



## Operation and maintenance service provision in uncertain times – the case of the FLSmidth Group during the Arab Spring

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**Operation and maintenance service provision in uncertain times –  
the case of the FLSmidth Group during the Arab Spring**

This case was written by Melanie E. Kreye. It was compiled based on primary data collection by the author such as interviews and observations and published secondary data by the case companies. The case was made possible through the generous co-operation of the FLSmidth Group. It is intended to be used as a basis for class discussion.

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## **Operation and maintenance service provision in uncertain times – the case of the FLSmidth Group during the Arab Spring**

The typical silhouette of a cement plant was finally rising out of the morning mist in the distance after the two hour journey from Cairo. The warning remarks of his boss still rang in his ears; *“It’s actually more dangerous to travel to work than to be at the plant in these countries.”* Niels Sorensen<sup>1</sup> was the General Manager of Technical Cement Operations & Maintenance (O&M) in the FLSmidth Group and was on his first trip to the Ramliya plant since its completion 4 year ago. This was the first plant on the O&M business. Then three years ago, the revolution broke out and had paralysed the country. The news reports in Denmark were troubling and Niels had been dreading the trip. But the situation on Ramliya was critical: production was low and equipment and staff were standing idle. Solutions had to be found and this was his task during this visit.

The FLSmidth Group<sup>2</sup>, based on a Danish cement production technology firm, began to expand their business to the O&M of their plants in 2007. They founded NLSupervision as part of the FLSmidth Group<sup>3</sup>. The O&M operating model is a performance-based arrangement whereby NLSupervision are paid on the basis of produced tonnage of cement. NLSupervision provided the highly qualified personnel needed to run and maintain a plant – in total about 225 employees at Ramliya. Since 2007, the total service business of NLSupervision had grown to an annual production of 16 million tonnes of cement<sup>4</sup> and they operated in six different countries in the Middle East and North Africa. Specifically the business in Egypt was the flagship for NLSupervision.

In January 2011, however, Egypt began to experience what has become known as the Arab Spring. This wave of political and social instability often paralysed the whole country and its capital and was frequently accompanied by non-violent and violent protests, particularly in Tahrir Square in central Cairo. The Arab Spring created a series of major risks for the NLSupervision operating model. Staff security and safety were potentially jeopardised causing problems in transportation to the plant. There were gas and electricity shortages which resulted in the cement plant running below capacity. This, in turn, caused severe disruptions to the O&M business.

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<sup>1</sup> The names and some specific events have been altered for the purpose of this case.

<sup>2</sup> <http://www.flsmidth.com/en-us/Industries/Cement>

<sup>3</sup> <http://www.flsmidth.com/en-us/NLSupervision/News/4-03-06-2009+Ramliya+Clinker+Plant>

<sup>4</sup> According to FLSmidth’s annual report for 2013

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### **Building an O&M business model**

Back in 2007, the FLSmidth Group already had a strong reputation as a producer of high-quality equipment for cement production with plants around the world (see Exhibit 1 for an example of a cement plant). However, competition was growing fiercer and sales stagnated as other and cheaper manufacturers of cement production equipment entered the market. Thus, other business opportunities were sought out and providing O&M services was a good option (see Exhibit 2 for the process of operating a cement plant). Niels was one of the first two people working in cement O&M, responsible for formulating the strategy and the O&M offerings and defining the new customer base.

Cement is typically needed most in expanding countries where investments in the built environment meant a steady growth on the market. North Africa provided such an environment and Egypt offered a good possibility for foreign companies (see Exhibit 3). Being one of the most populous countries in the Middle East and North Africa, Egypt had significant cultural, political and military influence in the region. It was thus a good starting point for the FLSmidth Group. The Egyptian cement industry was rapidly expanding in the early 2000s. This attracted many newcomers who saw the industry foremost as a worth-while investment. The newcomers brought the money to build the cement plants but lacked the knowledge and experience in operating and maintaining them. Thus, the FLSmidth Group saw a good opportunity to build their O&M business with these customers.

NLSupervision provided the technical management for the O&M of the plant which was owned by the Customer (see also Exhibit 4). This set-up created several advantages. First, NLSupervision bridged the geographical and operational gap between headquarters in Copenhagen and the customer in Egypt, dealing with customer issues quickly and effectively. NLSupervision deals with the day-to-day business including running the plant, guaranteeing production, employing staff and ensuring safety. FLSmidth would chip in with the establishment of the top levels of the organisation and support of NLSupervision in building own competencies and developing people. Furthermore, through its Technical Operations Department, FLSmidth conducted performance assessments and provided technical experts and trainers to help NLS plants achieve their contractual objectives. Combining central and local capabilities enabled a steady increase of the production capacity for cement production and the overall O&M business.

### **Model under pressure?**

Working on the plant at Ramliya had changed since the start of the Arab Spring. Luckily, the plant was situated out in the desert rather than the middle of Cairo. It had thus been spared from most protests and violence. Since the start of the Arab Spring in January 2011, Egypt had experienced multiple socio-political shocks. The Egyptian government had been ousted twice

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(in February 2011 and July 2013). Many Egyptians participated in the protests instead of going to their jobs. In addition, In August 2013, Egypt introduced a curfew in August 2013 that prohibited people from leaving their homes between 5pm and 7am. For multiple years, the Arab Spring challenged “business as usual” in Egypt and created a situation of high uncertainty.

The Arab Spring caused severe consequences for the O&M operating model of the FLSmidth Group. Many middle and top management positions were filled by expatriates who were brought in from all over the world. During the early weeks of the protests, most of these expatriates had to be evacuated to ensure safety. This left the plant without key managers and operations depended on the commitment and engagement of the Egyptian employees such as technicians and engineers. Luckily, the Human Resource (HR) policy at the FLSmidth Group has invested in their Egyptian employees. Regular technical training and workshops for language and management skills meant that the engineers were able to take responsibility and maintain operations. These HR policies paid off and the plant kept running during the early weeks of the Arab Spring.

Even when the safety situation stabilised, gas and electricity supplies remained low in Egypt. Since the second half of 2012, Egypt faced major problems with energy resources (see Exhibit 5). There was no alternative way to fuel the plants. No one had expected that gas would be a problem because Egypt has large amounts of natural resources available. At least usually, before the Arab Spring changed the status quo. On many days there was no gas available for any production. These issues left the plant to produce below capacity. The O&M business plan was built on the assumption that production would run at 100% or even better – 105%, 110%. Now, production continued on low levels making it difficult to even cover the costs and the FLSmidth Group made major financial losses (see Exhibit 6). The customer’s situation was somewhat better because cement prices increased on the market (see Exhibit 7). But all parties could feel the effect of the Arab Spring.

The volume of activities at Ramliya was scaled down. The kiln output was reduced and there were consequently fewer contractors on the plant. Even now, three years later, they experienced days when there was not enough gas. Eventually the customer called for force majeure. The O&M agreement was therefore not operable anymore, the parties revoked their contractual responsibilities and the future of the O&M contract was uncertain. Could the contract be renewed after the Arab Spring? If so, how long would this take and could both companies hold out for that long? The revolution had already lasted much longer than anyone had anticipated and there was no solution in sight to the economic instability and the shortage of gas and electricity.

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Sitting in one of the meeting rooms on the plant, Niels noticed the differences to before the revolution. During his meeting with the local plant manager Konstantinos, the electric power had already been cut three times. The lights suddenly switch off and the buzzing from the air conditioning falls silent. Then, a few minutes later everything comes back to life again as suddenly as it had stopped. But business had to go on somehow, and this was why he was here.

### **Solving the problems**

A long-term solution needed to be found. The meeting with Konstantinos, the plant manager, was going on the whole morning now. With low gas supplies, they had to find an alternative energy source to increase productivity on the plant. Coal seemed to be the answer. Installing a coal mill would deliver the energy to resume and stabilise production. This would end the financial squeeze and bring the O&M operating model back into the black digits.

They had done the feasibility study and all their homework to start the installation. Coal was a resource typically used in the cement production in Europe. The FLSmidth Group had ample experience with using coal. Coal, however, was a completely new technology for the Egyptian market. It was illegal to use and thus none of the cement plants in the country were powered with coal. But, the country desperately needed cement. Thus, it was possible for coal to be legalised in the future, but it was a gamble. If the gamble failed, they would not only have an under-producing cement plant but also an idle coal mill which they could not use. Their hope rested on the elections next year. A new president could bring the necessary reforms. Next year, they would find out.



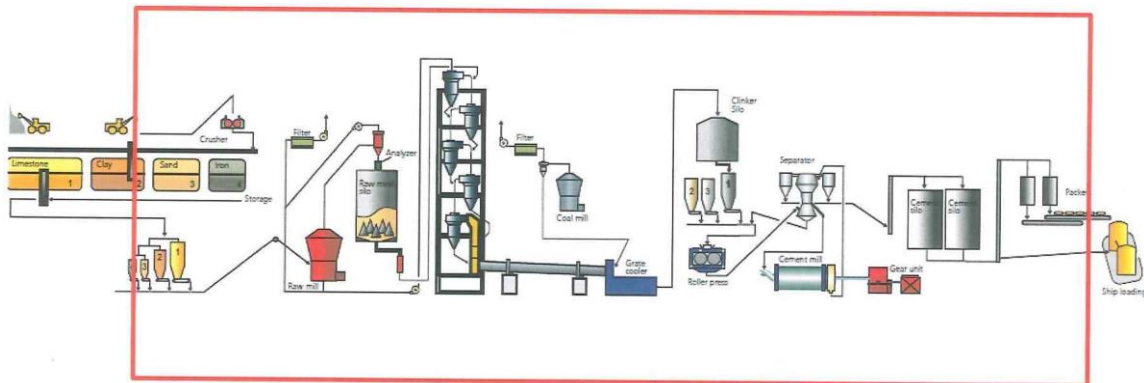
From the challenging conditions in Egypt, the FLSmidth Group learned valuable lessons. They learned the tools of the trade and established a working organisation with defined processes and documentation. With this skill-set, the FLSmidth Group was planning to expand their O&M business model to other nations in North Africa and worldwide. They were exploring the business opportunities in countries such as Tunisia and Angola. Unique challenges would arise in these countries, but Niels was confident in the company's ability to adapt and find solutions, just as they did in Egypt.

## Appendices

**Exhibit 1:** Cement plant of the FLSmidth Group



**Exhibit 2:** Cement processing chart and focus of NLSupervision's activities



**Exhibit 3:** Map of countries in North Africa and the Middle East<sup>5</sup>

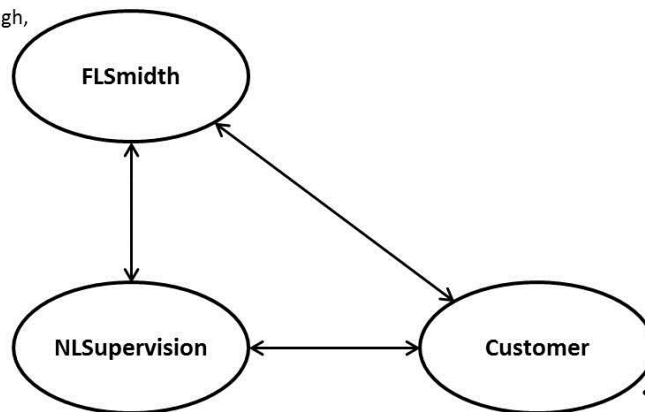
<sup>5</sup> Source: <http://www.eia.gov/countries/mena/>

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Exhibit 4: The relationship between the three O&M partners

- Situated in Denmark
- Plant manufacturer
- Back-office functions such as central administration and contract negotiation
- Service support through, e.g. remote services



- Situated in Egypt
- Provider of front-office O&M service,
- Staffed mainly with Egyptian staff with Expats in key management positions

- Situated in Egypt
- Plant owner
- Provides supplies such as raw materials for cement production
- Sells cement to end customers in Egypt

Exhibit 5: News article in The Wall Street Journal (11<sup>th</sup> February 2014)<sup>6</sup>

<sup>6</sup> Source: <http://online.wsj.com/news/articles/SB10001424052702303874504579377070265003330>



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MIDDLE EAST NEWS

## Egypt Blackouts Raise New Worries

Egyptians Are Suffering Through a Rare Spate of Winter Power Outages

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By MATT BRADLEY CONNECT  
Feb. 11, 2014 7:24 p.m. ET



People stand on a collapsed bridge in Cairo on Tuesday. Political turmoil has led to a deterioration of infrastructure. *El Shorouk/Associated Press*

CAIRO—Egyptians are suffering through a rare spate of winter power outages, an indication they could sweat through a hot summer when soaring temperatures are likely to bring nationwide blackouts, experts say.

Summer blackouts would put Egypt's next leader, set to be elected in the coming months, in a difficult position. In July, frequent electricity cuts, long gas lines and political tensions helped to stoke massive antigovernment protests that prompted the military to oust Mohammed Morsi, the country's first freely elected president.

Some experts attribute shortages to a lack of foreign investment to develop Egypt's natural-gas resources, which meet most of the country's energy needs.

Mohamed Shoeib, managing director of the energy division at Egypt's Citadel Capital and former head of the Egyptian Natural Gas Holding Co., said he expected the power cuts this summer to be far worse than those last summer.

"The expectation for next summer is the darkest summer that Egypt has ever seen," he said. "It is clear that the demand for electricity needed is more than what the government can provide, he added.

Egypt's government said the system has adequate resources to handle summer demand.

Gaber Desouki Moustafa, chairman of the state-owned Egyptian Electricity Holding Co., said he expected the maximum peak load to reach 28 or 29 gigawatts during the summer months, just below Egypt's maximum capacity of 34 gigawatts. He said the winter blackouts were a temporary phenomena due to annual maintenance.

1/7/2014

Egypt Blackouts Raise New Wor

In the past, foreign energy firms that extract all of Egypt's oil and natural gas invested in bringing new sources of supply online. But those companies have shown a reluctance to invest in Egypt amid unreliable payments and political instability. So new natural-gas sources haven't been developed fast enough to meet demand.

The oil-rich Gulf monarchies of Kuwait, Saudi Arabia and the United Arab Emirates have thrown Egypt a lifeline with deliveries of some \$4 billion in petroleum. But their future commitment to propping up Egypt's energy needs remain unclear.

Whether the expected power cuts bring Egypt's political instability to another rolling boil will largely depend on who wins the coming presidential vote.

If the popular head of the country's armed forces, Field Marshal Abdel Fattah Al Sisi, runs and wins, he could potentially weather the kind of broad dissatisfaction that could arise from a dramatic escalation of power outages.

Field Marshal Sisi would also be in a position to reduce to Egypt's energy subsidies, which now cost about \$17 billion a year and account for about one-fifth of the country's budget.

A Sisi presidency could also extend Egypt's lifeline from the oil-rich Gulf states that have been supplying oil. The Gulf states were longtime antagonists of Mr. Morsi's Muslim Brotherhood, the Islamist group that dominated Egyptian politics after the ouster of longtime authoritarian leader Hosni Mubarak in the 2011 popular uprising.

Even if a dire energy crisis spares the next president, it could still have a disastrous effect on the country's foreign investment-starved economy.

Major energy companies have complained of delayed payments.

Those disputes came to a head in late January, when Britain's BG Group said Egypt's government ordered it to divert its natural-gas production for domestic purposes, forcing it to break contracts with its customers and lenders.

Egypt cannot import liquefied natural gas to make up for the deficit because it doesn't have a reception facility for it. Negotiations over an international tender to build such a facility fell through last year.

As it stands, Egypt's ministry of electricity owes an estimated \$2.6 billion to Egyptian Electricity Holding—a debt that is delaying the state-owned energy firm's payments to foreign energy companies and further reducing confidence in Egypt as a source of fuel, said an employee of the electricity company.

"The installed capacity can cover this without any problem on two conditions: that fuel remains available and that all people support us by saving energy," he said.

All Egyptians would have to reduce consumption by 5% to bring supply in line with demand, Mr. Shoeib said.

—Leila Elmergawi  
contributed to this article.

Write to Matt Bradley at [matt.bradley@wsj.com](mailto:matt.bradley@wsj.com)

### Corrections & Amplifications

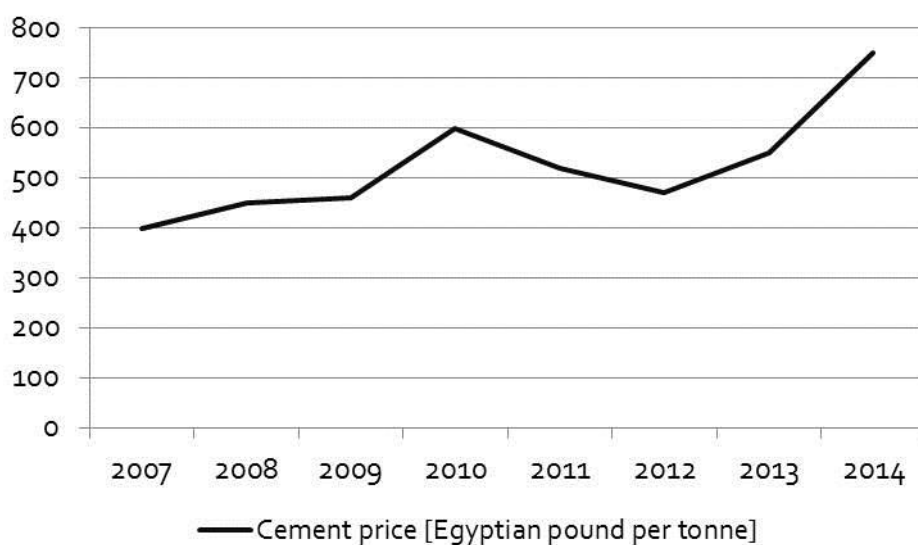
Gaber Desouki Moustafa, chairman of the state-owned Egyptian Electricity Holding Co., said he expected the maximum peak load to reach 28 or 29 gigawatts during the summer months, just below Egypt's maximum capacity of 34 gigawatts. An earlier version of this article incorrectly used the term gigabytes.

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**Exhibit 6:** FLSmidth’s financial results in customer services for 2012 and 2013 in comparison<sup>7</sup>

DKKm	2012	2013	Change
Order intake	9,202	8,005	-13%
Revenue	7,073	7,565	7%
Gross profit	1,997	1,854	-7%
Gross margin	28.2%	24.5%	
Earnings (before interest and tax - EBIT)	787	41	-95%
EBIT margin	0.5%	11.1%	
Number of employees	6,003	5,847	-3%

**Exhibit 7:** Development of the average cement price in Egypt (2007-2014)



<sup>7</sup> FLSmidth Annual Report 2013. Please note that these results are for FLSmidth’s global service business, not just for Egypt.