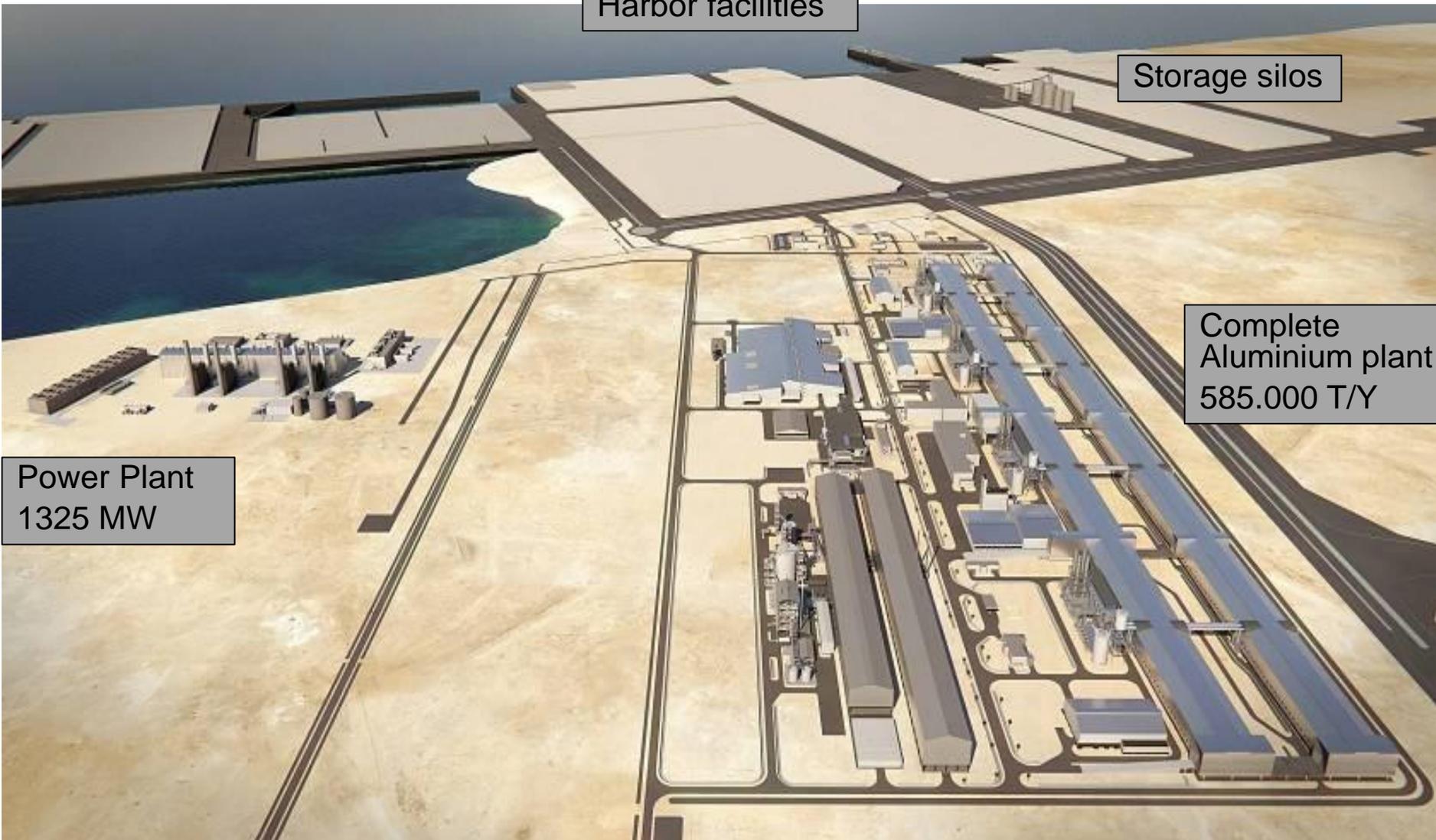


QATALUM PROJECT

- **Planning and Execution**
- **Challenges**
- **Safety**
- **Workers conditions**

QATALUM - PROJECT - (5.7 \$ Billion) Complete Aluminum Plant with all associated functions in the Qatari Desert



Harbor facilities

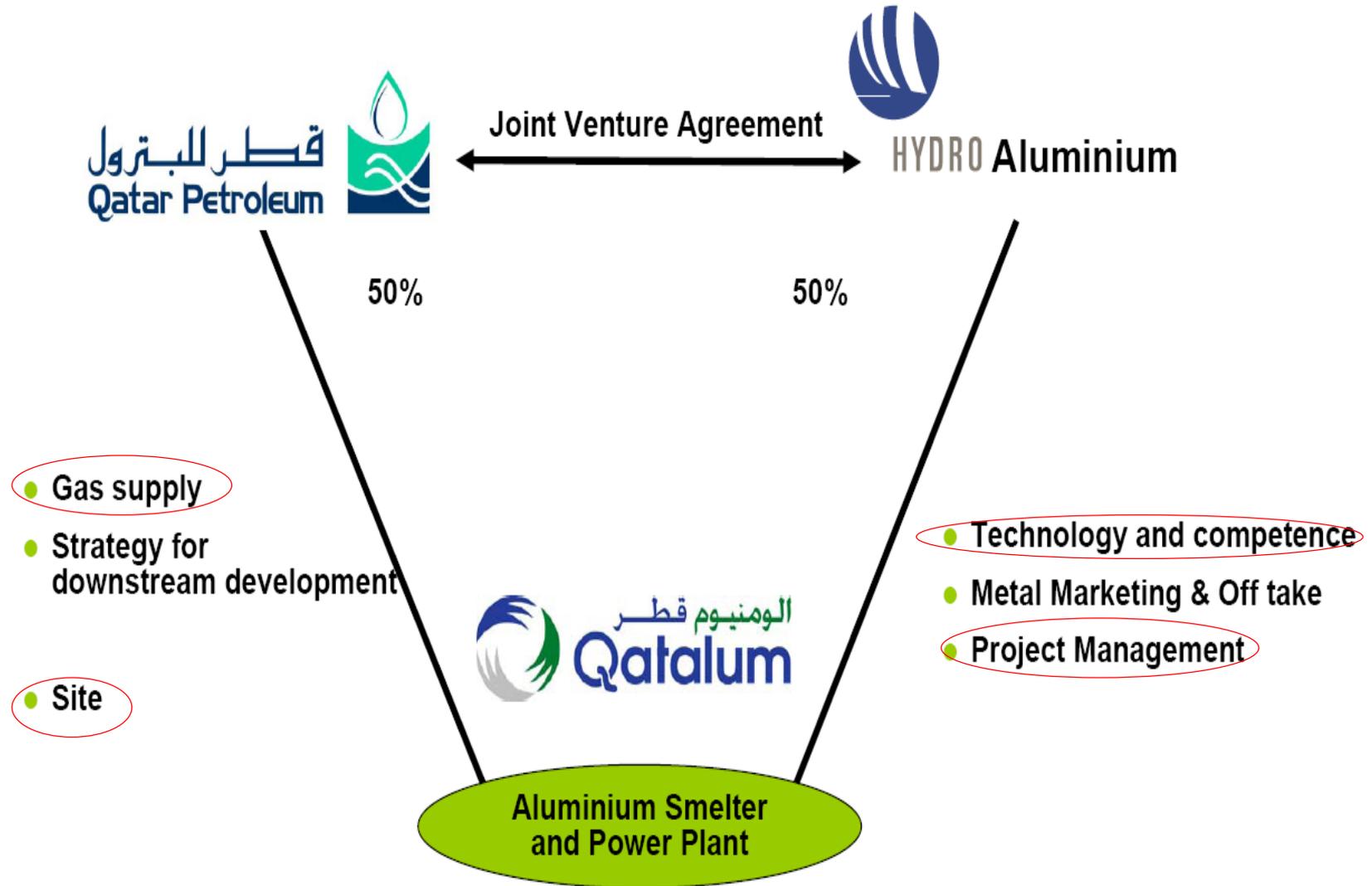
Storage silos

Complete Aluminium plant
585.000 T/Y

Power Plant
1325 MW

Largest aluminium plant ever built in one step (2007-2010)

Qatalum a 50/50 Joint Venture Company



QATALUM PROJECT

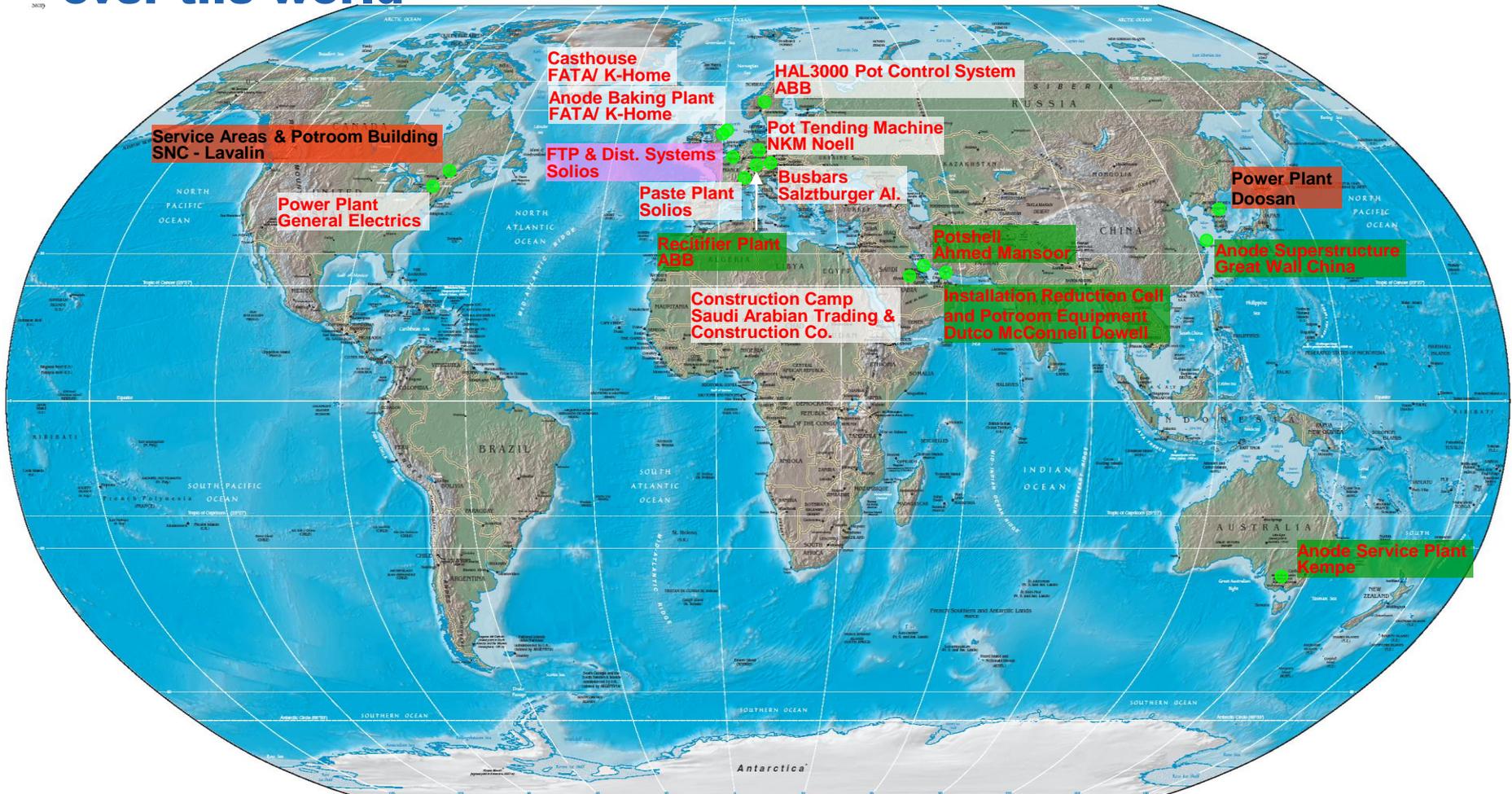
□ Issues considered in the planning stage

- Size of the project (contract strategy?)
- Culture / religion
- Climate / Temperatures
- High no of unskilled workers in construction (quality of work)
- Authority requirements
- Necessary to import almost all type of goods and materials
- Minor knowledge of local engineering and construction marked

Contract strategy

- Utilize competence of international aluminum contractors
- Use local contractors where appropriate
- Divide the scope into a set of logical contracts
 - Low total cost
 - Risk allocation to contractors

Engineering and Procurement by Qatalum contractors all over the world

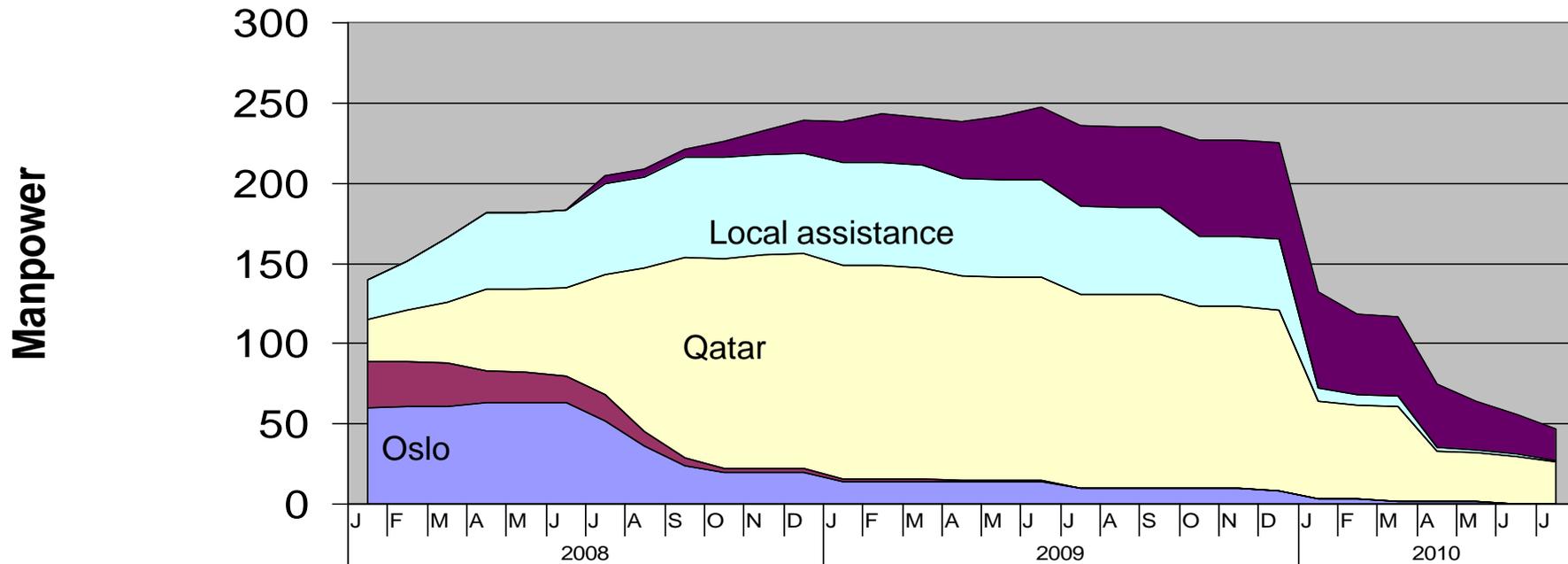


21 Main Contracts (12 EPC contracts)

9 GCC, 2 North America, 7 Europe, 2 Asia, 1 Australia

Project Management Team

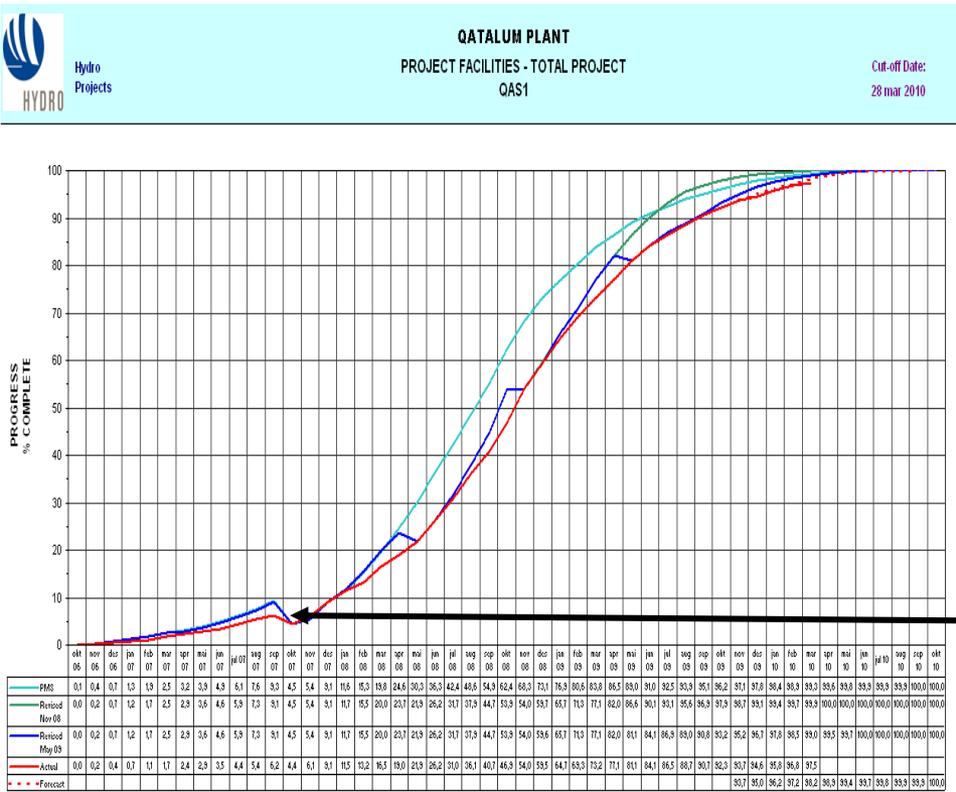
Project Team - Overall



	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	
	2008												2009										2010									
Oper (MC & Comm ass)	0	0	0	0	0	0	5	5	5	10	15	20	25	30	30	35	40	45	50	50	50	60	60	60	60	60	50	50	40	30	25	20
Qatar Local assistance	25	30	40	48	48	48	57	57	62	63	63	63	64	64	64	61	61	61	55	54	54	44	44	44	8	6	6	2	2	1	1	
Qatar Secondment	26	32	38	51	52	55	75	102	125	131	133	134	133	133	131	127	126	126	121	121	121	113	113	113	61	59	59	31	30	30	26	
EPC follow-up	29	28	27	20	19	17	16	9	5	2	2	2	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oslo	60	61	61	63	63	63	52	36	24	20	20	20	14	14	14	14	14	14	10	10	10	10	10	10	8	3	3	2	2	2	0	0

 EPC follow-up in contractor office

Revised master schedule no 1



Delays:

- Late access to site
- New regulations : Not allowed to take sand from originally approved dunes,
- Without sand for several weeks



Qatalum April 15, 2008



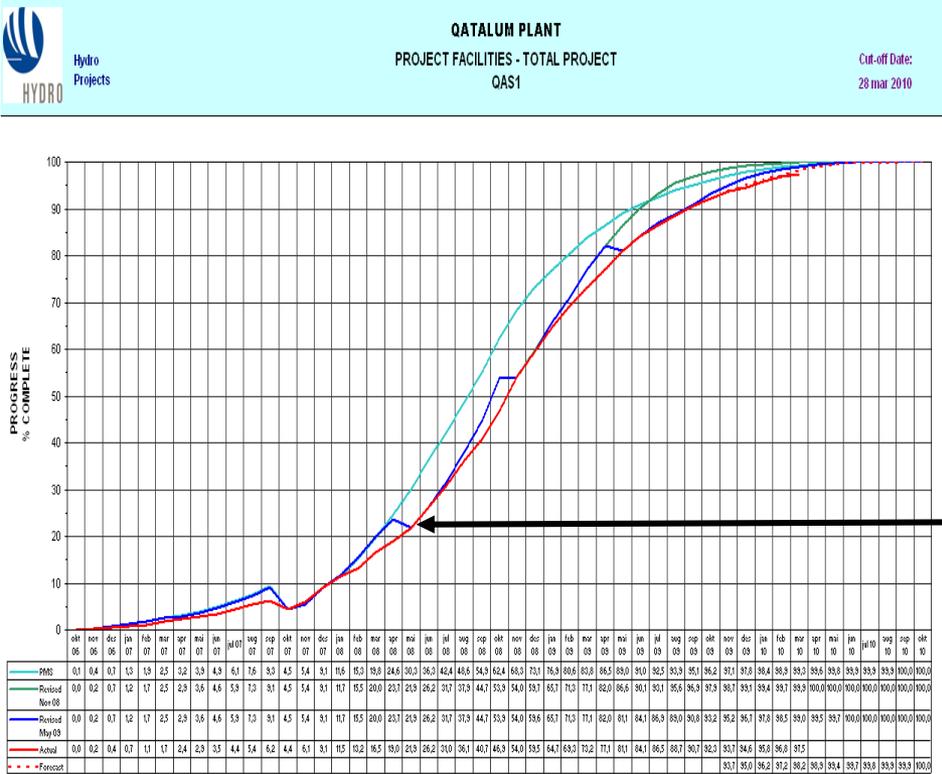
- **Site Preparation completed spring 2008**
- **10 million tonnes of landfill**
- **>200.000 truckloads**

- **Total driving distance ~20 million km**

- **On peak: 1500 truck loads pr day**

- **No serious incidents**

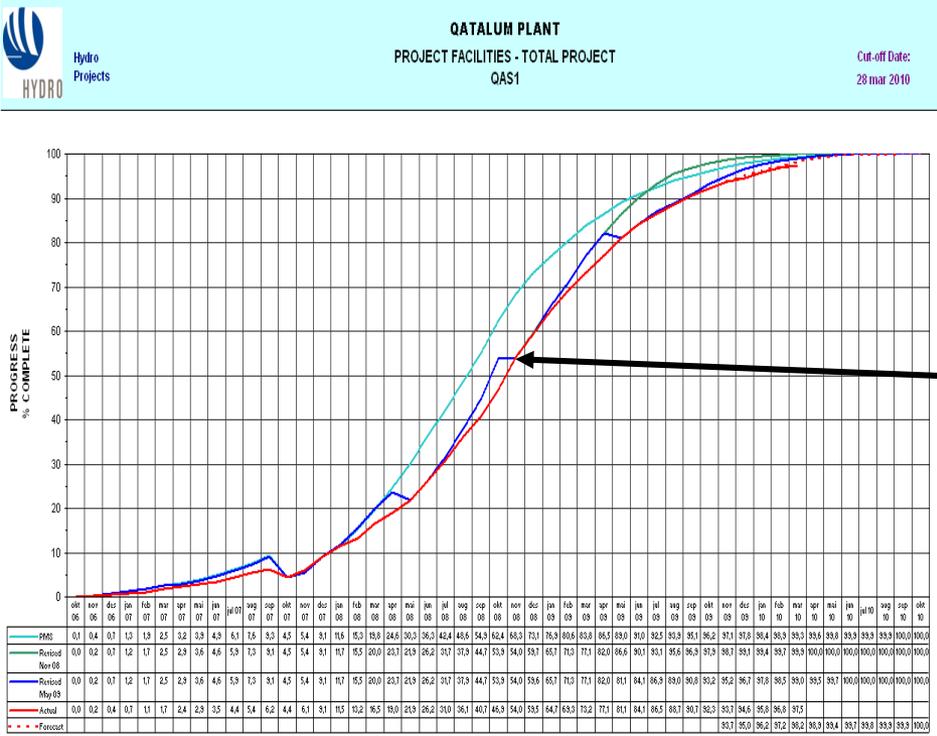
Revised Master Schedule no 2



New national building permit system for start construction

- Qatalum project the first project in Qatar to follow the new requirements
- The project had to engage a «local» specialist company on the new requirements to help the EPC contractors to prepare the drawings according to the new rules.
- Construction was delayed from Oct/Nov 07 to February 08

Revised Master Schedule no 3



”Crunch” time in Qatar,

Lack of:

- Cement
- Washed sand
- Aggregates
- Mixing capacity
- Ice machines
- Skilled supervisors
- Skilled workers

Result:

Civil work with low progress

Crunch Time in Qatar

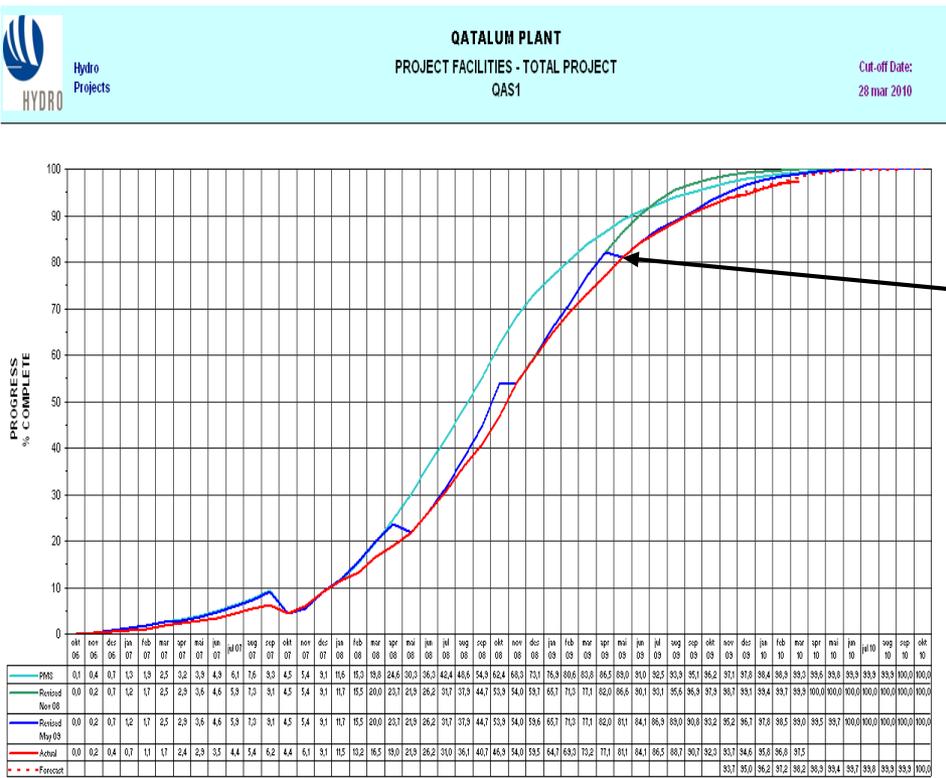
❑ **Insufficient port capacity for large ships.**

- Large vessels had to wait several weeks off-shore to get access to harbor for unloading.

❑ **The Project established a transit harbor in Ras al-Khaimah, one of the emirates.**

- This made it possible to unload from large ships to smaller vessels that could unload at a larger number of smaller jetties in Qatar

Revised Master Schedule no 4



Basically delays in the construction of the infrastructure facilities (distribution of power, seawater, compressed air etc.).

The project together with Qatalum Operations established temporary facilities in order to obtain the start-up dates.

Sea water pipelines

All together >60 km of GRP piping



February 2007



October 2009



Casthouse First Metal – 04.December 2009



First Load of Ingots



First Metal – 4 December 2009



Start preheating of first pot: 16.December 2009



Silo and Harbour Area

December 09



First pitch (start unloading): 25.October 09

HSE challenges

- ❑ **High no of workers**
- ❑ **High no of nationalities**
- ❑ **Different cultures and back ground to site safety**
- ❑ **Actions:**
 - All people have went through HSE Induction course
 - More than 12.000 workers have been through a special "work at height" training session

Lifting operation in silo area



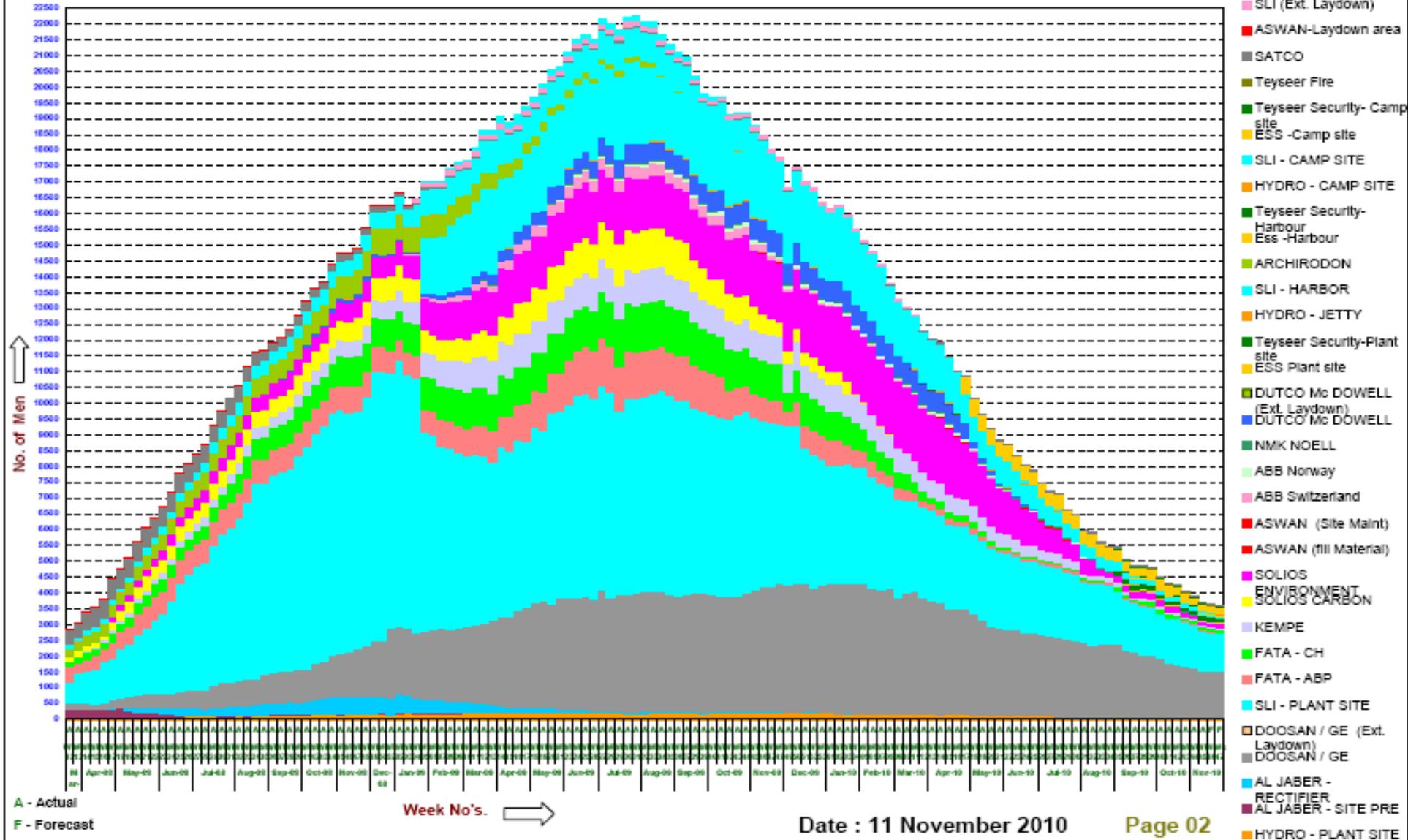
□ At peak period summer 2009

266 cranes

220 manlifts

Manning on site: at peak: ~22.000, about 60.000 individuals & more than 200 different companies, 84 nationalities

Qatalum Project site - Weekly manning data with next two week forecast



Lagging Safety Indicators

Qatalum Project Cut Off July 2010)

Construction Hours: 95 million

#Lost Time Injuries: 33

Lost Time Injuries – Frequency: 0,3

#Total Recordable Injuries: 264

TRI – Frequency: 2,8

High Risk Incidents: 93

Fatalities: 1

Ormen Lange Onshore Project (2004-2007)

Construction Hours: 17 million

#Lost Time Injuries: 29

Lost Time Injuries – Frequency: 1,7

#Total Recordable Injuries: 178

TRI-Frequency: 10,7

High Risk Incidents:

Fatalities: 1

Where are we focusing differently / having a different approach than we would have had on a construction site in Norway?

- ❑ Presence in the field of “unheard no. of Safety Inspectors**
- ❑ Work Permit system even in construction phase**
- ❑ Shearing of “lessons learned” across Contracts (because of the nature of the procurement strategy, many different EPC Contractors with “identical” activities)**
- ❑ Heat Stress Management**
- ❑ Company provided training & support to Contractors work force**
 - Work at height
 - Hazardous Materials
 - Supply of Drinking Bottles

Workers conditions – Camp facilities

- **No local workers from Qatar**
- **The work force are coming from several countries, but mainly from India, Nepal, Phillipines, Pakistan and Korea**
- **Basically all workers in Qatar must stay for 2 years.**
- **In the construction and building industry in Qatar, the living camps had low standard**
- **Hydro decided to build a high standard construction camp for 10 000 people**

Construction village

10 000 persons

Soccer
Field

Courts:
-volley
-basket
-tennis



Mosque

Medical

Fire -
Station

Internet
Cafe

Bank

Grocery

Power plant, Fire water, Portable water

Waste water treatment plant

Construction village services

Mosque for 1200 people



Medical centre



260 tones of food
pr month

Indian food

Pakistani food

Arabian food

Korean food

Western food

Transportation of workers
by 70 busses



Construction Village

- ❖ In the early phase Qatar Petroleum was somewhat reluctant to invest so much money on a temporary camp.
- ❖ After the camp was completed QP really appreciated the quality, and all important visitors and customers were invited to sightseeing and lunch in the construction village.
- ❖ The project introduced a new standard of construction camps to QP projects
- ❖ But it must be said, there is an enormous difference in attitude to workers conditions between QP and the civil building industry in Qatar. QP is close to the western way of thinking.

Climate in Qatar

□ Climate

■ Project activities

- Low productivity from mid May til end September due to high temperature and/or high humidity
- No work between 1130 and 1500 in areas exposed to sun light in the period 15. June – 1. September
- National regulations: All work must be stopped when temperatue >50 dg.

■ Operations

- During planning phases : most focus on human working conditions
- Experience : equipment tripps or fails due to high temperstures
 - electrical components
 - air compressors to small

CSR - Labour Issues

- ❑ All expats/labours need an approved sponsor
- ❑ No child labour
- ❑ Papers free to write and discuss labour conditions
- ❑ Workers salary
 - Low salary compared to Western countries, but 2-3 times salary in home country
 - Normally the embassies check the workers contracts
 - The embassies recommend minimum salaries

Labourers protest over pay dues

By Sarmad Qazi

MORE than a hundred labourers descended on the Indian embassy yesterday to protest against non-payment of wages and inhuman living conditions.

The majority of the 107 men had walked the 20km journey from Sector 44 in the Industrial Area to register their complaints as they were unable to afford the taxi fare.

Last night an embassy official said 40 of them would be flown home immediately, with the rest returning within the next week.

However, their experience has left a bitter taste in the mouths of the men — many of whom are severely out of pocket.

Talking to *Gulf Times*, the labourers said they had originally paid money to an agency in India to broker employment opportunities for them in Qatar.

Almost all of them were skilled workers — technicians, welders, riggers and fitters — but when they began to arrive in June some were given unskilled labouring jobs to do after the company that hired them had a major contract.

Pouring into the embassy at 10am yesterday, the men said they were only demanding what was promised in their back in India: decent food, humane accommodation, salaries ranging from QR1,200 to QR1,500, and a little dignity.

Some also complained of overwork and long hours

when they were told they would work 10-hour days with an hour's break.

"It's not like the company kept a card or a tracking system for the number of hours we put in everyday," said one disgruntled employee. "Usually it was around 12 hours or so."

As for the accommodation, many of the men described conditions like living in "a garbage dump" with 10 to 12 people to a room.

They also complained that their daily food rations comprised "two extremely thin rotis (flat bread) in the morning, a small portion of rice and an even smaller portion of vegetables for both lunch and dinner."

"I was part of the first batch of 14 labourers that arrived on June 3 and was given a one-time QR300 payment and was put to do petty work such as cementing the next day," explained Naresh Kumar.

As more technicians arrived in July and August they were put on different work sites and given jobs like cementing to do. A handful of the men protested and refused to do the work.

"The guy (manager) would threaten to take us to the police and hit us, rather than explaining what was going on," alleged Mohamed.

Another employee bared his back to reveal a wound with stitches following a work-related accident. The stitches should have been taken out, he said, but no one had bothered to take him back to the hospital.

Most of the men claimed to have paid between Rs50,000 and 60,000 to an agent in Viteekhapatnam in Andhra Pradesh, where most of them come from. Other workers hail from Madhya Pradesh and Kerala.

However, other than a first paltry payment of QR300 to the first arrivals, the men say they did not receive a penny of their promised wages.

The news of the men's plight first came to light on Wednesday when about 80 labourers approached the embassy asking for help, again arriving on foot.

An embassy official said they had been talking to the company concerned and were hopeful in a position to send off the first-up workers home.

"Today, a company official has met us and promised to pay all outstanding dues to those who performed duties (in some never even worked) and send the labourers back to India in less than a week's time," an embassy spokesman told *Gulf Times*.

"A group of 40 individuals is heading back tonight," he added.

According to the embassy, the company had the contract for which it was hiring the labourers just as they started arriving in Doha and it had done its best to use the men in other areas.

When *Gulf Times* contacted the company for a comment, a senior official said, "The matter has already been resolved through the embassy and let's not complicate it any further."

Summary and Key project success factors

- **Well-defined concept at time of decision and before entering into EPC contracts**
- **Active support and help to the contractors in all areas independent of the contract conditions**
- **Find critical path and find mitigating actions**
- **Presence and follow-up at the place where work is performed. Try to design correctly the first time.**
- **Active risk management**
- **Strong HSE ambitions and set the standard from day one**
- **Project completion – “The Hydro Way” was a key success factor**
- **Very high standard of the construction camp- positive attitude to Qatalum**
- **Qatalum has contributed to extend the industry in Qatar**

THE END

- ▣ *Recreation in Qatar- Friday trip in the desert*

