



# COUNTRY SUSTAINABILITY REPORT

## QATAR



## ABOUT THIS COUNTRY REPORT

*The present report is part of the Sustainability reports that Saipem began to publish in 2003, aware of the importance of informing stakeholders on the sustainability approach Saipem implements in the areas of the world where it operates.*

*The report focuses on a specific country or area and describes the principles, activities and performance achieved by Saipem and its Operating Companies toward sustainable development.*

*The report has been 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 specific country. The latter part is composed of a first section describing the country, a second section describing Saipem's presence in the country and its sustainability approach, and finally a third section reporting the overall sustainability performance of Saipem, addressed to different stakeholders.*

*The report has been structured taking the GRI Guidelines as a reference, identifying those indicators most representative of Saipem presence in the country.*

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

*This Local Sustainability Report has been developed in accordance with the principles of materiality, stakeholder inclusiveness, sustainability context and completeness. This Local Report is strongly focused on stakeholders and it is intended to describe Saipem's performance and its engagement with its stakeholders in Qatar.*

*A set of Key Performance Indicators (KPIs) was selected to support the information provided to stakeholders.*

*Data is taken from the information systems used for the general management and accounting of the companies' operations or from public data made available by recognised institutions.*

*This Local Sustainability Report illustrates Saipem activities in Qatar, covering the consolidated data of all projects conducted by Saipem Companies operating in the country.*

*All data has been reported for 2011 and, when available, for previous financial years.*

*Information and data updated at 2011.*

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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.*

# LETTERS FROM MANAGEMENT

## SAIPEM'S PRESENCE IN QATAR AND FUTURE CHALLENGES

Saipem has a deep interest in the extraordinary social and economic growth Qatar is experiencing.

Saipem's presence has been a consolidated reality in Qatar since 1960.

Our will and inclination is to continue our business relationship with stakeholders in the forthcoming future.

For this reason, our strategy is to promote extensively the image and capabilities of Saipem in the country by participating in bids for both onshore and offshore projects, with a particular focus on infrastructures and Oil&Gas projects in the developing area of Ras Laffan.

In addition, we are working continuously on several FEED and Lump Sum engineering projects to meet specific client demands.

To support these activities and to ensure our continuous presence in and assistance to existing plants where we operate as a contractor, we rely on Saipem SpA Qatar Branch, a permanent structure located in Doha which provides engineering, construction, financial and HR services.

Moreover, our Middle East area management provides constant support to the Qatar Branch, which also relies on Corporate in Milan and on the UAE and Saudi Arabia offices.

To be competitive and to meet client and stakeholder expectations by observing schedules, delivering high quality services, maintaining top HSE performances and maximising and developing local content, is definitely our greatest challenge for the future, and we are proud to say that we are on the right track.



**Moreno Bartolucci**  
Qatar E&C Country Manager



## CONTRIBUTING TO SUSTAINABLE DEVELOPMENT IN QATAR

Saipem's active presence in Qatar is a consolidated reality, and with more than 50 years of experience under our belts we can play a positive role in the country through our sustainable approach to designing, optimizing and building new projects in the Emirate.

Our culture, tradition and experience provide a unique opportunity to be a reliable partner and a proactive entity, contributing to the development of the local community in a country that wishes to accelerate the realization of its growth expectations.

One of the pillars of our growth strategy is the maximisation of local content. In order to create long-term value through social and economic development and to conduct business in a more effective way, Saipem seeks at all times to involve its stakeholders and invests heavily in local engineering and project execution centres and prefabrication assets.

As a proactive participant in the sustainable development of Qatar, Saipem will contribute significantly to the achievement of the *Qatar National Vision 2030*, which aims to improve Qatar's reputation as a country interested in sustaining its own development and providing a high standard of living for all its people and for the generations to come.

**Fulvio Illuminati**  
Saipem Qatar Branch Manager  
Project Director Qafco 5 & 6

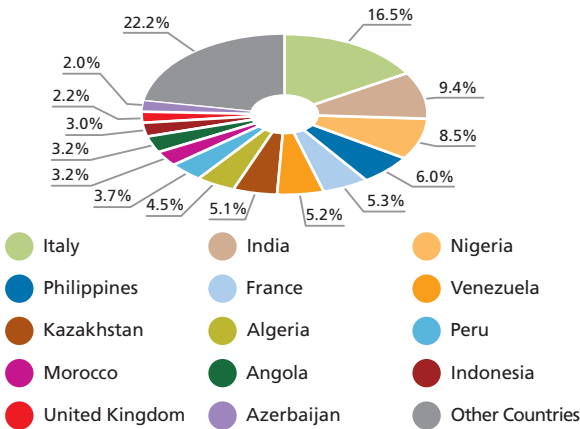
# INTRODUCTION TO SAIPEM

Saipem 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

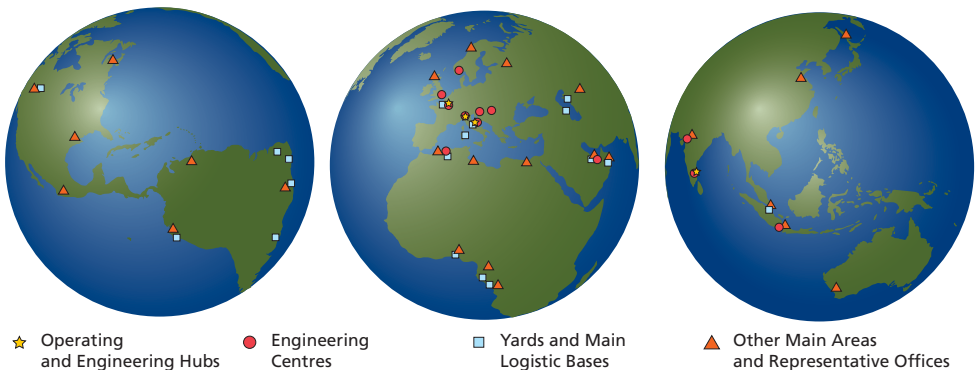
provision of engineering, procurement, project management and construction services with distinctive capabilities in the design and the execution of large scale offshore and onshore projects.

## Saipem workforce distribution by nationality (2011)



Saipem is organised into two Business Units: Engineering & Construction and 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 44,000 people from around 119 nationalities (2011). The majority of the Group's human resources (76% in 2011) are locally employed.



# 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 the Company carries out, which are frequently undertaken in very remote and 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, by offering employment opportunities, and personnel training; working effectively with local suppliers and subcontractors, creating economic and

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

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

For each project, social, economic and environmental impacts are evaluated and continuously monitored, in parallel with the pursuit of customer's satisfaction.



# SAIPEM AT A GLANCE

Saipem has world class engineering and project management expertise together with a strong, technologically advanced and highly versatile fleet. The Company is organised into two Business Units: Engineering & Construction and Drilling, which often operate in synergy for onshore and offshore projects.

## ENGINEERING & CONSTRUCTION

The E&C Business Unit is the outcome of a merger between the previous Onshore and Offshore Business Units. Offshore activities include platforms, marine terminals, pipelines and the development of deep-water fields.

Experience in EPIC (Engineering, Procurement, Construction and Installation) projects hinges on trunklines, export pipelines, infield flowlines, pipe-in-pipe systems, bundles, tie-ins and riser systems for the transportation of oil, gas and multi-phase products from depths in excess of 2,000 metres.

Saipem is also involved in the construction of marine terminals, mooring systems with conventional buoys, wharfs, jetties and FPSO (Floating Production Storage and Offloading) units.

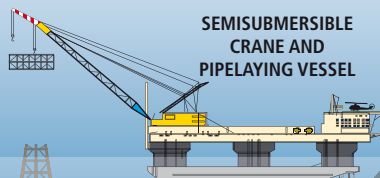
All of this is bolstered by significant fabrication capabilities based in the heart of major oil and gas provinces

such as Angola, Azerbaijan, Canada, the Congo, Kazakhstan, Nigeria, UAE, the Mediterranean Sea, Indonesia and Brazil (under construction), with an aggregate in-house fabrication capacity of over 250,000 tonnes per year.

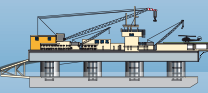
With a fleet of over 40 construction vessels, the Company is a leader in deepwater and shallow water pipelaying and platform installation with more than 30,000 km of sealines and more than 2.5 million tonnes of offshore structures installed. The Company has completed more than 90 major EPIC projects, including several challenging large-scale integrated complexes.

Onshore, Saipem mainly serves the Oil&Gas segments, the refining and petrochemical markets, as well as a number of diversified industrial markets such as infrastructures (i.e. high speed railways, port facilities and marine terminals) and environment (especially remediation of soil, ground water and contaminated sites).

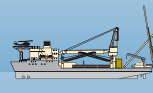
Saipem offers a complete range of services, from feasibility and front-end studies to design, engineering, procurement and field construction, most often on an EPC (Engineering, Procurement and Construction) and LSTK (Lump Sum Turn Key) contractual basis, for complex Oil&Gas facilities, including production,



SEMISUBMERSIBLE  
CRANE AND  
PIPELAYING VESSEL



SEMISUBMERSIBLE  
PIPELAYING VESSEL



J-LAYING VESSEL



DRILL SHIP



treatment, liquefaction, refining and petrochemical plants, as well as for Oil&Gas transportation systems, such as pipelines, pumping and compression stations and terminals.

Saipem's expertise focuses on the design and execution of large projects with a high degree of complexity in terms of engineering, technology and project management, with a strong bias towards challenging projects in the most difficult environments and remote areas.

Saipem has designed and built numerous 'mega' Oil&Gas production facilities, 36 grass-roots refineries and more than 500 individual refining process units, as well as more than 400 plants worldwide to produce chemicals from natural gas, including the world's largest ammonia/urea complexes.

In particular, land pipeline design and construction has historically been one of the mainstays of Saipem's business. The Company has laid a record of over 60,000 km of gas pipelines, 30,000 km of oil & product pipelines and 1,400 km of water pipelines on five continents.

In recent years, the Company has designed and constructed more than 40 power plants (over 10,000 MW) and four Integrated Gasification Combined Cycle plants, two of which are the world's largest (power output of about 550 MW each).

## DRILLING

As an international drilling contractor operating in some of the harshest onshore and offshore environments, Saipem is presently contracted to major oil companies in many of the oil and gas industry's 'hotspots', carrying out important drilling programmes in Europe, the Commonwealth of Independent States (CIS), North and West Africa, the Middle and Far East and the Americas.

Saipem's vast experience in managing drilling activities with an adequate technological and operational level has allowed the company's capabilities to develop.

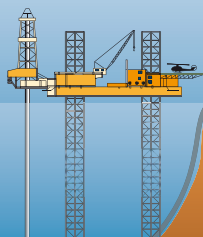
In Offshore Drilling, the Company in fact boasts a rich fleet with seven jack-ups, a Tender Assisted Drilling Barge, seven semisubmersible drilling rigs and two drillships (the Saipem 10000 and the Saipem 12000) which can operate at depths of up to 10,000 and 12,000 feet, respectively. In the Onshore sector, Saipem owns about 100 drill and workover rigs.

Over many decades, Saipem has drilled more than 7,250 wells, 1,750 of which offshore, totalling an overall depth of about 18.5 million metres, and has been involved in the workover of hundreds of wells.

SEMISUBMERSIBLE DRILLING RIG



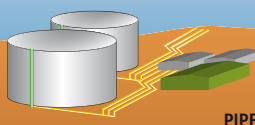
JACK-UP DRILLING RIG



DRILLING RIG



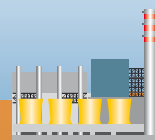
REGASIFICATION PLANT



PIPELAYING



POWER PLANT



# SAIPEM IN THE WORLD

EUROPE		2009	2010	2011
Revenues	(€ million)	1,999	1,931	1,938
Investments	(€ million)	117	122	78
Workforce	(units)	10,073	10,563	10,410
Local Workforce	(% of total)	85	80	81
Energy consumption	(ktoe)	73	78	72
Energy cons.	(ktoe/Mmh)	2.44	2.86	2.56
HSE Training	(hours)	275,969	220,360	86,465

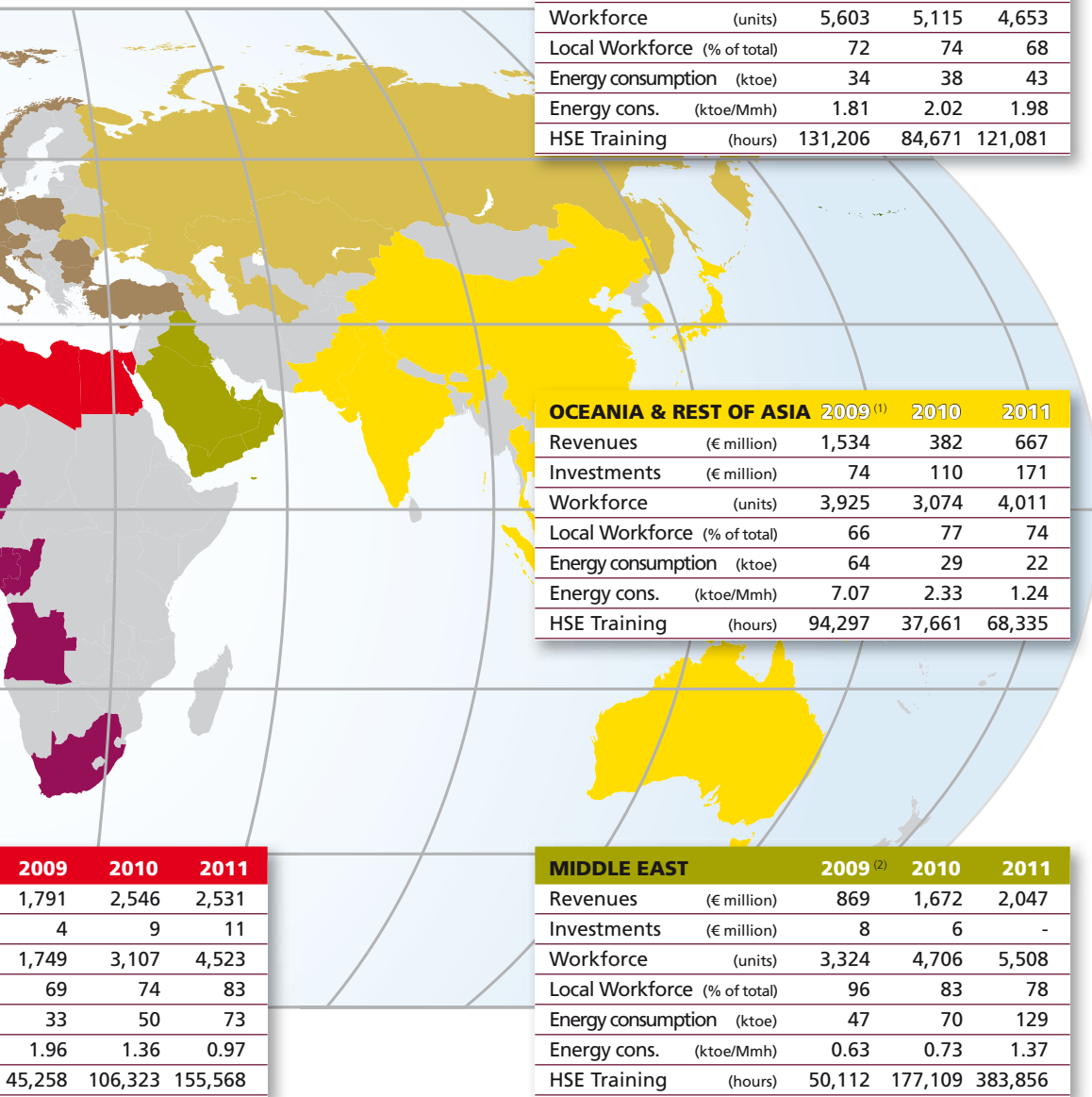
AMERICAS		2009	2010	2011
Revenues	(€ million)	598	719	1,009
Investments	(€ million)	45	49	158
Workforce	(units)	5,218	5,122	6,665
Local Workforce	(% of total)	79	95	87
Energy consumption	(ktoe)	158	72	82
Energy cons.	(ktoe/Mmh)	7.39	3.17	2.85
HSE Training	(hours)	113,346	125,221	204,199

SOUTH CENTRAL AFRICA		2009	2010	2011
Revenues	(€ million)	2,315	2,678	2,692
Investments	(€ million)	61	38	16
Workforce	(units)	8,160	9,487	8,462
Local Workforce	(% of total)	70	64	62
Energy consumption	(ktoe)	63	75	107
Energy cons.	(ktoe/Mmh)	1.03	1.12	1.66
HSE Training	(hours)	148,707	172,701	170,316

NORTH AFRICA		2009	2010	2011
Revenues	(€ million)			
Investments	(€ million)			
Workforce	(units)			
Local Workforce	(% of total)			
Energy consumption	(ktoe)			
Energy cons.	(ktoe/Mmh)			
HSE Training	(hours)			

## Additional data for investments

Further investments not allocated by Areas were (in € million) 1,211 in 2009, 995 in 2010 and 738 in 2011.



<b>CIS</b>		<b>2009</b>	<b>2010</b>	<b>2011</b>
Revenues	(€ million)	1,186	1,232	1,709
Investments	(€ million)	95	216	27
Workforce	(units)	5,603	5,115	4,653
Local Workforce	(% of total)	72	74	68
Energy consumption	(ktoe)	34	38	43
Energy cons.	(ktoe/Mmh)	1.81	2.02	1.98
HSE Training	(hours)	131,206	84,671	121,081

<b>OCEANIA &amp; REST OF ASIA</b>		<b>2009<sup>(1)</sup></b>	<b>2010</b>	<b>2011</b>
Revenues	(€ million)	1,534	382	667
Investments	(€ million)	74	110	171
Workforce	(units)	3,925	3,074	4,011
Local Workforce	(% of total)	66	77	74
Energy consumption	(ktoe)	64	29	22
Energy cons.	(ktoe/Mmh)	7.07	2.33	1.24
HSE Training	(hours)	94,297	37,661	68,335

<b>2009</b>	<b>2010</b>	<b>2011</b>
1,791	2,546	2,531
4	9	11
1,749	3,107	4,523
69	74	83
33	50	73
1.96	1.36	0.97
45,258	106,323	155,568

<b>MIDDLE EAST</b>		<b>2009<sup>(2)</sup></b>	<b>2010</b>	<b>2011</b>
Revenues	(€ million)	869	1,672	2,047
Investments	(€ million)	8	6	-
Workforce	(units)	3,324	4,706	5,508
Local Workforce	(% of total)	96	83	78
Energy consumption	(ktoe)	47	70	129
Energy cons.	(ktoe/Mmh)	0.63	0.73	1.37
HSE Training	(hours)	50,112	177,109	383,856

(1) In 2009 including also Middle East countries (except Saudi Arabia).

(2) In 2009 including only Saudi Arabia.

# QATAR



## COUNTRY OVERVIEW

Located in the Persian Gulf, Qatar is a dynamic, rapidly developing country that is among the wealthiest in the world in terms of per capita income. Qatar is a member of the Organisation of the Oil Exporting Countries (OPEC) and is a significant oil producer.

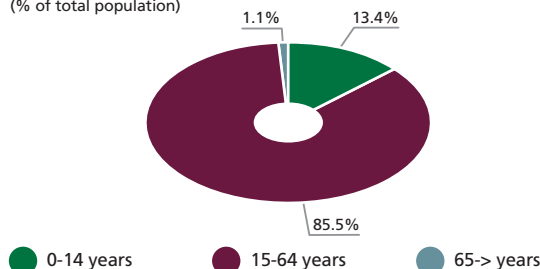
The country is a constitutional monarchy governed by the ruling Al Thani family in consultation with a council of ministers, an appointed advisory council and an elected municipal council. Most of Qatar's 1.7 million inhabitants live in the capital,

Doha. Foreigners with temporary residence status make up over three quarters of the population. Foreign workers comprise more than 90% of the total labour force. Most are South and Southeast Asians, Egyptians, Palestinians, Lebanese, Syrians and Iranians.

## SOCIAL OVERVIEW

The annual population growth rate peaked at 19% in 2008 with a decline

**Population by age group**  
(% of total population)



to 13% in 2009, to 5% in 2010 and 6% in 2011. The increase in population growth was attributed to the economic boom that the State experienced in recent years.

Qatar has made significant progress in the field of preventive and curative health services, which is provided free of charge to citizens and residents.

Comprehensive educational plans for literacy and the spread of compulsory education resulted in a significant reduction in the illiteracy rate (3.7% in 2010). Specifically, the illiteracy rate for the 15-24 year old age group declined to 1.7% for females and 3.7% for males.

### Social indicators

Population density (2010)	(people per km <sup>2</sup> of land area)	151.8
Rural population (2010)	(units)	73,869
Rural population (2010)	(% of total population)	4.2
Urban population (2010)	(units)	1,684,924
Urban population (2010)	(% of total)	95.8
Annual population growth (2011)	(%)	6.1
Health expenditure, public (2009)	(% GDP)	2
Life expectancy at birth (2010)	(years)	78

Source: The World Bank data



*Doha, Qatar's capital city*

## ECONOMY AND ENERGY OVERVIEW

Oil and gas have made Qatar the highest per-capita income country and the one with the lowest rate of unemployment.

Qatar has prospered in the last several years with continued high real GDP growth. GDP rebounded in 2010 largely due to the increase in oil prices and growth in 2011 was boosted by Qatar's investment in expanding its gas sector.

Economic policy is focused on developing Qatar's non-associated natural gas reserves and increasing private and foreign investment in non-energy sectors.

The Qatari government has recently devoted more resources to the development of natural gas, particularly for export as liquefied natural gas (LNG). Although only producing LNG since 1997, Qatar is now the world's largest supplier of LNG.

### Economic indicators

GDP (current) (2011)	(billion \$)	172.98
GDP growth (2011)	(annual %)	18.8
GDP per capita (2011)	(current \$)	92,501
GDP per capita growth (2011)	(annual %)	11.7
Inflation, consumer prices (2011)	(annual %)	1.9
Labour force, total (2011)	(units)	1,184,647
Unemployment (2009)	(% of total labour force)	0.5

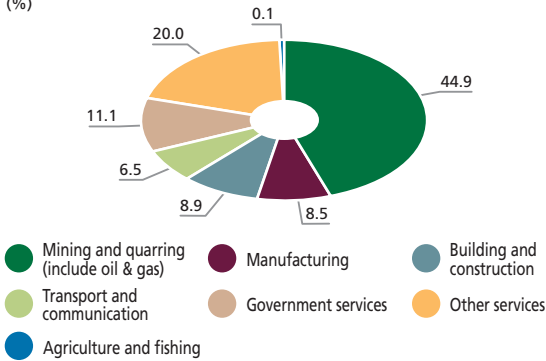
Source: The World Bank data

**Energy indicators**

Energy production (2009)	(ktoe)	139,945
Energy use (2009)	(ktoe)	23,824
Energy use per capita (2009)	(toe per capita)	14.911
Electricity production (2009)	(MWh)	24,796,000
Electricity production from natural gas sources (2009)	(% of total)	100

Source: The World Bank data

**GDP by sector**  
(%)



Qatar is wholly dependent on oil and natural gas for all of its primary energy consumption. All electricity capacity in Qatar is gas-fired.

**ENVIRONMENTAL PROTECTION**

The environment is a cornerstone in the *Qatar National Vision 2030*. The latter stipulates the need to 'manage the environment so as to ensure harmony

and consistency between economic and social development and environmental protection'.

The Supreme Council for Environment and Natural Reserves was established in 2000 and in 2002 the Environment Protection Act was issued. The Qatar Ministry of Environment was set up in 2008.

The State also ratified many international conventions and protocols on environmental protection, including the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, as well as the Kuwait Regional Convention for the Protection of the Marine Environment and the Convention on the Conservation of Migratory Species of Wild Animals.

Forested land represents about 2.6% of the total area of the State (2008) and is mainly composed of sporadic mangrove forests spread over areas of the East Coast, limited by the particularly harsh desert climatic conditions, scarce rainfall and soil salinisation that prevail in the region.

**Environmental indicators**

CO <sub>2</sub> emissions (2008)	(thousand tonnes CO <sub>2</sub> eq)	68,478
CO <sub>2</sub> emissions per capita (2008)	(tonnes CO <sub>2</sub> eq)	49
Terrestrial and marine protected areas (2010)	(% of land area)	1.4
Freshwater withdrawal (2009)	(billion m <sup>3</sup> /y)	0.4
Freshwater withdrawal per sector (2009)	(%)	
	Agriculture	59
	Domestic	39
	Industrial	2

Source: The World Bank data



Traditional boats

**Sources:**

Qatar Statistics Authority <http://www.qsa.gov.qa/Eng/AboutQatar.htm>  
 Millennium Development Goals in Qatar 2010 ([http://www.qsa.gov.qa/eng/pdf/Millinum\\_development\\_goals/MDG\\_Eng2010.pdf](http://www.qsa.gov.qa/eng/pdf/Millinum_development_goals/MDG_Eng2010.pdf)).  
 CIA The World Factbook (<https://www.cia.gov/>

[library/publications/the-world-factbook/geos/qa.html](http://www.cia.gov/library/publications/the-world-factbook/geos/qa.html)).  
 EIA U.S. Energy Information Administration (<http://www.eia.gov/countries/cab.cfm?fips=QA>)  
 U.S. Department of State <http://www.state.gov/r/pa/ei/bgn/5437.htm>.  
 Qatar National Vision 2030 - Advancing Sustainable Development - 2009.

## Qatar National Vision 2030

The Qatar National Vision 2030 (QNV 2030), launched in October 2008, defines long-term development outcomes for Qatar, and provides a framework within which national development strategies and implementation plans can be prepared.

The QNV 2030 is based on the Guiding Principles of Qatar's Permanent Constitution and is underpinned by four interrelated pillars:

- **Human Development:** development that expands the opportunities and capabilities of all the people of Qatar to enable them to sustain a prosperous society;
- **Social Development:** development of a just and caring society based on high moral standards and supportive social policies, and in which Qatar plays a significant role in the global

- partnership for development;
- **Economic Development:** development of a competitive and diversified economy capable



- of meeting the needs of, and securing a high standard of living for, all Qatar's people both for the present and for the future;
- and
- **Environmental Development:** management of the environment

in a way that ensures harmony between economic growth, social development and environmental protection – the three dimensions of sustainable development.

Each of these Pillars has clearly defined long-term outcomes with important interlinkages.

To achieve these outcomes, Qatar has undertaken to balance five critical challenges:

- (i) modernization and preservation of traditions;
- (ii) the needs of the present and future generations;
- (iii) managed growth and uncontrolled expansion;
- (iv) the size and quality of the expatriate labour force and the selected path of development;
- (v) economic growth, social development and environmental management.

## SAIPEM PRESENCE IN QATAR

Today Saipem is the world leader in general contracting for the Oil&Gas market, both onshore and offshore, providing engineering, procurement, construction and installation services.

Saipem has been present in Qatar since 1960 and has carried out numerous large-scale projects, primarily in onshore and offshore oil and natural gas.

To support these activities, Saipem is present in Qatar with its Subsidiary, Saipem SpA Qatar Branch, located in Doha city centre, which provides engineering, construction, financial and HR services.

Only in the last ten years, Saipem has designed and built new projects

at the cutting edge of technology and execution complexity for a total value exceeding 10 billion US dollars. These include natural gas production, processing and liquefaction, pipelines and petrochemicals, such as low density polyethylene and fertilisers.

In addition, Saipem has executed several challenging and innovative engineering projects, maximising the local content and developing know-how and skills within the country.

Some examples of the most recent engineering and EPC projects, either completed or still ongoing are reported in the following pages.

*Saipem  
Qatar Branch  
Headquarters  
in Salam Tower,  
Doha*





## MAIN PROJECTS

Name	Client	Location	Year	Description
<b>Completed Engineering projects</b>				
Feasibility Study Step-1 for Debottlenecking of LLDPE plant	Qatar Petrochemical Co (QAPCO)	Mesaieed Industrial City	2012	Feasibility Study to investigate and define the required modifications to increase the capacity of Qatofin LLDPE plant from 450,000 MTPY to 600,000 MTPY. The product of the plant is Linear Low Density Polyethylene (LLDPE) by Unipol PE technology (Univation Licensor).
Front End Engineering Design (FEED) for Ras Laffan Common Cooling Seawater Project - Phase III	Qatar Petroleum (QP)	Ras Laffan	2011-2012	FEED to extend cooling water supply to new end-users in Phase-III and provision for Phase-IV end-users.
FEED for Continuous Emission Monitoring System	Qatar Petroleum (QP)	Dukhan	2010-2011	FEED for provision of analysers for continuous monitoring of emissions for the facilities at Dukhan in order to comply with national emissions regulations.
FEED for new LGO tank & utilization of LC Tank 2145 FA	Qatar Petroleum (QP)	Mesaieed Industrial City	2010-2011	FEED to install one new tank in an existing tank farm of a refinery with storage capacity 44,900 m <sup>3</sup> for LGO with associated valves, piping, instrumentation & control, fire & gas detection and fire protection system.
FEED for alternate ammonia flare system	Qatar Fertiliser Co (QAFCO)	Mesaieed Industrial City	2010-2011	FEED to install two separate gaseous ammonia flare and liquid ammonia recovery systems in Ammonia 1 & 2 plants.
<b>Completed EPC projects</b>				
Qatofin Project	Qatofin Co Ltd	Mesaieed Industrial City	On stream since 2009	Engineering, Procurement and Construction of a HDPE/LLDPE polyethylene plant (450,000 t/y). This is the twelfth polyethylene line designed on the basis of Univation gas phase process by Saipem in its capacity as authorized contractor for Unipol™ Technology.
Al Khaleej Gas Project (AKG-1)	Qatar ExxonMobil Middle East Gas Marketing Ltd	Al Khaleej	On stream since 2006	Engineering, Procurement and Construction of a Gas Compression Station.
NGL - 4 Natural Gas Liquids Complex	Qatar Petroleum (QP)	Dukhan	On stream since 2005	Engineering, Procurement and Construction of a Gas Compression Station.
Dukhan Field Gas Lift Project	Qatar Petroleum (QP)	Dukhan	On stream since 2005	Engineering, Procurement and Construction of a Gas Compression Station.
Rasgas Onshore Expansion Project	Laffan LNG Co Ltd (QP 70% - ExxonMobil 30%)	Ras Laffan	On stream since 2003	Engineering, Procurement and Construction of the new liquefaction trains Nos. 3, 4 and 5 (4.7 mmt/tonnes/y each) to expand the existing facilities (trains 1 & 2).
Umm Said Polyethylene Plant	Qatar Petrochemical Co (QAPCO)	Umm Said	On stream since 1996	Engineering, Procurement and Construction of a LDPE polyethylene plant (180,000 tonnes/y), Licensor EniChem Polimeri.

## MAIN PROJECTS

Name	Client	Location	Year	Description
<b>Ongoing projects</b>				
Qafco 5	Qatar Fertiliser Co (QAFCO)	Mesaieed Industrial City	Inaugurated December 2011	Technology License, Engineering, Procurement and Supervision of a complex with a total capacity of 4,600 tonnes/d of ammonia partially converted into 3,850 tonnes/d of granular urea.
Qafco 6	Qatar Fertiliser Co (QAFCO)	Mesaieed Industrial City	Under execution	Extension of Qafco 5 Project. Technology License, Engineering, Procurement and Supervision of a granulation urea production plant with a capacity of 3,850 tonnes/d and associated utilities and off-site units at the new Qafco Fertilizer Complex.

### The challenges of Qafco 5 & 6 Projects

Fertiliser is essential in the agriculture and food industry. A recent assessment found that about 40 to 60% of crop yields are attributable to commercial fertiliser use.

With the completion of Qafco 5 and its extension, Qafco 6, Qafco will become the largest single site producer of ammonia and urea in the world. Beginning from acquisition phase, this appeared to be one of the most promising projects for Saipem. Despite the consolidated experience in fertiliser plants, acquired through similar projects executed in Venezuela, Argentina, Oman and, most recently Pakistan, the new context was truly challenging.

From its early development, the Project Team was particularly committed to work in compliance with national legislation and best international standards, with emphasis on worker health & safety and environmental impacts.

As part of a Consortium with South Korea's Hyundai Engineering & Construction Co Ltd, this meant sharing the same vision in terms of HSE.

For this reason, we set up a joint HSE Policy, submitted to



all subcontractors (more than 40) and circulated among all employees. This expressed the commitment and major effort of the Consortium to prevent accidents and ensure safe and environmentally responsible design and construction.

To reinforce this concept, a Consortium HSE Team was set up, which included a dedicated Environmental Engineer to

oversee environmental issues, as was a Site Emergency Team to manage all eventualities in a prompt and proper way.

In such a difficult environment, where temperatures can exceed 50 degrees during summertime, and where the incumbent risk of heat stress is an everyday reality, it is important to enforce prevention measures and to make sure staff attend all appropriate training courses.

At the same time, it is vital to ensure that personnel are fully aware that natural resources such as water must be protected and preserved.

For all these reasons, several HSE activities have been developed during Project execution. These have become best practices and have been circulated worldwide to all Saipem sites and projects in order to boost even further a safe and environmentally responsible way of working.

**Fabio Bonvicino**  
Project Manager Qafco 5 & 6

## QAFCO 5

In December 2007 Saipem won the contract for the development of the Qafco 5 Project, involving new ammonia and urea plants within the Qafco industrial complex, based in Mesaieed City, about 30 kilometres south of Doha. Saipem was awarded the contract as part of a consortium with South Korea's Hyundai Engineering & Construction Co Ltd. The Client was the Qatar Fertiliser Co SAQ, a consortium owned by Industries Qatar (IQ) as 75% shareholder and Yara International, which had a 25% stake.

The turnkey contract encompasses engineering, procurement, construction and start-up of a new ammonia and urea production complex which will be located in the Qafco fertiliser complex. As Consortium leader, Saipem is in charge of the engineering and procurement of two new ammonia plants, each capable of producing 2,300 tonnes of ammonia per day, as well as one further new urea plant, with a capacity of 3,850 tonnes per day of granulated urea, plus the associated utilities and off-site units.

The Project will transform Qafco's fertiliser complex into the world's largest ammonia and urea production site.

### Project details

The Project is broken down into three main areas:

- Grassroot Qafco 5 Plant;



- Construction works on the existing Qafco plant site;
- Interconnecting facilities linking the new Qafco 5 site to the existing Qafco plant.

Description:

- 2 ammonia process plants (2,200 tonnes/d each);
- 1 urea process plant (3,800 tonnes/d);
- 1 urea granulation storage area (100,000 tonnes/d);
- Material handling system (1,000 tonnes/hour);
- Urea formaldehyde process plant (85 tonnes/d);
- 2 ammonia storage tanks (50,000 m<sup>3</sup> each).

Qafco 5 main quantities	Equivalent to
2,250,000 m <sup>3</sup> of earth movement	3 Mont Blanc Tunnel excavation
152,000 m <sup>3</sup> of concrete	Half quantity of concrete used for Burj Khalifa Tower
25,000 tonnes of piping	
48,000 tonnes of steel structures	5 Eiffel Towers
46,000 tonnes of equipment/packages	260 Boeing 747s
6,500 km of electrical & instrument cables	Enough to stretch from Rome to New York
262,000 m <sup>2</sup> of insulation	The surfaces of 11 Coliseums
713,000 m <sup>2</sup> of painting	The surfaces of 12 Pyramids of Cheops

## Consortium Activities

For both Projects, Saipem works as lead contractor of the consortium between Saipem SpA and Hyundai Engineering & Construction Co Ltd.

Saipem is in charge of licensing, engineering, procurement, supervision, commissioning and start-up, while Hyundai is in charge of construction and of front end & detail design for the jetty unit and the buildings.

Saipem has also subcontracted the construction of the 2 ammonia storage tanks (50,000 m<sup>3</sup>) to CBI.

## Projects Operating Centres Organization

### Milan (Italy)

Project Management, HSE Management, Interface with Client, Project Control, Procurement of Tagged Items and Bulk Materials, Information Technology Management. Basic Preparation for Ammonia 5 & 6, Urea Plant & Granulation, UFC 85, Urea Storage, Utilities, Interconnection, Cogen 2, Equipment on Jetty, Ammonia Storage, Cogen 1, Buildings. Front End up to 60% for Ammonia 5 & 6, Interconnection, Cogen 1 & 2, Ammonia Storage. Detail Design up to 100% for the Interconnection, Equipment on Jetty, Ammonia Storage, Cogen 1.

### Rome (Italy)

Front End & Detail Design up to 100% for the Urea Plant & Granulation, UFC 85.

### Bucharest (Romania)

Detail Design up to 100% for the Ammonia 5 & 6, Urea Storage, Utilities, Cogen 2.

### Mesaieed (Qatar)

Field Engineering, Management of Company, Management of Subcontracts, Fabrication & Erection Works, Mechanical Completion, Commissioning, Start-up, Training of Company Operators.

### Seoul (Korea)

Basic Preparation Front End & Detail Design for Jetty Unit. Front End & Detail Design for the Buildings.



## QAFCO 6

In October 2009, for the same client and in consortium with the same partner, Saipem was awarded a lump sum turnkey contract for the extension of the ongoing Qafco 5 Project, including the construction of a new urea production plant within the Qafco industrial complex in the Mesaieed city. Qafco 6 covers the supply of licenses, engineering, procurement, construction and start-up of a new granulation urea production plant with a capacity of 3,850 tonnes per day and associated utilities and off-site units at the new Qafco Fertiliser Complex. The new urea plant will be supplied by the excess ammonia coming from ammonia plant Qafco 5.

### Project details

The Project is broken down into three main areas:

- Grassroot Qafco 6 Plant;
- Construction works on the existing Qafco plant site;
- Interconnecting facilities linking the new Qafco 6 site to the existing Qafco plant.

Description:

- 1 urea process plant (3,800 tonnes/d);
- 1 urea granulation storage area (175,000 tonnes/d);
- Material handling system (1,000 tonnes/h).



*Overall views of Qafco 6 project*

Qafco 6 main quantities	Equivalent to
3,480 manpower peak	
67 different nationalities	
178,305 m <sup>3</sup> of earth movement	
27,811 m <sup>3</sup> of reinforced concrete	2 Empire State Buildings
1,923 tonnes of piping	
14,000 tonnes of steel structures	1 Eiffel Tower
7,000 tonnes of equipment/packages	40 Boeing 747s
1,500 km of electrical & instrument cables	Enough to stretch from Doha to Amman
36,000 m <sup>2</sup> of insulation	The surface of 1 Coliseum
85,000 m <sup>2</sup> of painting	The surface of 2 Pyramids of Cheops

## OUR STAKEHOLDERS

For every activity carried out by Saipem in a country, direct engagement with all legitimate stakeholders is deemed an opportunity to create understanding of operations or projects among those it will likely affect or interest, and to learn how these external parties view operations and related risks, impacts and opportunities.

Stakeholder engagement in Saipem is based on a dual approach, which identifies and engages stakeholders at both corporate and local level. A general process of identification is undertaken in which the main messages and commitments to stakeholders are defined. Also at this level, engagement

is conducted with international or group-wide stakeholders, such as investors and shareholders, clients, employees' representatives and so forth.

Engagement also takes place at local level, and varies according to the specific characteristics of the projects that Saipem executes and the countries where it operates.

For the Qafco 5 & 6 Projects, each function, with the support of Qatar Branch, has identified the most relevant local stakeholders for its activities and defined suitable and effective ways to create dialogue with them. Establishing and maintaining these relationships is a critical aspect of the long-term sustainability of Saipem's business.

### Main Stakeholders for Qafco 5 & 6 Projects

Name	Type	Relationship with Saipem and the Projects
Qatar Fertiliser Co (SAQ)	Client	Saipem has worked several times as Contractor for Qafco, which is one of Saipem's most important Clients in the Qatar area. Long-term, positive and fair relationship.
Hyundai Engineering and Construction Co Ltd	Business Partner	On these projects, Saipem is working as part of the Consortium with Hyundai, which is in charge of the Construction phase and Front End & Detail Design for the Jetty Unit and the Buildings. Integrated approach in the management of Project related issues.
Mesaieed Industrial City (MIC)	Local authority	MIC is the industrial community area which hosts the Projects. It provides infrastructures (roads and utilities), workers accommodation, a Medical Centre and many other services.
Suppliers & Subcontractors	Vendors	Saipem has a long list of reliable local and international subcontractors and suppliers of machinery, electrical, instrumentation and starting equipment and vessels. Hyundai manages more than 40 subcontractors for construction work. This requires a big coordination effort by the Consortium.
Employees	Employees	People are Saipem's best asset. 77 different nationalities are present in the Project Consortium Team, confirming the fact that Saipem is a multicultural integrated reality.
Manpower recruiting agencies	Vendors	Recruiting of local and international personnel.
Qatar Government and Ministries	National Government, Authorities or Agencies	Saipem works in compliance with the local Labour Law No. 14 dated 2004 and with National Legislation and has relationships with the Ministries for its operations, especially for visa and driving licence applications and for approval for the import-export of materials.
Governmental Hospitals and Private Clinics	Local Institutions	Saipem has agreements with two governmental hospitals which cooperate free of charge with Saipem to manage all kinds of medical emergencies, and with two private clinics for routine medical consultation including pre-employment and annual medical fitness examinations.
Al-Suwaiddi	Local vendor	The only paper recycling factory in Qatar, which receives about 55 tonnes of waste paper and packages per year from Saipem.

# QAFCO 5 & 6 SUSTAINABILITY PERFORMANCE

## PEOPLE MANAGEMENT

### Total Workforce

The Saipem workforce has gradually increased over the duration of the Project, peaking at just over 290 in 2010.

A significant part of the personnel has been hired locally, taking advantage of their vast experience in the oil and gas industry.

The Human Resources department is in charge of recruiting and training manpower and of arranging accommodation and transportation from the resident area, located in Mesaieed Industrial City, to the site.

A daily transport service is also available to get to Doha city.

### An International Team

Saipem cares a lot about the distinctive rights of its people, with particular reference to their cultures, lifestyles, religions and bonds with their homeland.

The Project Consortium Team (Saipem & Hyundai) is composed of over 77 different nationalities.

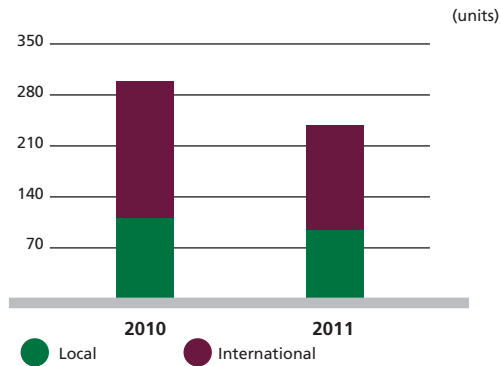
English is the official Project language, though a significant number of communications (posters, banners, health and safety signs etc.) are translated into the languages spoken by the workers.

### Training and Development

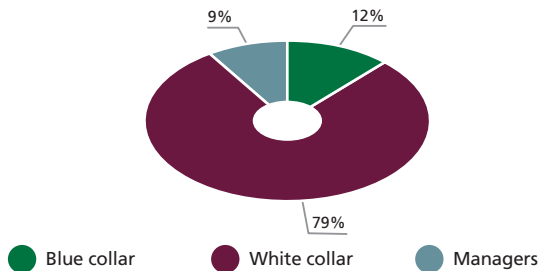
The consortium has a rigorous training programme addressed to all employees hired for the Project. Job specific training courses are mandatory for certain workforce members and awareness training is recommended to all.

Training has proved to be an effective way of communicating workplace

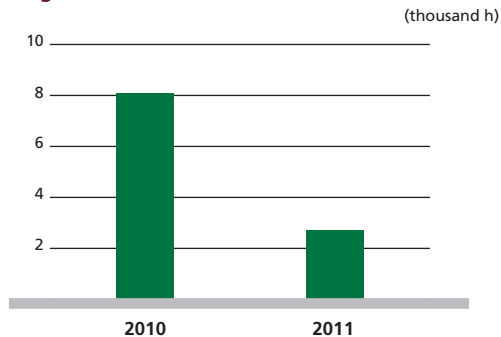
Total workforce



Workforce by category (2011)



Training hours



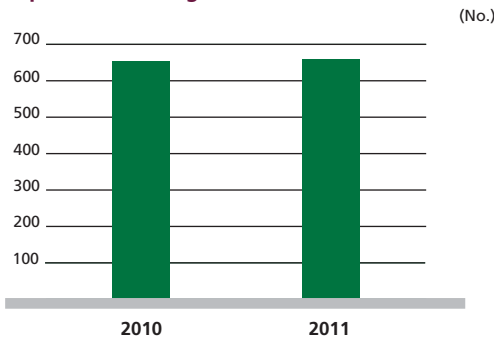


Working together in safety

hazards to all workers and is conducted in many languages including English, Hindi, Korean and Chinese.

During Project execution (2008-2011), overall 12,476 hours of training were carried out with 1,462 participants.

Participants in training courses



Every worker is issued with a Training Passport which he/she has to carry at all times to ensure accurate on-the-spot checking for relevant training.

**SAFETY**

Saipem recognises the importance of safety for its people. Meeting this commitment is a front line responsibility for Top Management to ensure everyone carried out their duties while safeguarding their own health and safety first and foremost.



## Qafco 5 & 6 Best Practice: Training Passport

The Training Passport is a personal register given to every worker, including those of suppliers and subcontractors, during site induction (the first training course given on site).

For each specific HSE training course done, the worker gets a stamp on his/her Passport.

The worker must carry the Passport at all times so that it can be verified

during spot checks for relevant training courses.

It is considered an excellent method to demonstrate completed job



based training courses and their attendance on site.

All training sessions are recorded in a database in order to keep information updated and schedule possible refresher courses.

Personnel in charge of training check the training matrix on a monthly basis to verify who shall attend a course for the first time or do a refresher course.

Everyone has understood the overriding HSE philosophy of 'There will be no compromises on HSE'.

This message was part of safety induction conducted for each worker in the Consortium, as well as for visitors, before going on site. The message was reiterated at tool box talks and meetings.

The Project Management Team gave everyone on the Project not only the right but the responsibility to stop unsafe acts.

In order to reinforce this message, the Project formulated a Consortium HSE Policy, signed by Saipem & Hyundai Project Directors and by the main sub-contractors. This was then conveyed to all Consortium Personnel.



The Project Safety Management System is based on Saipem internal standards, the OHSAS 18001 international standard, local regulations and client requirements. Targets are set in order to improve health and safety objectives and prevent injuries and harm to people.

For this purpose, the Project also held several risk assessment sessions during Project execution. A dedicated task force comprising the Consortium and the Client was set up for flow of gas into the Project facility.

### Management Commitment

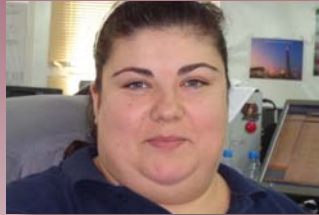
HSE performances are evaluated regularly and results are presented in the Monthly Management Review Meetings, that include the Client, the Consortium and all subcontractors.

## Interview with Monica Hanu, Piping Engineer 30 years old, from Romania

Why did you join Saipem and what were your expectations? As a fresh graduate I was looking for new challenges. At that age I was very energetic and enthusiastic and aware that what I had learnt at university was not enough. Snamprogetti Romania (part of Saipem Group) was planning to expand his team and, in my mind, the opportunity became a challenge. Which activities were assigned to you when arrived on the Project?

When I was assigned to Qafco 5 & 6 Projects, I became part of the engineering team from detail stage. I was involved in 3D modelling of process and utility lines and in the updating of requests for materials. After the detail and front end phase finished, I was asked to assist the site works here in Qatar. I was involved constantly updating the quantities of piping materials that are needed on site. To issue

Purchasing Requisitions and follow up Purchasing Orders was also part of my job.



Both from a personal and professional point of view, do you think you have changed from when you first arrived in Saipem?

I have been working in Snamprogetti Romania/Saipem for almost 5 years and, to date, the challenge has not faded away. There is always something new to learn. Every day I work with people from all over the world and face situations which are

very different from the ones I experienced at university. Yes, I can say that the Saipem experience has changed me and I have improved both from a professional and personal point of view.

How has this experience abroad contributed towards your future career goals? As I started working on site, with colleagues and subcontractors, I began to discover that the disciplines can be very interconnected. In our line of work, a situation is not assigned only to one department. When a problem arises, each department has to contribute in order to solve it. I have also discovered new areas that I didn't know about when I worked as a home office engineer and this could turn into an interesting opportunity for my future career.

\* Snamprogetti SpA was incorporated into Saipem SpA in 2008.

Moreover, HSE Management Meetings between the Consortium and the Client are organised weekly, as are

HSE Tool Box Meetings delivered by management to all employees and Weekly Safety Walk-Throughs with



management and HSE Consortium representatives.

### HSE Incentive Scheme

To consolidate the health and safety culture and to motivate people into cooperating in the management of health and safety issues and improving the HSE Risk Assessment and Job Safety Analysis, several initiatives have been put in place to reward those workers who make a special effort to improve safety performances. Some award categories include:

- Recognition of Safe Behaviour;
- Certificate & Cash Award for Best Practice;
- Best Department Trophy Award;
- Best Safety Observation Award.

In addition, on the occasion of safety milestones the HSE Team organises celebratory events involving the entire workforce with the distribution of free giveaways.

### Communication

All incidents are reported and investigated in order to identify the root causes and implement corrective actions. The Project HSE department regularly issues *Safety Alerts & Posters* based on incident learning and to prevent reoccurrences.

The majority of posters are translated into the languages of the workers.

The Site Manager issues *Site Manager Instructions* informing the workforce about the changes and actions required from them in terms of HSE. These are used to reinforce HSE rules on site and to ensure that compliance is maintained.

### HSE Training and Awareness Campaigns

Training courses have been carried out on a variety HSE subjects. Some examples of job specific training

## Interview with Sajid Kovuparambath, HSE Administrator 35 years old, from India

**Why did you join Saipem and what were your expectations?**

*I had previously worked with Snamprogetti\* in Qatar in 2005 and gained invaluable experience. When I heard about the Qafco Projects, I scooped up the opportunity to get in touch with my previous manager and had him set up an interview. I started with Qafco projects in 2009. I expected it to be another great opportunity to work with a large International company which, in my experience, had already taught me so much.*

**Have these expectations been met?**

*Yes, in more ways than one! I got to be a part of a great innovative HSE team at a time when ideas at Corporate and national level*

*were concentrating on HSE issues. As a safety professional I can say that Saipem is one of the best companies for health and safety culture.*



**What is the best thing you have learned from the Saipem culture?**

*Teamwork. I have really learned, especially in HSE, that no one gets the golden apple. Everyone*

*gives his or her own valuable contribution, and when it all comes together it really works. Also, I am very interested in going through the LiHS program. It is very helpful to create a positive health and safety culture among the working group (including management and workers).*

**What do you wish for your professional future and career?**  
*I would like to work for another big project either in or outside the Middle East and share the experiences and knowledge gained in Saipem. I would also like to complete my Masters degree and, thereafter, work with Saipem again.*

\* Snamprogetti SpA was incorporated into Saipem SpA in 2008.

courses provided are Basic Cardio-Pulmonary Resuscitation, Self-Contained Breathing Apparatus, Confined Space, Defence Driving, Hazardous Materials Management, Process Pipes and Toxic Gas, Permit to Work, Spill Prevention & Response, Diesel Handling & Transfer, Safety Observation System and Practical Scaffolding Training.

Alongside training, Safety Awareness Campaigns are also important activities to motivate all workers into cooperating to achieve improvements in HSE performances. Some of the most significant of these are Ammonia Awareness, Heat Stress, Hand Safety Campaign, Lifting Tackle Inspection, Daily Housekeeping and Commissioning Barricade Awareness. Some of these campaigns were conducted on the occasion of the World Safety Day (April 28).

## LiHS Programme

The Leadership in Health and Safety Programme is an important organisational initiative and an original

programme unique to Saipem. This multi-phase programme for cultural change begins with a highly interactive and emotional workshop experience, where managers and supervisors are challenged to think differently about health and safety using practical tools to develop personally as effective health and safety leaders. An integral part of workshops is the internationally awarded film 'The Safer The Better', which dramatizes the chain of events leading to a fatal accident at work.



The LiHS Programme is divided into three phases:

### Phase 1

LiHS workshops for management and supervision staff. This phase aims to produce and consolidate a great change in the health and safety culture of the company.

### Phase 2

Managers present LiHS to the workforce with a highly charged speech as evidence

LiHS workshop





of their commitment to health and safety. Phase 2 provides an opportunity for senior leaders to bring leadership in health and safety to every employee by designing high impact events. This also promotes the organisation’s priorities and intentions regarding health and safety throughout the entire workforce, disseminating the Saipem Safety Vision and sustaining the LiHS focus beyond the workshop, while also building interest within the workforce and preparing them for Phase 3.

**Phase 3**

Delivery of the Five Stars Intervention training tool throughout the organisation. This is implemented in order to provide a simple structured way to intervene in the event of unsafe acts and to reinforce safe behaviour by standardising intervention within the Project.

**Phase 4**

The process continues with the launch of the new campaign called *Leading*

**Safety statistics**

	2010	2011
Worked man hours	48,931,996	35,108,257
LTI Frequency Rate	0.12	0.14
TRI Frequency Rate	1.43	0.97

**Leading indicators**

	2010	2011
HSE training hours	53,399	38,832
SHOC Cards	12,501	7,699
Tool Box Talks	35,267	22,227
HSE meetings	694	812
Job Safety Analysis	n.a.	32,121
HSE Inspections	14,387	23,071

**Other safety indicators**

	2010	2011
Fatal accidents Frequency Rate	0	0
Fatal accidents - total number	0	0
Lost Time Injuries	6	5
Medical Treatments	14	13
Work Restricted Cases	50	16

Data include both Saipem employees and subcontractor personnel working on Saipem’s sites.



*Behaviours*, which injects five simple and transferable non-negotiable behaviours into the organisation.

The LiHS Programme provides participants with a clear understanding of the importance of health and safety both for the organisation and for their own lives. In this way, everyone is able to identify their responsibility and is provided with a real opportunity to contribute in an efficient way with their knowledge, experience and personal motivation.

A special LiHS workshop (Phase 1) was organised at the beginning of 2010, where the Client Qafco and the Partner Hyundai were invited to participate, together with Saipem Top Managers working on the Projects.

The attention moved then to all the Project employees for Phase 2 of the Programme. Between 2009 and 2010, 389 people (including some subcontractors) were involved in LiHS sessions.

Phase 3 was fundamental for the success of the Programme, because the message was spread to all workers.

31 LiHS sessions were organised between the end of 2010 and 2012, involving 238 people. The Programme is still on-going to promote the messages of the new Phase 4.

## HSE Audits

HSE audits are regularly performed on site, both by the Client and the Consortium, to verify legal compliance and observance of the HSE Management System.

In November 2011, the certification body Det Norske Veritas performed an audit on Qafco 6, as the representative project of Saipem SpA's Engineering & Construction Business Unit, in order to renew OHSAS 18001 and ISO 14001 certifications.

The main subcontractors are requested to follow specific requirements and audits are useful not only for purposes of control but also to develop and improve their management system.

## Emergency Response & Drills

To ensure a high level of emergency response and preparedness, the Project relies on an Emergency Medical Team constantly available on site. This consists of an Emergency Controller (Saipem Site Manager or his/her delegate), a Fire & Rescue Leader (Saipem HSE Manager or his/her delegate), a Logistic Coordinator (Hyundai Construction Manager or his/her delegate), a Commissioning



Night view

Representative from the Consortium and the Client and a Client's representative.

The Team is provided with proper means of transport and communication, such as a fire truck, an ambulance, as well as radio and mobile phones.

To ensure a proper emergency response, an emergency response drill is carried out periodically for all scenarios covered in the emergency response procedure. The latter is revised, when needed, every time a change or an incident occurs.

This great effort put into managing possible emergency situations has been recognised by Mesaieed Industrial City (MIC), which regularly arranges emergency drills involving all the companies located in the area. Saipem has been mentioned as one of the most organised companies within MIC, demonstrating good improvement in emergency response capabilities.

## ENVIRONMENT

The Project Environmental Management System is based on Saipem internal standards, ISO 14001 international standard, local regulations and Client requirements. Targets are set in order to improve the

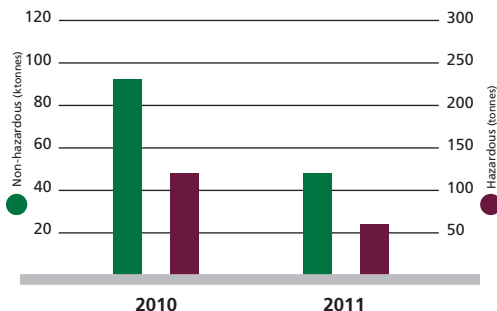
environmental objectives and prevent pollution and accidents. For this purpose, a series of procedures have been put in place to identify and assess environmental aspects during all entire life cycle of the projects, monitor and report the environmental performance and implement specific environmental management plans.

A dedicated Project Environmental Engineer is in charge of managing all environmental issues.

## Waste Management

Saipem's strategy on waste management is based on the principle that the

### Waste produced per type



generation of waste should be limited and waste should be segregated, in a controlled manner, as much as possible close to its source of generation, for further reuse and recycling and, ultimately, safe disposal.

Most of waste resulting from site activities are reused within the Project or separately collected to be sent for recycling. This includes ferrous and non-ferrous metals, copper and aluminium scraps, used vehicle batteries and electronic waste.



## **Qafco 5 & 6 Best Practice: Paper Recycling**

### **Interview with Mohamed Sajahan Administration & Waste Paper Collection, Al-Suwaidi Paper Factory**

*Based in the industrial area of Qatar and covering a plot of 4,000 m<sup>2</sup>, Al-Suwaidi is the only Paper Recycling Factory in Qatar. Established in 2001, it is named after the founders, Rashid Abdullah Al Suwaidi and his family.*

*The semi-automatic factory employs a workforce of 270 people, with total annual sales of between 2.5 million and 5 million US dollars.*

*Saipem has been working with the company from January 2011 and has sent approximately 55 tons of waste paper and packages in the entire 2011.*

**Mr Sajahan, who are your main providers of waste paper?**

*We receive raw material (waste, packages and used paper) from over 2,000 locations within Qatar.*

*This includes industrial areas, schools, banks, residential areas and food markets.*

**Could you kindly give us some information about the volume of production?**

*We receive about 55 tons per day*



*and we are currently producing 48 tons of craft paper per day, in the form of cardboards and core pipes.*

**Could you please give us a brief presentation of the paper recycling process?**

*The first step involves the separation of recyclable corrugated and newsprint cardboard. Office paper is also segregated in one specific area.*

*The sorted cardboard is mixed with warm water in a giant pulper where it is blended into a pulp by breaking it down to individual fibres. The longer the fibres, the stronger the final product. Paper is added as needed (2.5-6%), as it contains shorter fibres.*

*A minimal amount of chemicals is added at this point. These include resin, aluminium sulphate to improve durability and ink receptivity, and guar gum to improve sheet formation.*

*The pulp is then passed through a refiner which removes masking tape, staples and pins, aluminum embedded paper and strings.*

*The cleaned pulp is now passed through a vibrating mesh/screen which removes excess moisture leaving behind the strong fibres.*

*13,000 litres of waste water resulting from this step are reused in the pulping process and this will continue until it becomes too thick to be functional, at which point it is sent to a near-by*

*wastewater treatment plant. The drained pulp is layered evenly onto the drying conveyor. This passes through a vacuum and rollers which compress the pulp by removing excess water. It then passes through dryers that remove any remaining moisture.*

*After the completion of drying (three and a half hours later), the recycled board is rolled onto reels, each weighing approx. 50 kg. Samples are taken of this board to verify porosity and thickness. It is then cut, rolled and packed as per the customers' request.*

**Who are the main final customers?**

*The recycled product serves the packaging companies of the local Qatar market and its surplus is sold within the Gulf, in countries such as Saudi Arabia and UAE.*

**What are your projects for the future?**

*We are starting up a new factory in the Industrial Area of Doha. Starting from next year, we would also like to extend production to the field of plastic recycling.*







In addition, an agreement has been signed with a local paper recycler for paper generated on site, including cardboard, office paper and packages.

### Oil Spill Prevention

A Spill Contingency Plan is defined and implemented on site in order to identify the prevention strategies and response actions to be adopted during and immediately after the release of pollutants.

During both the construction and commissioning phases, regular training sessions are conducted to educate all personnel dealing with chemicals or working in areas where chemicals are stored.

Proper planning is put in place to prepare appropriate storage areas prior to the arrival of chemicals on site.

Moreover, a chemical introduction form is filled out to ensure that the HSE Department is aware of its presence on site.

Monthly inspections are conducted in chemical storage areas to check for spillages and to ensure the integrity of containers and the availability of MSDS. Well-equipped spill kits are kept on site wherever chemicals are stored or being loaded.

The success of the rigorous awareness campaigns and efforts are reflected in the statistics, which show only one minor oil spillage of 30 litres into the sea.

This result was achieved also thanks to the organisation of regular emergency drills aimed at:

- training personnel about the procedure to be followed during an accidental spillage of hazardous substances in compliance with the Spill Contingency Plan;
- evaluating comprehension of the importance of spill response;
- assessing communications between workforce and supervisor, and between supervisor and HSE team and ensuring coordination between all personnel.

## Water Management

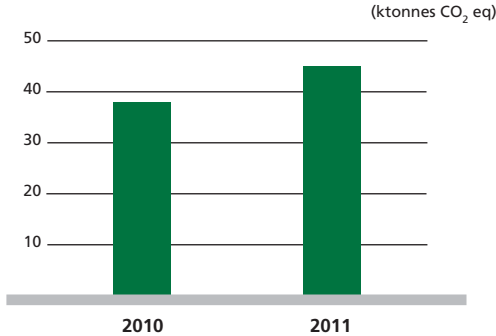
Water is an important resource, especially considering the climatic conditions of the country. For this

reason, water saving and reuse are important concepts stressed during all Project phases.

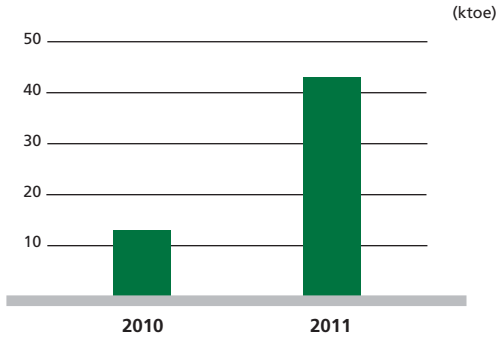
The most important water saving initiative has been the installation of a wastewater treatment plant at the Hyundai accommodation camp. This processes wastewater from the camp (toilets/bath/kitchen), and some of the sewage from the construction site. The treated wastewater is used for irrigation, both by Hyundai and by Mesaieed Municipality, and for dust suppression on site.

Results of monitoring show that the treated effluents are in compliance with the regulatory limits and are suitable for reuse for dust control and irrigation purposes.

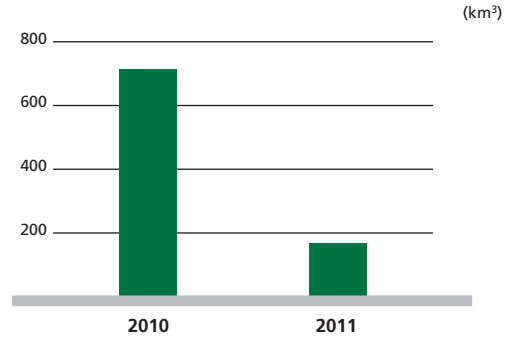
### GHG emissions



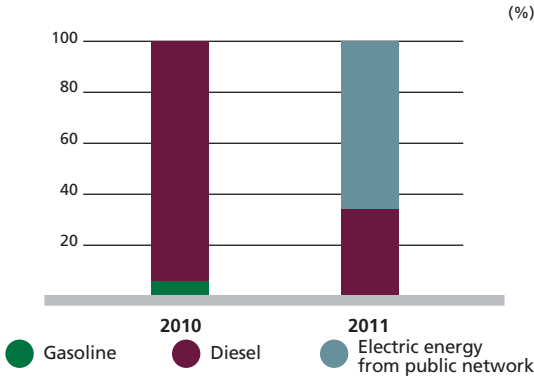
### Total energy consumption



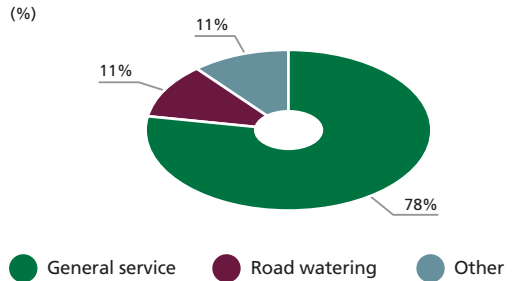
### Water consumption



### Energy consumption per type



### Water consumption by use (2010)



## Qafco 5 & 6 Best Practice: Water Saving & Wastewater Treatment Plant

The Qafco 5 & 6 Projects are committed to defining and implementing water saving strategies to prevent waste, overuse, and exploitation of water resources. Management, as well as operational and HSE personnel are involved in the identification and monitoring of water uses in order to define and implement water-saving solutions.

### Wastewater Treatment and Reuse

The accommodation camp generates sanitary wastewater. Instead of disposing of the wastewater produced, Qafco 5 has invested in a treatment system aimed at reusing most of the treated water.

A biological treatment plant was installed for this purpose and a final filtration process allows the Treated Sewage Effluents (TSE) to achieve high quality, controlled through continuous monitoring. This way the effluents can be collected by truck and re-used as water supply for irrigation and for dust abatement



measures required on site.

The main benefits include:

- water saving: 7,000 m<sup>3</sup>/month of water re-used instead of being sent for disposal;
- cost saving: 119,000 €/month saved by not disposing of the wastewater in an external

- treatment plant, and 29,750 €/month saved by not purchasing water from a supplier;
- emissions reduction: decrease in the number of trucks supplying water.

### Water Saving Awareness Programme

The water saving programme was welcomed by both the Consortium's and the Client's management teams and supported by training and awareness initiatives carried out by the Project's HSE Team.

Suitable communication tools (e.g. posters, presentations, stickers, signboards) were designed to inform personnel and increase awareness.

Furthermore, in order to eliminate and/or reduce to a minimum the environmental impact, the potential damage to facilities and the costs associated with this, a water loss control programme was set up to identify any potential and effective leaks or drainage issues.



Phase 1 Receiving Water

Phase 4 Settlement Tank



Phase 2 Equalization Tank

Phase 5 Chlorination Tank



Phase 3 Aeration Tank

Phase 6 Filtration





Overview of the plant

### Environmental Awareness Campaigns and Initiatives

In June 2010, Saipem Corporate launched an environmental awareness campaign targeted at all Saipem personnel, with the main purpose

of promoting and influencing environmentally responsible behaviour, while only slightly modifying lifestyle. The campaign focused on 5 different topics: energy saving, oil spill prevention, waste segregation, water saving and reuse and, finally, reducing

## Qafco 5 & 6 Best Practice: Heat Stress Prevention Programme

Heat stress is a serious threat in Qatar during summertime and can affect the normal performance of workers and therefore their health and safety.

A programme of prevention and control was implemented to protect the workforce from heat disorders.

First of all, several Tool Box Talks focused on heat stress prevention were delivered by management and involved all workers.

Several measures to reduce both the severity and duration of exposure were implemented on site. One good example is the 'Flags System' which reminds workers of the

importance of drinking and resting regularly during working activities

present in the plant for workers during the red flag break.



and stopping work if the heat index exceeds 54 °C (red flag). Several dedicated air conditioned areas are

The HSE representative is in charge of ensuring that this approach has been explained and well understood by all personnel and mainly those working in extreme heat climates, where temperatures exceed 40 °C. The medical department promotes educational campaigns for all personnel, and informs them about techniques to increase the resistance of exposed persons and methodologies of intervention in the event of heatstroke emergencies. It also can deliver specific treatments, such as electrolyte replacement drinks or mineral salt tablets.



the ecological footprint to a minimum. The Projects conducted this campaign successfully, with the aid of promotional materials such as posters & stickers. These messages were also circulated during Tool Box Meetings and on World Environmental Day (June 5), the Qatar Environment Day (February 26), Arab Environmental Day (October 14), Earth Day (April 22) and Earth Hour (March 26).

## HEALTH

Saipem recognises the importance of protecting the health of its employees and of those who may be affected by its operations, taking into account not only the activities performed, but also the specific criticality of the location.

To meet the health and well-being needs of the workers, a medical service is at all times available on site, providing first aid, transportation and medical assistance, and promoting prevention through health risk assessment, vaccination, educational campaigns and proper training. Moreover, a customised counselling service is at the disposal of all employees

who need medical advice for specific disease symptoms.

### Health Organisation on the Qafco 5 & 6 Projects

The Consortium has a site clinic open 24 hours a day, 4 Emergency Medical Technicians (EMT) with an ambulance, and one doctor and 2 nurses available for both Saipem and Hyundai personnel. In addition, the clinic can rely on the support of Saipem Medical Department, composed of an Area Health Coordinator for Qatar and 2 Health Advisors available on site for Saipem personnel.

Saipem is working free of charge with a governmental hospital located in Doha and with a semi-governmental hospital located in Mesaieed Industrial City to manage all kinds of medical emergencies.

Saipem has 2 additional agreements with private medical clinics located in Doha, for routine medical consultation including pre-employment and annual medical fitness examinations.



Celebrating the World Safety Day

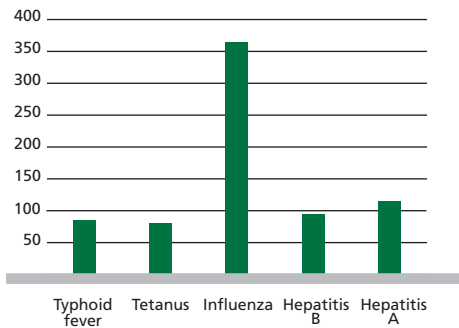
### Medical Checks

Each employee of the Consortium has to undergo a comprehensive pre-employment medical check to confirm that he/she is fit to work. Further to that, all employees are submitted to a periodical medical examination and, in the case of anomalies, can plan a more specific check-up with the assistance of the Health Advisor.

### Health Prevention

Several campaigns were carried out to raise awareness among workers

Total number of vaccinations (2009-2011)



about prevention measures against diseases. One of the most significant of these was the vaccination campaign against Hepatitis A and Hepatitis B, Typhoid Fever and Tetanus. The Medical Department scheduled a vaccination programme for employees and members of their families.

Another very successful vaccination campaign was the one against Influenza. This was recommended also by the Public Health Department of the State of Qatar, which actively contributed to the awareness campaign by sending information packs to the site.

The programme was not mandatory, but the Health Advisors encourage immunisation, which is free of charge, and promote the benefits of being vaccinated against these kinds of disease.

### Health Education and Promotion

Health education and promotion sessions were delivered at Tool Box Meetings on a regular basis by the health staff. Campaigns such as 'Heat stress', 'Photo keratitis', 'Influenza prevention', 'Hygiene and Safe Food Handling', 'Anti-Smoking'

and 'Sanitation' were designed and implemented.

## Emergency Response

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

A remarkable number of PRIIN (People Readiness In First Aid Intervention) training sessions have been organised on site, as well as BLS (Basic Life Support) and ACLS (Advanced Cardiac Life Support) for medical practitioners only.

## CUSTOMERS

Market characteristics and client profiles have evolved significantly over the years. This is why Saipem has adopted a varied

portfolio of approaches to its customers' different requirements, maintaining a consistent long-term strategy.

On the Qafco 5 & 6 Projects, Saipem is working for Qatar Fertiliser Co SAQ (QAFCO). QAFCO was founded in 1969 as a joint venture between the State of Qatar, Norsk Hydro Norway, Davy Power Gas, and Hambros Bank, to produce Ammonia & Urea by utilizing Qatar's abundant gas resources. The company is now owned by Industries Qatar (IQ) as 75% shareholder and Yara Netherlands as 25% shareholder.

Presently the QAFCO complex comprises integrated trains of: QAFCO-1 (1973), QAFCO-2 (1979), QAFCO-3 (1997), QAFCO-4 (2004) and QAFCO-5 (2011). Each train is made up of two units, one for production of ammonia and the other for urea. With the completion of QAFCO-5 & 6, QAFCO further bolstered its image as the world's largest single site producer of ammonia and urea.

### Percentage of vaccinated personnel

		2010	2011
Hepatitis A	(%)	10	25
Hepatitis B	(%)	10	15
Influenza	(%)	49	45
Tetanus	(%)	2	28
Typhoid Fever	(%)	1	36

### Percentage of personnel who attended health training

		2009	2010	2011
PRIIN <sup>(1)</sup>	(%)	9	8	8
STD <sup>(2)</sup> Prevention Programme	(%)	10	10	9
Influenza Prevention	(%)	95	90	91
Anti-Smoking Programme	(%)	10	9	3
Heat Stress Prevention	(%)	96	97	93
BLS/ACLS <sup>(3)</sup> (for nurses only)	(%)	50	n.a.	n.a.

(1) People Readiness In First Aid Intervention.

(2) Sexually Transmitted Diseases.

(3) Basic Life Support/Advanced Cardiac Life Support.



*Saipem & Hyundai integrated team during a Safety Walkthrough*

Involvement of and cooperation with the Client's representatives on site have ensured a fair relationship throughout Project execution. For Saipem, customer satisfaction is one of the most important values to achieve its mission.

The Quality department organises weekly meetings on site between Client and Consortium representatives to discuss activities in progress, the time schedule, management of suppliers and subcontractors, areas for improvement and any critical situations.

In order to monitor compliance with contract requirements, an internal audit plan is implemented on site, involving each Project function, supplier and subcontractor. Non-conformity reports

and site quality observations are also in place.

The Quality Management System also entails a collection of Lessons Learned reports to identify positive or negative situations which impact on the time schedule, costs, quality and HSE performances.

If the situation is negative, the report describes the solution adopted in that particular case as well as any recommendations for the future.

### **PARTNER, SUPPLIERS AND SUBCONTRACTORS**

Partners, suppliers and subcontractors are key factors in Saipem's success. Saipem is committed to maintaining



and improving a mutual, long-term, fair and trustworthy relationship with the enterprises working with and for it.

For Qafco Projects, Saipem is working in a Consortium with Hyundai Engineering & Construction Co Ltd.

Hyundai Engineering and Construction Co Ltd (HDEC) is a major construction company in South Korea which has carried out projects not only in Korea but around the world.

The company was founded by Chung Ju-yung in 1947 as the Hyundai Civil Works Co, and was a major component of the Hyundai Group. Hyundai Construction and Hyundai Engineering merged in 1999.

While providing equal business opportunities, suppliers and subcontractors are selected from around the world according to the principle of open competitiveness.

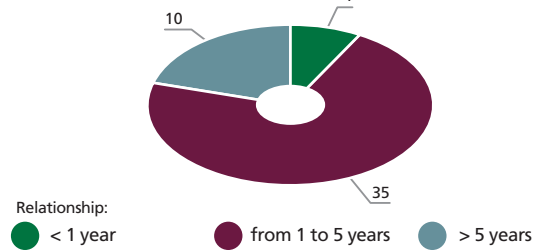
Saipem has developed a Vendor Management process to evaluate the reliability of suppliers and subcontractors. The selection criteria not only include their ability to meet

economic, financial, technical and organisational requirements, but also their compliance with Saipem sustainability and HSE Policies and procedures.

Vendor Management activities are focused on the improvement and the development of suppliers and subcontractors, especially local ones.

Between 2008 and 2011, Saipem qualified over 40 vendors in Qatar for the Qafco 5 & 6 Projects, purchasing goods and services locally for a value in excess of €110 million.

**Local Vendors per relationship duration**  
(No.)



**Main Suppliers for the Qafco 5 & 6 Projects**

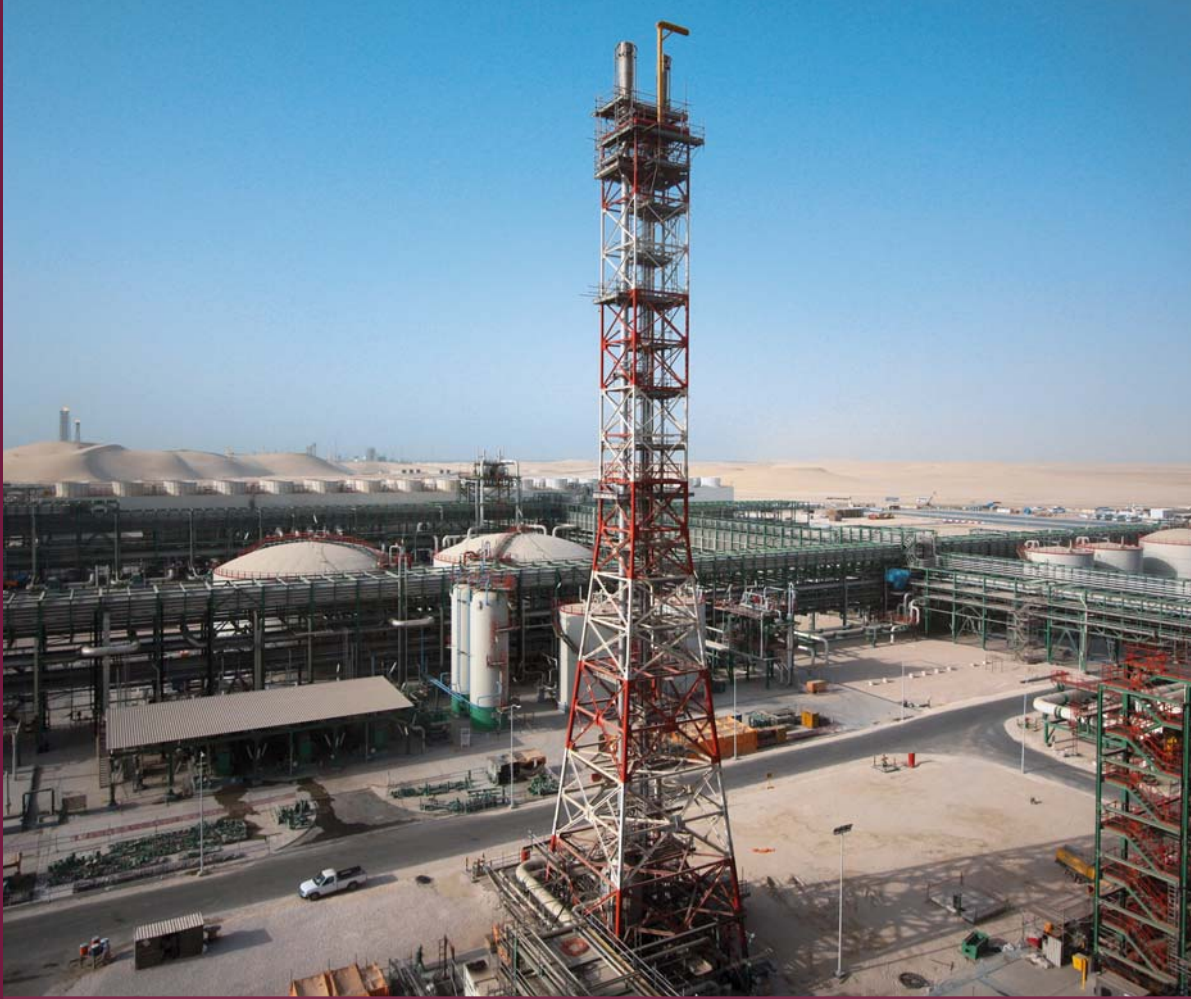
**Machinery, Electrical Components, Instrumentation, Starting Equipment and Vessels**

- Future Pipe Industries
- Bonaldi
- CB&I
- Hamon Thermal Europe
- Doosan
- Sofinter SpA
- ITT
- John Zink International
- Thermoengi
- Gesco
- Bauer Compressori
- Boldrocchi
- Daekyung
- Ebara
- Flowserve Spain
- FS Elliot Company
- Gea Technofrigo
- General Electric

- Olmi
- Weir Gabbionetta
- Bauermeister Zerkleinerungstechnik
- Entropie Sas
- Rheum GMBH
- Thyssenkrupp
- UOP
- ABB SpA
- Brugg Kabel AG
- CEG
- PT Unindo Areva T&D
- Areva T&D AG
- Siemens
- Skema SpA
- Tozzi Apparecchiature
- Bentley Nevada
- Emerson
- Honeywell
- Topsoe Process Engineer
- UFT Licensor
- Perstorp

**Steel Structures, Gaskets, Piping Materials, Valves, Fittings and Flanges**

- Danem Trading Co Wll
- TRAGS Engineering & Construction
- Quality Engineering & Services Wll
- Manweir Wll
- DIME International Mechanical Engineering
- Delta Fabco
- Smith International Gulf Services Llc
- Qatar German Gasket Factory
- Petrofac Qatar Wll
- Sea Site International



## ACRONYMS

**E&C BU**  
Engineering and Construction  
Business Unit

**EPC**  
Engineering, Procurement and  
Construction

**EPIC**  
Engineering, Procurement,  
Construction and Installation

**FEED**  
Front End Engineering Design

**GDP**  
Gross Domestic Product

**GHG**  
Greenhouse Gases

**HDPE**  
High Density Polyethylene

**HR**  
Human Resources

**HSE**  
Health, Safety & Environment

**LiHS**  
Leadership in Health and Safety

**LGO**  
Light Gas Oil

**LLDPE**  
Linear Low Density Polyethylene

**LNG**  
Liquefied Natural Gas

**LTI**  
Lost Time Injuries

**MIC**  
Mesaieed Industrial City

**MSDS**  
Material Safety Data Sheet

**TRI**  
Total Recordable Incidents

**UAE**  
United Arab Emirates

**UFC**  
Urea Formaldehyde Condensate

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



**SAIPEM** Società per Azioni

Capital stock: €441,410,900 fully paid

Tax identification number and Milan Companies' Register

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)

Special thanks to all those who contributed to the elaboration of this report

Website: [www.saipem.com](http://www.saipem.com)

Operator: +39-025201

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**SAIPEM**

Società per Azioni  
Via Martiri di Cefalonia, 67  
20097 San Donato Milanese (Milan) - Italy  
Phone +39.02.5201 - Fax +39.02.520.54295

[www.saipem.com](http://www.saipem.com)