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From vision to action



Abengoa experience in seawater desalination in developing countries

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Short summary

This case presents four experiences developed under the framework of Abengoa initiatives in seawater desalination in developing countries.

The study first presents key water facts on a global level are shown with special emphasis on the worldwide population that has no access to improved drinking water. Then, membrane desalination is presented as an excellent water technology to generate alternative resources that provide drinking water at an affordable cost.

The central part includes an explanation of the four experiences - Algeria (with three desalination plants), Ghana, Morocco and India – both in terms of plant characteristics and particular issues that had to be tackled during the development of the different projects. It also presents the Public-Private Partnerships (PPP) in water projects involved and how Project Finance (PF) has proven as the most suitable tool to face global water challenges, especially in developing countries where access to finance sources is not easy.

Finally some conclusions and final thoughts are driven.

Key words:

Public-Private Partnerships, Project Finance, developing countries, seawater, desalination.

Issues addressed:

Water resources management (water-use efficiency, integrated water resources management, transboundary cooperation, sustainable extraction and supply of freshwater)

Four case studies in different emerging countries are presented to illustrate how membrane desalination is one of the best technologies to supply high quality drinking water to communities with difficulties to access this essential service. In addition, it evidences how complex but very useful financial tools as Project Finance make possible to overcome existing financial gaps in developing countries.

Water quality (pollution, dumping of toxic materials, wastewater management, recycling, reuse, restore ecosystems and aquifers)

By using an alternative source of water like desalination, exploitation of natural water resources, which is more difficult to regenerate, is diminished. This also involves environmental and social improvement.

Tools for implementation:

Financing / economic instruments

The budgetary problems in developing countries result in difficulties to develop water infrastructure, and thus hinder population access to drinking water. Through Project Finance, Abengoa has been successful to develop projects that solve drinking water accessibility problems under challenging conditions in countries where PPPs were not a common practice.

Who is involved?

- Abengoa
- Financial entities (local and international)
- Insurance companies
- Equity partners
- Multilateral agencies
- Off-takers
- Clients
- Subcontractors, etc.

What were the objectives of the intervention?

- Develop membrane based seawater desalination projects by using Project Finance model that generate alternative drinking water resources for 3.8 million people in developing countries such as Algeria, Ghana, Morocco and India
- Reduce nonrenewable water resources exploitation and their subsequent environmental damages
- Promote the social-economic development of local economies in those emerging countries

Implementation challenges

- Being these case studies focused on countries without previous experience in PPP it adds an additional difficulty to carry out these kind of complex projects conducted under the PF business model
- To cope with bureaucracy in developing countries hinder and slow down some stages of the project
- Overcome power supply cuts that are unfortunately too frequent in emerging countries
- Some plant sites were not the most adequate in principle

Main task/activities undertaken / Tools used:

- Project development
- Negotiations
- Financial closure
- Special Purpose Vehicle (SPV) constitution
- Design and engineering coordination
- Operation and maintenance (O&M) of the plants
- SPV management

Main outcomes / impacts (what has changed?):

- To guarantee the access to improved drinking water to almost 4 million people in developing countries
- Due to the long-term concession contracts, with an average duration of 24 years, there is a strong commitment between the clients, Abengoa and the local communities

Lessons Learned:

Triggers:

- The difficulty of the clients to access funding their water infrastructures projects make traditional business model such as EPC not viable
- The opportunity to take advantage of Abengoa's previous experience and in Project Finance and PPP to offer the clients an integrated product, a solution which goes beyond typical Design and Build (DB) projects by providing not only a technical but financial solution

Drivers:

- Water scarcity, which is specially critical in countries with big desert areas
- Lack of access to improved drinking water supply in emerging countries

Barriers:

- Cultural differences hinder relation with stakeholders
- Bureaucracy is a common barrier in this emerging countries
- From the technological point of view, some projects required a tailor made process solution due to inlet water characteristics

- To face power supply cuts once the plants are running

What has worked well?

- Involvement of local partners for the success of the projects
- Shared financial risk among different entities
- Technological risk is assumed by a leading technology based company as Abengoa
- Being able to establish a strong relation with the client in Algeria
- Once Abengoa has been selected for the contract it has always been capable to bring financial closure to a successful end

What can be improved? Choosing carefully the partners (financial, locals, etc.). This is extremely important as far as the concession period is above 20 years.

The way forward:

- Export Abengoa's technical and financial know how that has crystallized in the shape of successful projects to emerging countries of other geographical areas
- Expand the solutions portfolio to other areas such as water reclamation and key industrial sectors inside water market to solve global water challenges
- Implementing renewable energies as energy sources for water infrastructures

Links:

http://www.abengoa.com/web/en/presencia/abengoa_en_el_mundo/internacionalizacion/index.html

http://www.abengoawater.com/web/en/actividad/abengoa_water_concessions/

<http://www.abengoawater.com/web/en/actividad/proyectos/>

http://www.abengoawater.com/web/en/actividad/abengoa_water_services/

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