on of the activities already on going, although the schedule was even more stringent and breathless than the previous one.

The overlap of the Engineering/Procurement/Fabrication phases constituted additional potential risks that required a careful planning of the activities and an accurate risk management on the key decisions of the project.

Despite the above issues and challenges of the two projects, I must admit that the overall balance is very positive. I am glad to report that everybody in Burullus and Saipem Management Teams were highly committed and enthusiastic of their job, thus generating an ideal climate of co-operation that was one of the ingredients of success.

The great HSE performances of the two projects are also indicators of the attention our company is giving to the workforce when running its business. Same attention is devoted to local stakeholders and people as you will find by going through this report.

I am pleased to present this booklet as it helped me to think back to my professional and personal experience of the past three years, where we managed to make business successfully while acquiring new friends in Egypt.

**Guido D'Aloisio**  
Project Director for West Delta Deep Marine  
Phase IV and Sequoia Joint Development  
Deputy General Manager Saipem Misr



# INTERVIEW WITH MAIN SUBCONTRACTOR

***Petrojet, the Petroleum Projects and Technical Consultations Co, is an Egyptian multidisciplinary integrated construction Contractor offering services related to the Oil, Gas, Petrochemical & Industrial Sectors in Egypt and the Middle East.***



Eng. Hany Dahy  
Petrojet Chairman & CEO

***In which projects Saipem and Petrojet have cooperated in Egypt?***

'Petrojet has worked together with Saipem as subcontractor for the construction phase of the two projects: the West Delta Deep Marine Phase IV Project and Sequoia Joint Development Project.

The cooperation has been successful with the creation of a joint team of work from the two Companies that worked together on the construction site in the Petrojet fabrication yard.

Working together side by side has helped to solve the problems in real time, when they emerged, avoiding losing time and guaranteeing the respect of the already tight timing of the project, agreed in the contract'.

***Does this cooperation improve your way of working and know how?***

'From a technical point of view, this cooperation helped to improve our knowledge, gaining further expertise in the construction of subsea structures, which were realised in our workshops in the fabrication yard, in accordance with the technical specifications and quality control procedures defined together with Saipem'.

***How the cooperation with Saipem influences your market perspective and business?***

'Saipem, together with the final client Burullus, has recognised the successful cooperation, the quality of the products and the good safety standards maintained as reported in the certification issued at the end of the two projects. These good recognitions are always an important element and a 'business card' to present our Company on the market and improve our business opportunities'.



Eng. Fathy Hassan  
Petrojet Marine Department  
General Manager & MOB

*What were the improvements in term of project management?*

'Working with Saipem helped us to improve our way of managing projects, especially to guarantee the respect of the quality requirements. To guarantee that, the quality control process was increased during the night-shift. In term of safety, the daily cooperation and dialogue with Saipem employees helped us to improve our know-how and procedures in term of safety prevention and protection.

Besides, the 'Safety Incentive Scheme', proposed by Saipem and its Client Burullus, was successfully implemented further strengthening the safety culture, creating also an induced effect for all our workers that were employed in other projects, with overall excellent results in term of safety in the fabrication yard. Our senior management and supervisors participated to the Saipem Leadership in Safety (LiS) workshop with an enthusiastic outcome in term of creation of a 'culture of safety'".

*Which were the main aspects of this successful cooperation?*

'The cooperation in the first project (WDDM Phase IV) helped to know and understand each other with the creation of a trustworthy relationship that was then reinforced during the second project. This resulted in a success factor that helped us to work side by side, creating efficiency and reducing timing and costs. In particular, the Sequoia project has been acknowledged by all parties in term of good quality and timing.

This optimal cooperation could be an important success factor for awarding and conducting future projects in the area.

AMERICAN





saipem

# OVERVIEW OF THE PROJECTS



## West Delta Deep Marine Phase IV Project

It is an offshore deepwater EPIC project which consisted in putting in production eight gas wells in the West Delta Deep Marine field located in Egypt offshore Alexandria.

Client: Burullus Gas Co

Location: 120 km offshore Egypt in the Mediterranean Sea

No. of Wells: 8

Water Depth: 350 m - 1,000 m

Duration: June 2006 - February 2008

The project was a subsea development where Saipem performed the detailed engineering, procurement, fabrication, system integration tests, installation and pre-commissioning of the subsea structures.

In particular the project included the laying of over 68 km of 10" flowline, over 68 km of umbilical, installation of over 50 subsea structures of several sizes and over 75 subsea power/control lines.





## Sequoia Joint Development Project

It is an offshore project both in shallow and deep waters which consisted in putting in production additional six gas wells in the West Delta Deep Marine and Rosetta Concessions.

Client: Burullus Gas Co

Location: 120 km Offshore Egypt in the Mediterranean Sea

No. of Wells: 6 (Shallow & Deep Water)

Depth: 119 m - 600 m

Duration: April 2008 - August 2009

The project was a subsea development where Saipem performed the detailed engineering, procurement, fabrication, system integration tests, installation and pre-commissioning of the subsea structures. In particular the project included the laying of over 29 km of 10" flowline, over 29 km of umbilical, 24 km of a 22" export pipeline and umbilical, installation of over 30 subsea structures of several size and over 80 subsea power/control lines.



**North Sequoia  
TSB/SDA**

**North Sequoia  
Manifold**

# INTRODUCTION TO SAIPEM

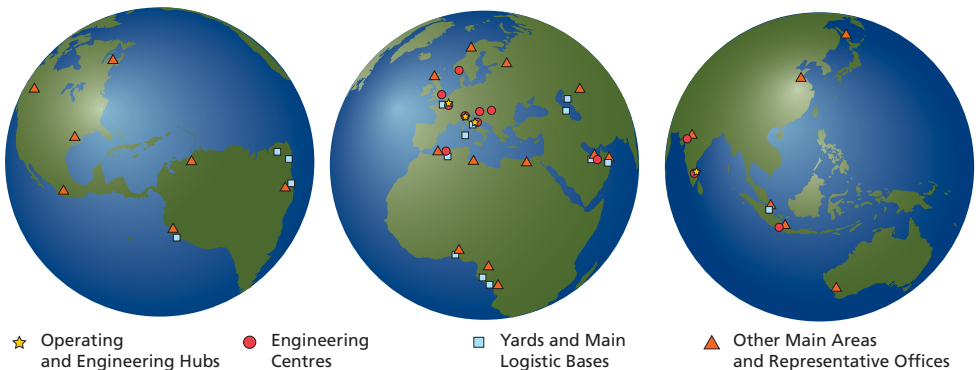
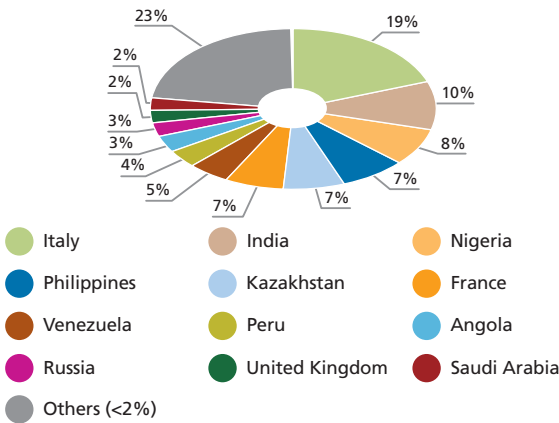
Saipem, 43% owned by Eni, is an international group with a strong bias towards oil and gas related activities in remote areas and deepwater. The Company began operations in the 1950s and it is now a leader in the provision of engineering, procurement,

project management and construction services with distinctive capabilities in the design and the execution of large-scale offshore and onshore projects.

The organisation, since providing many different kinds of services, has been rationalised into three global Business Units: Onshore, Offshore, Drilling. It enjoys a superior competitive position for the provision of EPIC/EPC services to the oil industry both onshore and offshore; with a particular focus on the toughest and most technologically challenging projects – activities in remote areas, deepwater, difficult oil. The Group is a truly global contractor, with strong local presence in strategic and emerging areas such as West Africa, Americas, Central Asia, Middle East, North Africa and South East Asia.

Saipem is an international company employing over 37,000 people from around 115 nationalities. The major part of its human resources (85% in 2008) is locally employed.

**Saipem workforce distribution by nationality (2008)**





# SAIPEM'S SUSTAINABILITY APPROACH

Saipem believes that a correct, open and cooperative relationship with all stakeholders is vital for the success of each complex project Saipem carries out, frequently in very remote and most challenging areas.

Saipem has a presence in many locations around the world, operating with a decentralised organisation in order to respond to local needs and sustainability issues. Everywhere it works, the Company plays an active role in the local communities, mainly offering employment opportunities, and personnel training; by working effectively with local suppliers and subcontractors, creating economic and

social value, and finally by contributing to infrastructures construction (e.g. access roads, construction camps with all the facilities such as hospitals, power generation, etc.).

Saipem's international workforce and breath of internationalism is another facet of sustainability: all personnel are treated with dignity, always respecting their rights, cultural values, local customs and traditions, their diversity and identity.

For each project, social, economic and environmental effects are continuously monitored, as well as the satisfaction of customer's requirements.



# SAIPEM AT A GLANCE

## OFFSHORE

Saipem's pioneering work in pipeline installation (a total of 28,000 km laid since late 1950s) is matched by its experience in installing offshore platforms, in which it has mastered both the heavy lift and the float-over techniques.

Saipem has now evolved into an integrated EPCI contractor, having completed some 120 offshore construction projects over the last ten years, including groundbreaking achievements from complex deepwater developments to major trunk line systems.

FPSO (Floating Production Storage and Offloading) units are also part of Saipem's offshore line of products, both as new-built delivered turnkey to the customer, and as tanker conversions leased to and operated for the customer, as well as marine terminals and conventional buoy moorings.

Saipem owns a strong, technologically advanced and highly-versatile fleet

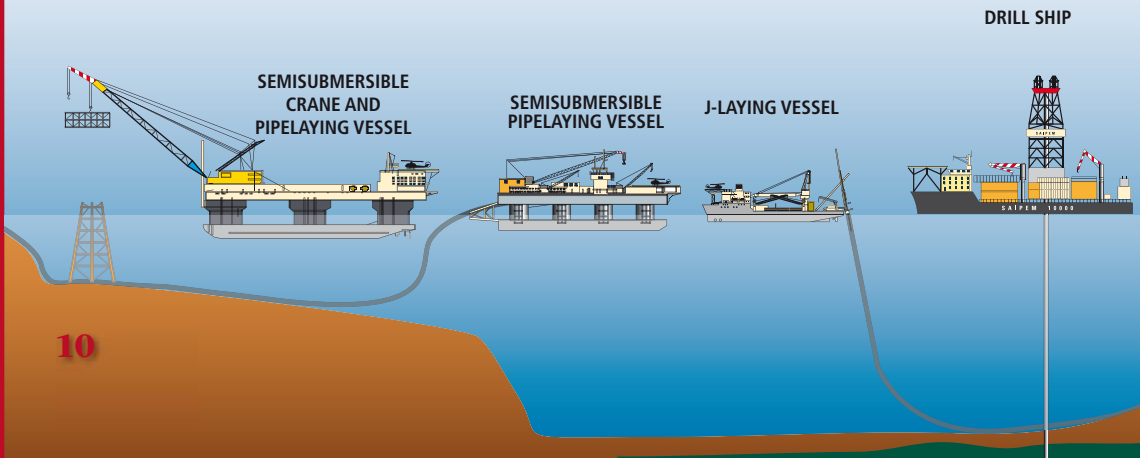
(including 28 construction vessels and FPSO), and world class engineering and project management expertise.

Saipem capabilities are also supported by significant fabrication capabilities based at the core of major oil and gas provinces (Angola, Azerbaijan, Congo, Kazakhstan, Nigeria, UAE, Mediterranean Sea and Indonesia), with a potential of fabrication of 130,000 tonnes per year.

These unique capabilities and competences, together with a long-standing presence in strategic frontier markets, represent an industrial model that is particularly well suited to EPIC (Engineering, Procurement, Installation, Construction) projects.

## DRILLING

Saipem vast experience in managing drilling activities, associated with an adequate technological and operational level, have progressively developed the Company's actual capabilities. Over many decades of performance, Saipem has drilled over 7,100 wells, 1,750 of





which have been offshore, totalling an overall depth of about 17.8 million m.

Offshore, Saipem operates both in shallow and deep water using jack-ups, semi-submersible units, a tender assisted drilling vessel and a drill ship. For Onshore, Saipem operates with around 100 Rigs self-owned.

## ONSHORE

Saipem offers a complete range of services, from feasibility and front-end studies to design, engineering, procurement, and field construction, most often on an EPC contractual basis, for complex oil & gas facilities, including production, treatment, liquefaction, refining and petrochemical plants, pipelines, pumping and compression stations and terminals.

Saipem's expertise focuses on the execution of large projects with a high degree of complexity in terms of engineering, technology and operations, with a strong bias towards

challenging projects in difficult environments and remote areas. Land pipeline design and construction has historically been one of the mainstays of Saipem business. The Company has laid a record of 100,000 km of pipelines on five continents.

Saipem Group has designed and built 37 grass-roots refineries, more than 500 process units and more than 400 plants worldwide to produce chemicals from natural gas.

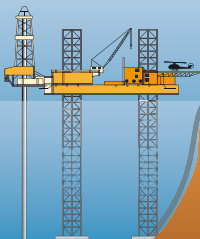
In recent years, the Company has designed and constructed more than 40 power plants and four Integrated Gasification Combined Cycle plants, two of which are the world's largest, with a power output of about 550 MW each.

Saipem plays also a significant role in the design and execution of a large-scale civil infrastructure projects and also offers integrated environmental remediation services, such as those relating to soil and ground water and contaminated sites.

SEMISUBMERSIBLE  
DRILLING RIG



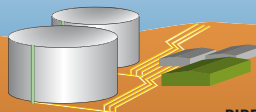
JACK-UP  
DRILLING RIG



DRILLING RIG



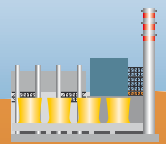
REGASIFICATION PLANT



PIPELAYING



POWER PLANT



# SAIPEM IN THE WORLD

REST OF EUROPE		2006	2007	2008
Revenues	(€ million)	1,093	954	878
Investments	(€ million)	17	14	9
Workforce	(units)	5,610	3,618	4,793
Local Workforce	(% of total)	86	85	73
Energy consumption	(toe)	12,222	44,386	63,095
HSE Training	(hours)	27,105	43,991	29,444

ITALY		2006	2007	2008
Revenues	(€ million)			
Investments	(€ million)			
Workforce	(units)			
Local Workforce	(% of total)			
Energy consumption	(toe)			
HSE Training	(hours)			

AMERICAS		2006	2007	2008
Revenues	(€ million)	545	745	590
Investments	(€ million)	14	188	233
Workforce	(units)	2,730	4,021	4,562
Local Workforce	(% of total)	74	71	87
Energy consumption	(toe)	12,222	52,392	115,130
HSE Training	(hours)	60,497	68,401	74,357

WEST AFRICA		2006	2007	2008
Revenues	(€ million)	1,570	1,677	1,950
Investments	(€ million)	31	54	49
Workforce	(units)	5,170	5,814	6,471
Local Workforce	(% of total)	69	69	67
Energy consumption	(toe)	10,043	52,744	56,633
HSE Training	(hours)	37,861	102,014	146,953

NORTH AFRICA		2006	2007	2008
Revenues	(€ million)			
Investments	(€ million)			
Workforce	(units)			
Local Workforce	(% of total)			
Energy consumption	(toe)			
HSE Training	(hours)			

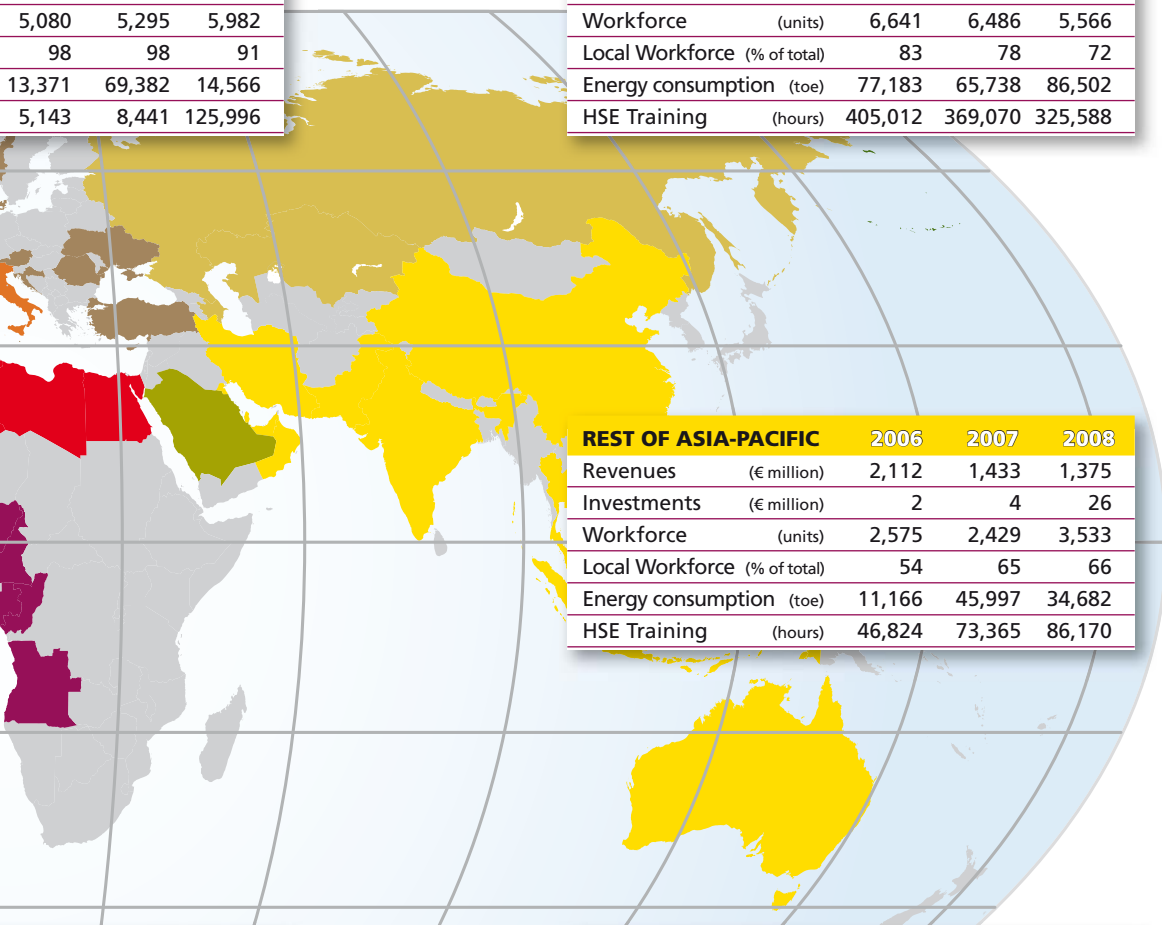
## Additional data for investments

Further investments not allocated by Areas were (in € million) 458 in 2006, 1,184 in 2007 and 1,463 in 2008.



2006	2007	2008
773	1,051	1,135
8	18	68
5,080	5,295	5,982
98	98	91
13,371	69,382	14,566
5,143	8,441	125,996

CIS		2006	2007	2008
Revenues	(€ million)	1,052	1,031	1,092
Investments	(€ million)	68	75	107
Workforce	(units)	6,641	6,486	5,566
Local Workforce	(% of total)	83	78	72
Energy consumption	(toe)	77,183	65,738	86,502
HSE Training	(hours)	405,012	369,070	325,588



REST OF ASIA-PACIFIC		2006	2007	2008
Revenues	(€ million)	2,112	1,433	1,375
Investments	(€ million)	2	4	26
Workforce	(units)	2,575	2,429	3,533
Local Workforce	(% of total)	54	65	66
Energy consumption	(toe)	11,166	45,997	34,682
HSE Training	(hours)	46,824	73,365	86,170

2006	2007	2008
372	727	1,475
7	42	8
1,231	1,690	1,783
47	43	55
11,435	33,160	35,991
7,441	36,765	47,626

SAUDI ARABIA		2006	2007	2008
Revenues	(€ million)	-	1,912	1,599
Investments	(€ million)	9	65	81
Workforce	(units)	2,730	4,937	5,300
Local Workforce	(% of total)	97	97	96
Energy consumption	(toe)	35,125	59,322	64,439
HSE Training	(hours)	7,432	89,275	210,281

#### Additional data for 2006

In 2006, some data were allocated to vessels (seaworld), including a total workforce of 3,147 units, an overall energy consumption of 187,598 toe and a total 64,595 hours of HSE training.

# EGYPT OVERVIEW



Occupying the northeast corner of the African continent, Egypt's territory of around 1 million sq km is crossed by the highly fertile Nile valley, where most economic activity takes place. The Country has a population of about 83 million people (July 2009 est.), mainly concentrated on the fertile banks of river Nile, especially in Alexandria and Cairo, within the Delta and the Suez Canal.

Egypt has one of Africa's most prosperous economies. In the period 2007-2008 Egypt's economy grew by 7.2%.

The prime engines of this robust growth were industry, tourism and revenues from the Suez Canal.

Egypt has been making efforts to reduce poverty, however regional disparities

in poverty and other social indicators remain a major concern.

Egypt is characterised by a fertile area around the Nile and close to the Mediterranean Sea, and a large area occupied by the desert. Desertification is one of the main issues to face together with windblown sands and the scarcity of water resources, away from the Nile.

The proportion of the population living in rural areas has continued to decrease as people move to the cities in search of employment and a higher standard of living; therefore urbanisation is progressively more occupying all agricultural lands.

However, approximately one-third of Egyptian labour is engaged directly in farming, and many others

work in the processing or trading of agricultural products. Nearly all of Egypt's agricultural production takes place in some 2.5 million hectares of fertile soil in the Nile Valley and Delta.

In addition to agriculture, Egypt's natural resources include petroleum, natural gas, phosphates, and iron ore. Crude oil is found primarily in the Gulf of Suez and in the Western Desert. Natural gas is found mainly in the Nile Delta, off the Mediterranean seashore, and in the Western Desert.

Oil and gas account for approximately 12% of GDP.

The Ministry of Petroleum has determined that expanding the Egyptian petrochemical industry and increasing exports of natural gas as its most significant strategic objectives.

## Economic indicators

Gross Domestic Product (GDP) (2008 est.)	(billion \$)	Purchasing Power Parity - 444.8
GDP real growth rate (2008 est.)	(%)	7.2
GDP per capita (2008 est.)	(\$)	5,800
Labour force (2008 est.)	(million)	24.6
Unemployment rate (2008 est.)	(%)	8.7

Source: CIA World Fact Book Egypt.

## Egypt oil and gas reserves and production

	Units	2001	2002	2003	2004	2005	2006	2007	2008
Oil reserves	(million bbl/d)	2,948	2,948	3,700	3,700	3,700	3,700	3,700	3,700
Oil production	(thousand bbl/d)	762	751	750	708	693	673	633	n.a.
Gas reserves	(billion m <sup>3</sup> )	1,433	1,557	1,657	1,756	1,869	1,895	2,047	2,047
Gas production	(billion m <sup>3</sup> )	22.6	27.6	31.1	33.6	48.2	58.7	n.a.	n.a.

Source: Eni World Oil and Gas Review 2008.



Egypt views

### Supply and consumption

	Production	Import	Export	Consumption
Coal	15	1,227	(372)	409
Crude oil	33,571	2,433	(2,908)	-
Petroleum Products	-	3,670	(4,538)	26,152
Gas	41,602	-	(13,828)	10,326
Hydro	1,112	-	-	-
Geothermal	53	-	-	-
Combustible Renewables and Waste	1,477	-	(22)	1,482
Electricity	-	18	(48)	9,167

Source: 2006 Energy Balances for Egypt, IEA Energy Statistics.  
In thousand tonnes of oil equivalent (ktoe) on a net calorific value basis.



# DESCRIPTION OF THE PROJECTS

The West Delta Deep Marine Phase IV (WDDM IV) and the Sequoia Joint Development (SJD) projects are two phases of a large field development which started in 2001 and is envisaged to continue at least until 2015.

The West Delta Deep Marine field is a vast gas field located in Egypt, in the Eastern Mediterranean Sea, off the coast of the Nile Delta, at a water depth varying between 400 m and 1,000 m.

This highly strategic field produces a significant portion of gas for domestic consumption in Egypt. It is the largest totally subsea development in the Egyptian offshore. The gas, extracted through the deep water wells, is first collected in the subsea manifolds and then sent via a pipeline to the LNG plant in Idku (east of Alexandria), where it enters the local gas network or it is liquefied for export.

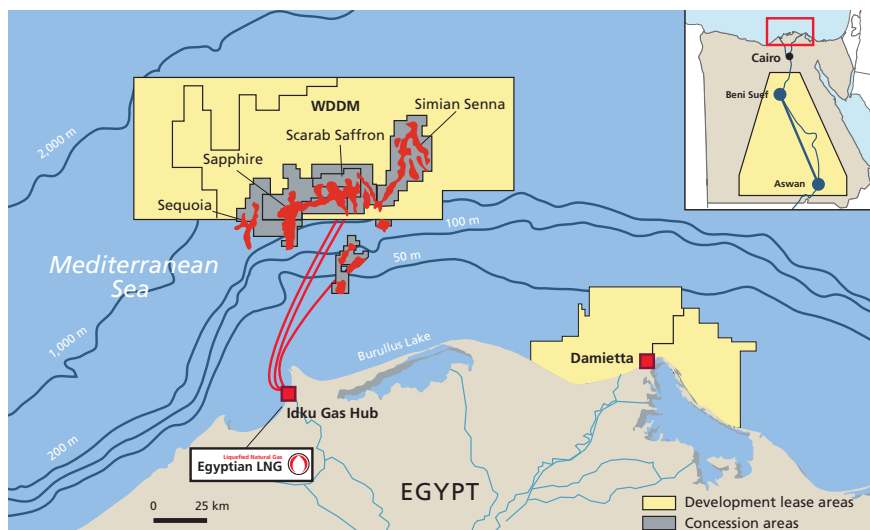
As the name says, the WDDM Phase IV was the fourth development of this field; previous developments were Scarab Saffron, Simian/Sienna and Sapphire.

Those projects, similar to the Phase IV development, were performed by other Contractors. In parallel with Phase IV, there had been the Phase V which was an onshore development for the onshore facilities in Idku and, after, the Phase VI which was the Sequoia Joint Development Project.

A peculiarity of the Sequoia Joint Development Project is that it included works into two fields, the West Delta Deep Marine Field and the Rosetta field which is another concession adjacent to the WDDM field.

## West Delta Deep Marine Phase IV Project

The West Delta Deep Marine Phase IV Project (known as the Burullus Project, from the name of the Client, the Burullus Gas Co, a joint venture between British Gas, Petronas and the Egyptian state oil company, EGPC) was awarded to Saipem with a lump sum contract at the end of June 2006. It involved the development of a deep water field through bringing



Source: BG Egypt.



*FDS operations  
in Egyptian  
waters*

in production eight new wells for gas extraction, to be connected to existing underwater infrastructures. The scope of the work involved engineering, procurement, construction, installation and pre-commissioning of subsea facilities to put in production 8 gas wells. The installation campaign was performed by the following vessels: FDS, Normand Cutter, Maersk Reliance, Normand Carrier and Grampian Surveyor. Several support vessels including supply vessels, cargo barges and tugs and crew boats were utilised. The first three wells were successfully commissioned and brought on stream in January 2008, and the remaining over the following two months, with

completion of the activities on March 6, 2008.

### **Sequoia Joint Development Project**

The Sequoia Joint Development Project comprised six additional wells to the existing Sapphire and Rosetta developments. Three of these wells developed Sequoia North in the western flank of the Sapphire area and three wells the new Sequoia South area. The Sequoia North wells were tied-in through the Sapphire M2 manifold and the Sequoia South wells through the Rashid-3 manifold. While the Sequoia Project was in many

ways similar to the WDDM Phase IV Project with regards to the item to be fabricated and to the areas of work, there were however a few noticeable differences such as the coating and laying of a 24 kilometre x 22 inch concrete coated pipeline, some of the field tie in operations being carried out by divers from a Diving Support Vessel, and an even tighter schedule. The installation campaign was performed by the following vessels: FDS, Normand Cutter, Bourbon Pearl, Lorelay (Allseas) and Vos Simpathy. Several support vessels including supply vessels, cargo barges and tugs and crew boats were utilised. The first well had been put in production at the beginning of August 2009 and the others in the following weeks with completion of the activities on August 27, 2009.

## ORGANISATION AND PROJECT MANAGEMENT

The two projects were organised and managed in a similar way and therefore the description below applies to both of them. A dedicated task force had been defined to manage and execute the Projects.

In the first stage of the project the staff, both the Project Management Team (PMT) and the other departments were located in the Fano offices (Italy) with the exception of two teams located in Aberdeen (UK) and Paris (France). The Project Management Team further migrated to Egypt toward the end of the engineering/procurement phase to follow up the operations (fabrication

Project Panel in the Project Area at Maadia Yard





and installation activities).

Project Management Team and the Offshore Operations Team were located in Cairo (Egypt), the Fabrication Team in Alexandria (Egypt), while the Project Procurement and Engineering functions remained in Fano with Installation Engineering Teams located in Aberdeen and Paris.

The team in Egypt was located in Saipem Misr offices, the local company which provided all project logistic, personnel and local procurement services to the projects.

The project organisation was structured in accordance with the chart below.

### THE APPROACH TO SUSTAINABILITY IN THE PROJECT

Since the beginning of the first project, the Project Management realised the crucial importance of applying a

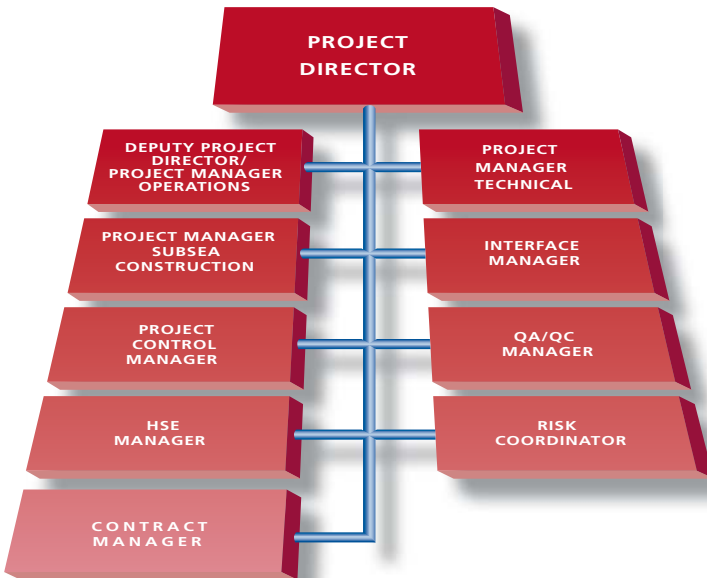
sustainable approach in the operations in Egypt, aware of the fact that sustaining the 'local market' would have brought a competitive advantage to Saipem both in the short term (in the current project) and in the medium/long term.

The two projects were characterised by the following relevant aspects of sustainability:

- Development of relationships with client and local subcontractors/ suppliers;
- Development of qualified local resources;
- Improvement of the safety awareness in employees and subcontractors involved in the work.

This 'sustainable approach' started with the beginning of West Delta Deep Marine Phase IV, continued during the entire project and persisted along the Sequoia Joint Development Project.

### Project Management Team



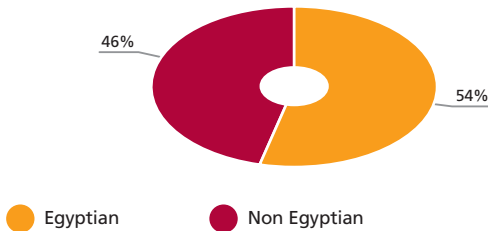
# SUSTAINABILITY PERFORMANCE IN THE PROJECTS

## PEOPLE

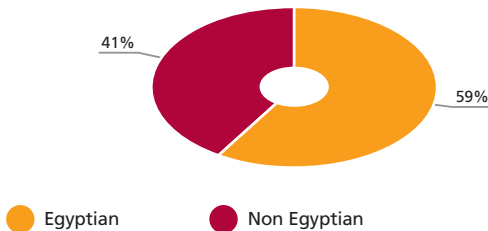
### Total Workforce

The workforce gradually increased over the duration of the project to a peak of just over 870 in November 2007 for WDDM Phase IV and over 660 in June 2009 for the Sequoia Joint Development Project. A significant part of the personnel was local with a monthly average of 55% on the total workforce with peak over 90%.

### WDDM Phase IV Workforce Composition average per month



### Sequoia Joint Development Workforce Composition average per month



## Training

Both projects encouraged employees training and development with a particular focus on local young employees. Resources have been developed in engineering, contract management, project control, quality control and staff for a total number of about fifteen. All the resources had undergone a training program consisting in training on the job and internal and external training courses. In particular the local engineers followed a common development path. At the beginning of their experience they were allocated in Saipem Misr offices in Cairo where they received a company and project induction; further they were assigned to the fabrication yard to start the direct contact with the project activities.

This period allowed them to rapidly understand the project scope of work being directly involved in the fabrication of the items engineered. Offshore training phase was also envisaged for some of the engineers who were sent onboard Saipem vessels during the offshore campaign to attend some of the installation operations of the structures they contributed to build in the fabrication yard. In all these phases the resources were under tutorship of Saipem expert staff. In the Sequoia Joint Development Project, the young engineers had the opportunity to be part of the team since the beginning of the project and therefore participated also to the engineering phase. Each of them had been assigned to a package which they have followed in all phases from the engineering until the installation going through the fabrication.

In addition to the training on the job, specific courses were also provided to local resources. These varied from technical training to soft skills training, namely: Leadership in safety;



*Islam ElNahas*

What were your expectations in joining Saipem and what did you find?

**Ahmed:** *'My expectations in the beginning were like anyone just joined a big company. I expected that I will work in a challenging environment giving me the possibility to improve my skills and enrich my knowledge. There is no doubt that I was a little bit worried to work and to be a member in a multi-cultural company, because I haven't any previous experience in the Oil & Gas field. However, after spending few weeks in the company, all these doubts disappeared due to the positive working environment created by the people working in the company and the good team spirit. At the end I found out that I was able to do some jobs that I had never thought I could do before.'*

Did you have any difficulties at the beginning?

**Islam:** *'Subsea Construction projects were a new challenge for me, since they introduce different technologies and techniques. I had to redirect my personal skills and, with the help of other colleagues, to understand this new scope of work. The people I have worked with have always provided me with support and advice. Team effort coupled with the*

**Interview to  
Islam ElNahas,  
26 years,  
Bsc. Mechanical Engineering  
and Diploma in Project  
Management, Alexandria**

and

**Ahmed Barania,  
25 years,  
Bsc. Mechanical  
Engineering, Cairo**

*interesting scope of work meant that coming to work is always a pleasant thing to do.*

*The role I have been assigned to has developed my understanding of subsea construction and helped me to gain knowledge from the planning aspect, enhancing my responsibility when dealing with both client and subcontractors. Such nature and diversity of Saipem projects has allowed me to develop my own path. There is nothing stereotypical about the career route of a Saipem employee. One thing that is consistent however is the effort Saipem envisages into ensuring all staff has every opportunity to develop'.*

What activities and projects were assigned to you?

**Islam:** *'I joined Saipem in July 2008. I expected flexibility when I joined the scheme, but I was amazed by all the opportunities that represented all the different areas of the business. My first assignment was working as Planning Engineer as a part of the Project Controls team located at the subcontractor fabrication yard for Sequoia Project.*



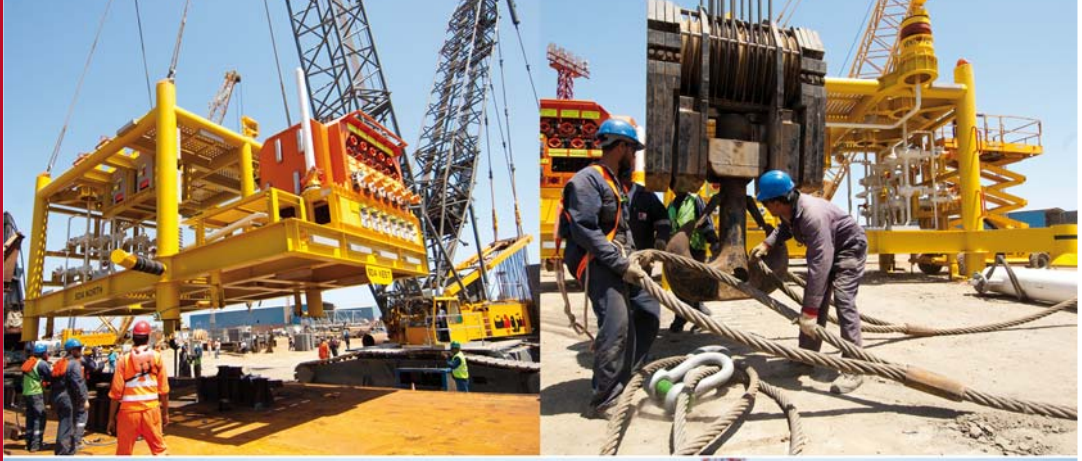
*Ahmed Barania*

*From the outset I played a crucial role, being heavily involved in the fabrication activities undertaken by the nominated subcontractor. I divided my time between follow up of the fabrication activities in the yard and analysing the critical areas in which the project can accelerate ahead of schedule. I've been extremely fortunate to work on this challenging project since it enabled me to gain a vast range of knowledge and experience of subsea construction. The project had a tight schedule which required fast pace on site. I also took great satisfaction in seeing a project completed'.*

Do you think you have changed from when you first arrived in Saipem and, if so, in what way?

**Ahmed:** *'At working level, I gained a lot of benefits, improving my skills, enriching my experience and enlarging my capabilities since I have joined Saipem. Certainly, I can take now critical decisions and analyse situations much faster than before. On a more general level, working with people with different nationalities gave me the advantage to know a lot of different cultures, mentalities and habits which add a lot to my personality'.*





Working safely

Offshore pipelines; Team Work; Office Programs; Problem Solving; Contract Administration; Quality General Skills; Communication Skills; Presentation Skills; Tenders and Contract Management; Project Management; Offshore Survival Course.

**Safety**

Saipem recognises the importance of safety for its people. This has been a mission for the entire Project

Management who were united in the will to ensure everyone completed its activities in the Project in the same (or, as it was the case in some instances, better) condition as when he/she arrived. Everyone understood the overriding HSE philosophy of 'There will be no compromises on HSE'. In order to reinforce this message, the Project Management Team gave everyone in the project not only the right, but the responsibility to stop unsafe acts. This message was part of every safety

induction, conducted for each worker before start working, and reiterated at tool box talks and meetings.

The project recognised a simple truth when formulating its HSE Policy and Philosophy and that is 'to know your enemy' or, to put it another way, 'recognise the hazards involved in your business'. The Project ensured this by applying a thorough risk assessment process which included early overall Hazid, design Hazop risk assessment both in fabrication and testing activities and offshore and shutdown. The above activities were conducted in addition to the task risk analysis/job safety analysis conducted at the work location.

In particular, fabrication activities were conducted in the fabrication yard of the local subcontractor, in Egypt. This required creating a joint team Client/ Saipem/Subcontractor to conduct the risk assessment and, more in general, to share expertise and knowledge. Risk assessments for the fabrication activities were produced both in English and Arabic, and posted at strategic locations throughout the fabrication facility. They were also used at tool box meetings and pre-task briefings. The monitoring activities have been conducted through HSE audits, both on subcontractor's fabrication yard and in Saipem vessels, involved in offshore installation and pre-commissioning activities to ensure that their HSE



South Sequoia  
Manifold  
Foundation  
Load Out





North Sequoia  
SDA Load Out

systems were in place and effectively implemented. A total of 53 HSE audits were conducted during the two projects.

Emergency Response (ER) plans were developed for both onshore and offshore activities. The ER plans were aligned with the Client ER plans and those of other external organisations involved i.e. helicopter companies etc. by a 'bridging document'. This document provided all relevant information and contact details for every

site and vessel and was present at every work location. All ER plans together with the Medical Evacuation Procedure were tested prior to, or immediately upon, mobilisation of any vessel and in the fabrication site with all organisations (Saipem, Client, Helicopter Company, etc.) participating.

#### **Safety Incentive Scheme**

A safety incentive scheme was implemented for the activities that were conducted for both West Delta Deep Marine Phase IV Project and



the Sequoia Joint Development Project in the fabrication yard, to all subcontractor personnel working on the projects.

The idea of implementing a safety incentive scheme was a joint Saipem and Burullus idea and the two companies put in place and financed the scheme on an equal basis. Every month, every worker would have had the opportunity to collect vouchers if work had been performed safely in the period. A daily checklist was developed which identified key areas where hazards were present and framed questions/requirements, within these key areas, which could be scored to reflect a broad level of compliance/non compliance.

Areas included were: PPE, Signs and Barriers, Lifting, Scaffolding and Working at Height, Housekeeping, Blasting, Hot Work, Portable Electrical Tools and Equipment and Manual Handling.

In total, there were 34 different basic requirements included in the checklist, such as personnel wearing secured safety harness where required, correct colour coded slings in use, crane has copy of certification in cab, workers not on scaffolding that is not correctly green tagged etc. all of which had to be verified during daily safety inspections and walks.

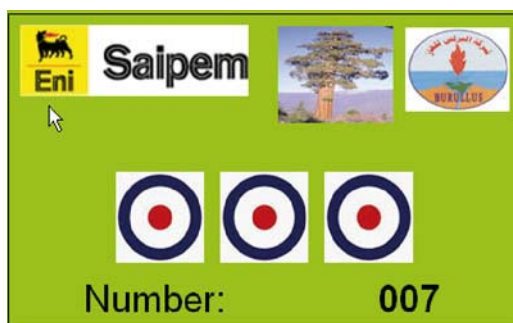
The scheme was explained in Arabic as part of each worker's HSE induction at the start of work, to ensure there was a clear and common understanding that excellent safety performance with its associated behaviours would be rewarded, while evidence of poor behaviours would result in a reduced reward. It was also made clear that the actions of any person could affect the reward to the whole workforce, therefore introducing a healthy element of peer encouragement to be safe and to behave safely.

The scheme operated as follows:

1. The required level of safety performance and behaviour was

explained in Arabic as part of the induction process.

2. The checklist of activities to be implemented or avoided was posted prominently in Arabic in the controlled area of the subcontractor Fabrication Yard.
3. The HSE advisors undertook frequent (at least daily) site walk through/ inspections verifying conditions and work practices against the checklist. The scores tallied on this checklist were accumulated and directly drove the final monthly score hence payment to the individual.
4. The payment was calculated against the percentage 'score' achieved over the month.
5. In the event of a recordable incident there would be a 10% reduction in the payment, however the production of 8 relevant and meaningful near miss reports would mitigate this reduction for each incident.
6. On an individual basis, where a person was discovered infringing the basic safety rules they would have a 'hole' punched in their project identity badge. 3 of such infringements for any individual would result in their being removed from the Project (but this never happened).



*Sample of ID card issued to all project personnel in the fabrication yard which was 'hole' punched in case of safety infringements*



*Eng. Mostafa Bosh, Assistant Chairman for Projects of the Client Burullus, and subcontractor senior management attending the LiS workshop in Alexandria*



*LiS workshop in Fano (Italy) attended by members of the Saipem Project Management Team*



*Supervisors from the fabrication yard attending a half day introduction to LiS*

### **Leadership in Safety (LiS)**

During the early days of the Sequoia Project, Saipem rolled out its corporate Leadership in Safety (LiS) initiative. The project was quick to embrace the value of this initiative and all members of the Saipem Project Management Team participated to a workshop in Fano, Italy.

A special LiS workshop was organised in Alexandria (Egypt) where the Client and the Senior Managers of the main subcontractor were invited to participate. This was enthusiastically received and attended by both organisations.

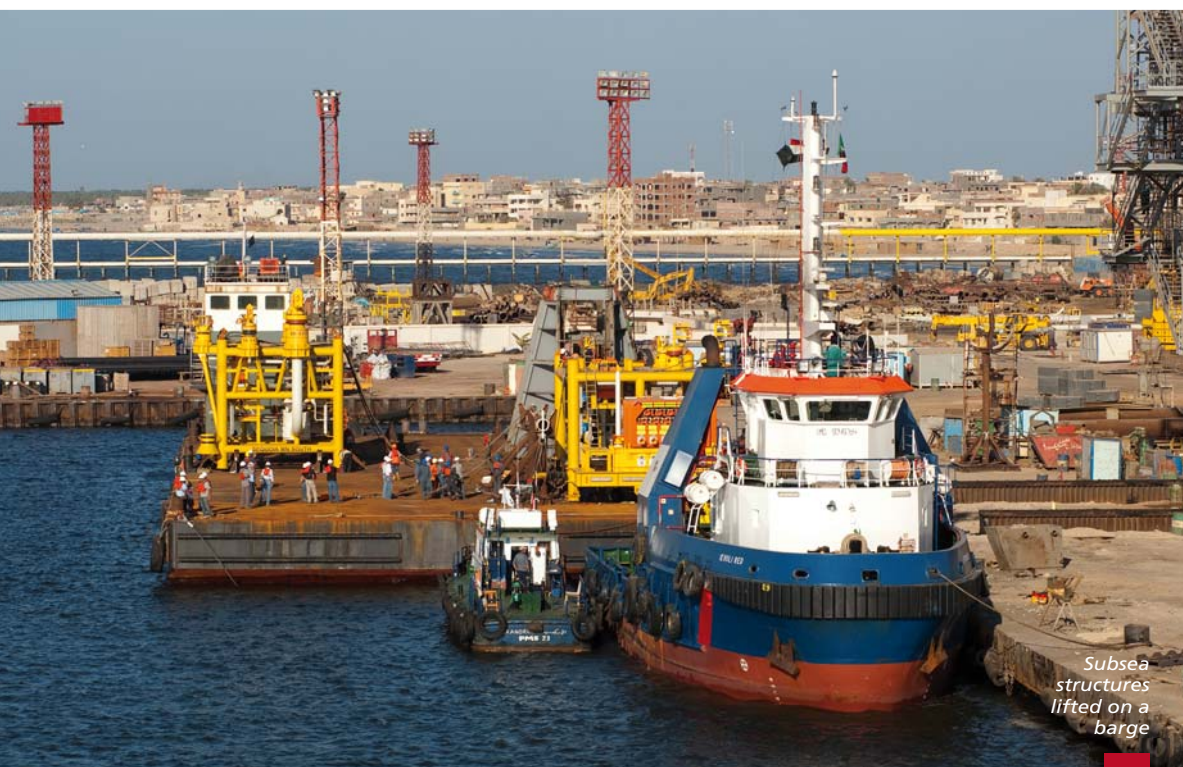
One of the comments received from a member of the Client Team, after attending the workshop, is worth reproducing here: *'This is without doubt the most meaningful safety course I have ever attended'*.

The attention moved then to the site supervision at the fabrication facility. Recognising that these people were fundamental to the success of any safety program, Saipem was determined to get the core message of LiS to them.

The LiS facilitator designed and facilitated an abbreviated program for this group and, with the help of a translator, delivered an overview of the LiS initiative, its core message and beliefs and explained how their contribution is vital to the final success. Once again this was enthusiastically received by all attendees.

Being aware of the difficulties to reach all personnel from vessels due to their unavailability and other logistic problems, a special overview of the LiS program was developed and incorporated into a 'Kick Off' meeting that covered the Project activities and risks.

This meeting was conducted onboard to every installation vessel, including subcontractor vessels, and was presented directly by the Project Director.



*Subsea structures lifted on a barge*

### Safety Statistics

	Worked Man Hours	Lost Time Injuries	LTI Frequency Rate	TRI Frequency Rate
West Delta Deep Marine Phase IV	1,820,738	0.00	0.00	2.20
Sequoia Joint Development Project	1,783,104	0.00	0.00	0.00

### Leading Indicators

	West Delta Deep Marine Phase IV	Sequoia Joint Development Project
SHOC Cards	1,846	1,465
Tool Box Talks	4,426	5,787
HSE meetings	254	107
Job Safety Analysis	307	532
HSE Training hours	6,739	4,464
HSE Inspections	564	433
HSE Management visits	137	139





*Saipem vessels during Simultaneous Operations (SIMOPS) in field*

## Health

Saipem considers crucial to create a 'health culture' in which the employees are encouraged to 'take care about themselves'.

### Emergency response

During the two projects, a comprehensive Medical Evacuation Procedure (Medevac) was developed and implemented to ensure any injured or seriously ill personnel could be evacuated in the shortest possible time to a place where the required diagnosis and treatment could be supplied.

To ensure there were no problems or hold ups in admitting personnel to hospital for treatment, contracts were put in place in all main operating areas such as Cairo, Alexandria and Port Said. Local doctors on 24/7 call out in Alexandria and Port Said were hired

to ensure that everything possible was done to execute smooth transfer of sick or injured personnel from the helicopter receipt area directly into the hospital.

Besides, the local doctors had to keep the information on the condition of sick or injured personnel fully up to date, but also being a friendly face and providing assistance for the provision of personal belongings and toiletries, etc. In Cairo, the Project Health Coordinator was on call 24/7 along with a Project Duty Manager to ensure speedy and effective response to any emergency situation.

Being the project located in Egypt, under Saipem Misr area, it benefited from the health initiatives put in place by Saipem

Misr and in particular of the health education and promotion programme.

### Health Education and Promotion

Saipem Misr has developed a 'health program', focusing on 'Cardiovascular

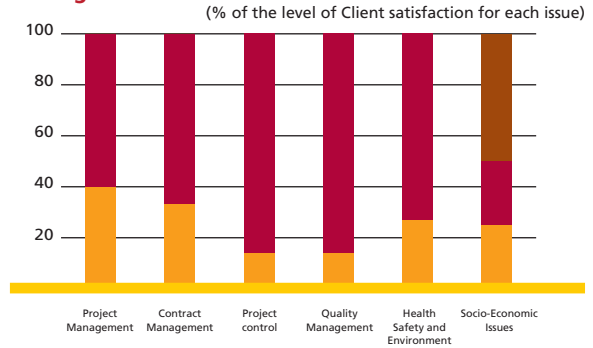
Risk Factors Reduction (CRFR)'. The program, with duration of 12 months, aimed to improve the participants' lifestyle and habits and to improve the health parameters. 39 employees were selected (on the basis of pre-determined criteria) to participate to the program. The program mainly consisted in monitoring the health parameters, together with the implementation of a healthier lifestyle based on sport activities adequately designed on their health situation. In addition Saipem Misr deployed a vaccination programme providing to its employees free vaccination against influenza.

## CUSTOMERS

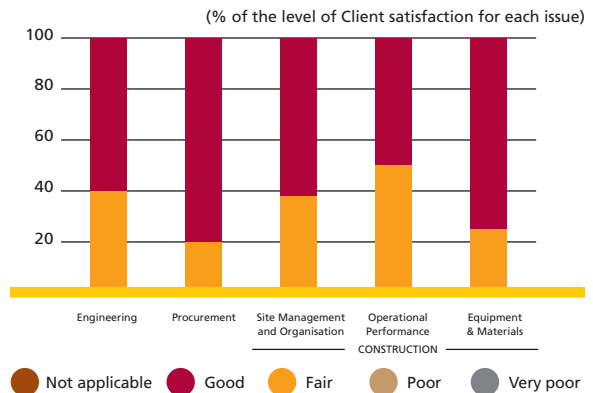
Saipem has a customer-oriented approach aimed at completing the projects with customer satisfaction. In these projects something more was required. The relationship with the Client was characterised by cooperation in the strong belief that an antagonistic relationship would have strongly impaired the performance of projects with such tight schedules. The Client has been part of the projects since the early phases. The relationship has been daily; the Client and Saipem project teams were based in close locations, to facilitate the daily interaction. Even during the engineering phase, performed in Fano, the Client sent permanently its representative to facilitate the resolution of problems arising in the daily work.

Planned Project Management Team (PMT) meetings have been conducted weekly all along the projects' duration to ensure a sharing of the key issues and a fast reply to the requirements of both parties. The Client has been strongly involved in all Safety issues and training activities, with a positive relation, understanding and providing feedback from their side. The customer satisfaction questionnaire filled in by the Client for the two projects was a sign of Client appreciation of the work Saipem did.

## Results of the Customer Satisfaction Survey conducted for the Sequoia Project Management



## Engineering Procurement Construction and Installation



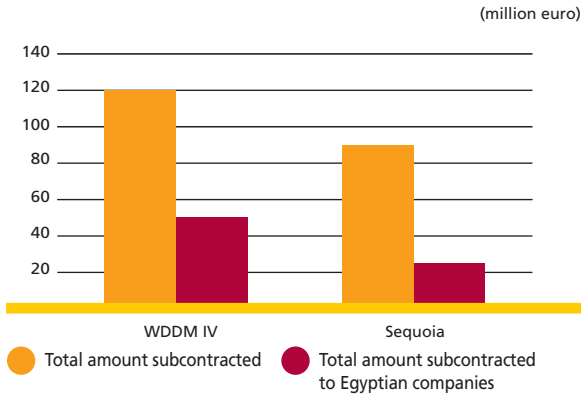
In Management, Client expressed maximum satisfaction on average in over 70% of the cases analysed and in remaining cases a fair satisfaction. In Engineering, Procurement, Construction and Installation, Client expressed maximum satisfaction in over 60% of cases, on average, and in remaining cases, a fair satisfaction.

## SUBCONTRACTORS & SUPPLIERS

The two projects had a significant part of the work subcontracted in Egypt. The most critical subcontracted activities were those related to the fabrication of the subsea structures.

The fabrication activities have been performed by Petrojet, an Egyptian

**Amount of subcontracted activities and fraction to local companies**



*A safety incentive award winner being presented with his gift voucher and certificate by the Burullus Offshore Project General Manager Eng. M. Badawi and Saipem Project Director G. D'Aloisio*

company specialised in construction of onshore and offshore facilities for the oil and gas sector. In West Delta Deep Marine Phase IV Project, Petrojet scope of work included, for the first time, the complete fabrication of manifolds whereas before they were mainly oriented to platform fabrication. Saipem and the Client contributed to enhance even further the subcontractor safety standards and the results were appreciated along the work and especially in the Sequoia project



where the fabrication activities were performed in an excellent way both in term of quality, safety and schedule performances.

Saipem provided training to subcontractor' selected supervisors in safety practices and requirements for the hazardous tasks they would be involved in, some of which are: Working at height, Risk assessment, Firefighting, First Aid, Safe Driving, Lifting, Electrical work, Hand safety, etc.

Besides, additional short training sessions were carried out on different topics such as working in high temperatures, recognising and treating heat stress/exhaustion, precautions to be taken during Ramadan (working in high temperatures whilst fasting), correct use of 'Scafftag' systems, use of gas cutting equipments, safe mechanical and manual lifting, safe use of ladders, etc.

Client/Petrojet/Saipem Supervisors worked side by side in perfect cooperation with a clear commitment toward the same object, the timely safe and in quality completion of the project.

By working together as equal partners, many problems that can usually be experienced in a strict Client-Contractor relationship were avoided. This equal partnership method of driving the HSE activities also generated a maximum buy-in to the HSE program at the facility by management, supervision and perhaps more importantly by those most at risk, the workers.

Some of the lessons learned captured to take forward are:

- early recognition of subcontractors ability to manage an effective HSE program;
- where limitations are identified, consider the provision of additional expertise;
- safety seminars pre-start to include main contractors, Client and Saipem Management to ensure everyone understands, is aware and committed to achieving HSE expectations.



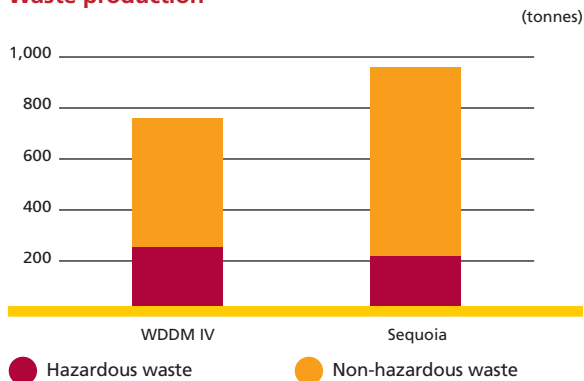
## ENVIRONMENT

The onshore activities for fabrication were conducted in the subcontractor's site. Saipem collaborates with the subcontractor to properly manage the environmental issues, in particular: minimisation of noisy operations at night (residential areas nearby); recovering and properly dispose off waste such as grit blast material, hydrotest water, and a small amount of methanol used for flushing. In particular, hydrotest water (without chemicals) was used as dust suppression in the yard; while the small amount of methanol was donated to the local fire fighting school.

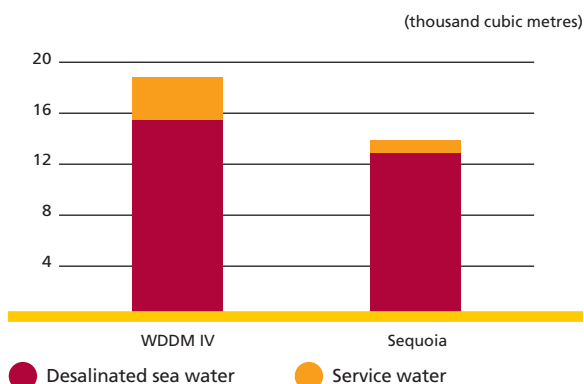
The offshore operations presented limited problems concerning the protection of the environment. Installation activities took place away from fishing areas and the sea bed at the field location was more or less sterile with no marine growth, as emerged from the Environmental Impact Assessment performed by the Client.

The environmental data concerning the projects WDDM IV and Sequoia are relative to the offshore units involved in operational activities. The offshore units report the environmental performance indicators on semester basis using the Environmental Web Report software. Data included in this case study correspond to second semester 2007 for WDDM IV and first semester 2009 for Sequoia Project.

### Waste production



### Water consumption



#### WDDM Phase IV Project

##### Total energy consumption

Diesel	(tonnes)	9,563
HSC Fuel Oil	(tonnes)	2,754
GHG Emissions	(tonnes CO <sub>2</sub> eq)	38,607

#### Sequoia Joint Development Project

##### Total energy consumption

Diesel	(tonnes)	6,789
LSC Fuel Oil	(tonnes)	604
GHG Emissions	(tonnes CO <sub>2</sub> eq)	23,137



## GLOSSARY & ACRONYMS

### EPIC

Engineering, Procurement, Installation and Construction

### EPC

Engineering, Procurement and Construction

### GHG

Green House Gas

### HSC

High Sulphur Content

### LNG

Liquefied Natural Gas

### LSC

Low Sulphur Content

### LTI

Lost Time Injury. Any work-related injury, which renders the injured person temporarily unable to perform any regular Job or Restricted Work on any day/shift after the day on which the injury occurred. In this case 'any day' includes rest day, weekend day, holiday. The day of the Accident is not counted when calculating Lost Workdays. Fatalities and Permanent Total Disabilities are included in the calculation of the total the number of the Lost Time Injuries.

### LTIFR

Lost Time Injury Frequency Rate.

$$LTIFR = \frac{\text{No. LTI} \times 1,000,000}{\text{Total worked man hours}}$$

### TRI

Total Recordable Injury. Term to define the sum of Lost Time Injuries (including Fatalities and Permanent Disability Cases), Work Restricted Cases and Medical Treatment Cases.

### TRIFR

Total Recordable Injury Frequency Rate.

$$TRIFR = \frac{\text{No. TRI} \times 1,000,000}{\text{Total worked man hours}}$$

### WDDM IV

West Delta Deep Marine Phase IV Project

Headquarters: San Donato Milanese (Milan), Italy  
Via Martiri di Cefalonia, 67  
Branches:  
Cortemaggiore (PC) - Via Enrico Mattei, 20



**SAIPEM** Società per Azioni  
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No. 00825790157

#### Feedback

What you think of this Case Study matters to us.  
As we are constantly striving to improve our reporting, we would very much welcome your feedback. We will also be pleased to answer any questions you may have.

Contact us at: [sustainability@saipem.com](mailto:sustainability@saipem.com)

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