

WIF Riyadh 2016

Carlos Cosín
A successful story in developing water projects



Carlos Cosín Fernández

Professional Background



Almar Water Solutions, CEO
International Desalination Association, Director

 <https://es.linkedin.com/in/carloscosin/en>

WIF Riyadh 2016



A successful and well-known leader in the global water market



More than 25 years in top management positions in multinational water companies



Extensive experience in the development of desalination in municipal, industrial and irrigation water markets



Reputed experience in development & management of water projects under PPP scheme

Timeline of Awarded Projects

1995-2016

1995-2004

Commencement of Business
Desalination by RO
(Skid Mounted Solutions)



Middle East,
Caribbean,
Spain, Africa,
USA, Europe,
Latam, China,
Iran, Australia
EPC
SW & BW
Desalination
Small-Medium
Plants
Up to 10,000
m³/day



MENA,
Caribbean, Spain
PPP
SW & BW
Desalination
Small Plants
Up to 1,000
m³/day



2005
Algeria1
PPP
Desalination
100,000 m³ a
day



2006
India
PPP
Desalination
100,000 m³ a day



2007
Algeria2
PPP
Desalination
200,000 m³ a day



2008
Algeria3
PPP
Desalination
200,000 m³ a day

Timeline of Awarded Projects

1995-2016

2009
China
PPP
Desalination
100,000 m³ a day



2013
Morocco
PPP
Desalination
100,000 m³ a day



2015
Chile
PPP
Desalination
20,000 m³ a day



2011
Ghana
PPP
Desalination
60,000 m³ a day



2014
USA
PPP
Conveyance
170,000 m³ a day



2016
Change in Trend
PPP model is
being boosted



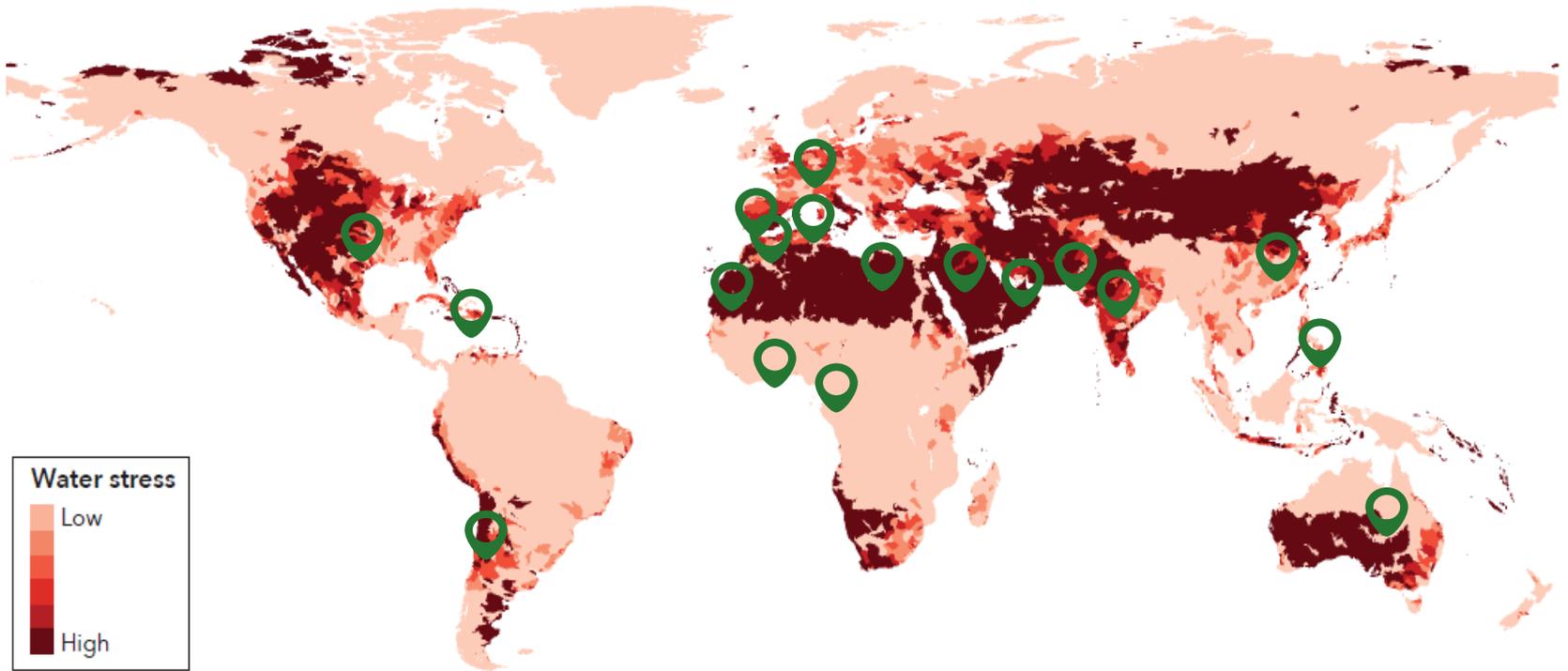
Extensive Geographical Experience

1995-2016



Extensive Geographical Experience

1995-2016



Source: Adapted from WRI, 2015a

90's – Challenges

Small-Medium EPCs & PPPs (by RO)

Changing World

- Exponential increase of demand (municipal, industrial and irrigation purposes).
- Geographical concentration.
- No available resources.
- Scarcity.



EPS Business

- Easy to be supplied and commissioned.
- Standardized to be competitive.
- Post-Sale Support and Services.



Water Market



Water Needs



Power Consumption

Engineered Skid Mounted Solutions

Customer Approach

- No budget constraints.
- DB as conventional product.
- First small BOTs for customers non-familiarized with RO technology (hotels, small municipalities, industries, etc.).

State of Art

- First commercial membranes (nowadays flow-rate up to 3x).
- No recovery or turbines (2x-3x power consumption than today).
- Big RO plants no competitive against thermal technology.
- Small-Medium size solutions when RO was the only solution.

Algeria – Challenges

2005-2015 Desalination PPP Plan

Tariffs

- 2 off-takers, (i) Sonatrach paying water and (ii) public utility company ADE in charge of control and delivering to end-users.
- Transient period in order to ensure gradual price transfer to population.



Reliability on Private Sector

- Previous experience at the end of 90s based on (i) small size RO plants supplied under EPC basis and (ii) public utility company ADE in charge of O&M, did not work.
- 12 plants in 10 years making 2.000.000 m3 a day, 100% in operation on 2015.
- Contracts awarded to reputed skilled companies in the water market .
- Availability as key factor (higher than 95%).



Stable and Secure Framework



Sustainable for Population

Competitive Financing



Huge and Ambitious Infrastructure Plan

Government

- Sonatrach (Oil & Gas State Owned Company) as PPP Guarantor .
- Investor IRR is protected from local currency rate exchange

Financing

- Public Banks financed PPP plan (above 1 billion USD).
- Competitive fixed interest under long-term scheme.

India – Challenges

PPP Desalination Project

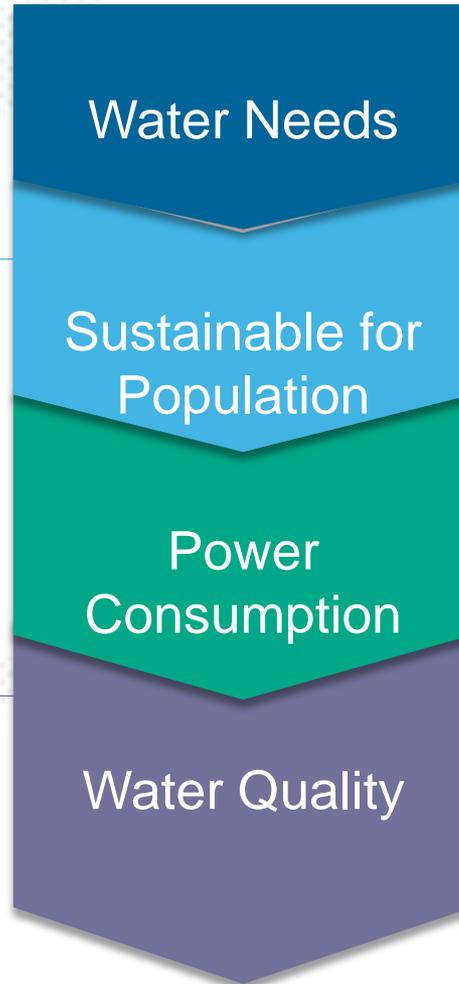
Drinking Water

- Desalted water as part of the city water pool.
- Just option capable to guarantee drinking water quality free of pollutants



Difficult Weather Conditions

- Plant design included extensive pretreatment, capable to treat water in bad weather conditions (i.e. typhoons).
- High Temperature of Sea Water.



Water Needs



Sustainable for Population



Power Consumption

Water Quality

Government

- Budget constraint.
- Large conurbation.
- Big demand of drinking water from alternate source (no conventional).

Technical Innovation

- Variable-Frequency Drives.
- Specific Power consumption nearly 3.0 kWh/m³ (relevant achievement 10 years ago).

China – Challenges

PPP Desalination Project

Services (Water)

- International Top Class Standards



Far from Desal Standards

- Extreme weather conditions in Winter.
- Sea Water temperature near to 0°C.
- Demanding water quality product



Government

- Public budget constraints.
- Country & City modernization (Olympic Games host on 2008).
- Diversify source of fresh water based on Yellow River.

Local Financing

- WPA based on Local currency.
- Project supported just by Municipal Government Guarantee.
- Without local lenders capable to structure and manage this risk, the project would have been a chimera

Ghana – Challenges

PPP Desalination Project

Tariffs

- Utility (Ghana Water) as off-taker.
- Gradual price transference to end-users (water price pool).



Reliability on Technology

- This project competed against conveyance (fresh water available some hundred kilometers away).
- Desalination was chosen since it ensured water supply delivery into 24 months.



Political Framework
in Africa



Growth Population &
Country Development

Developing Country

- Parliamentary Sovereign Guarantee
- World Bank Group Support through MIGA (Multilateral Insurance Guarantee Agency).
- Based on USD currency.

PPP Financing



Financing

- PPP financing structured with top class international lenders.

Shorten delivery time
to supply water

Morocco – Challenges

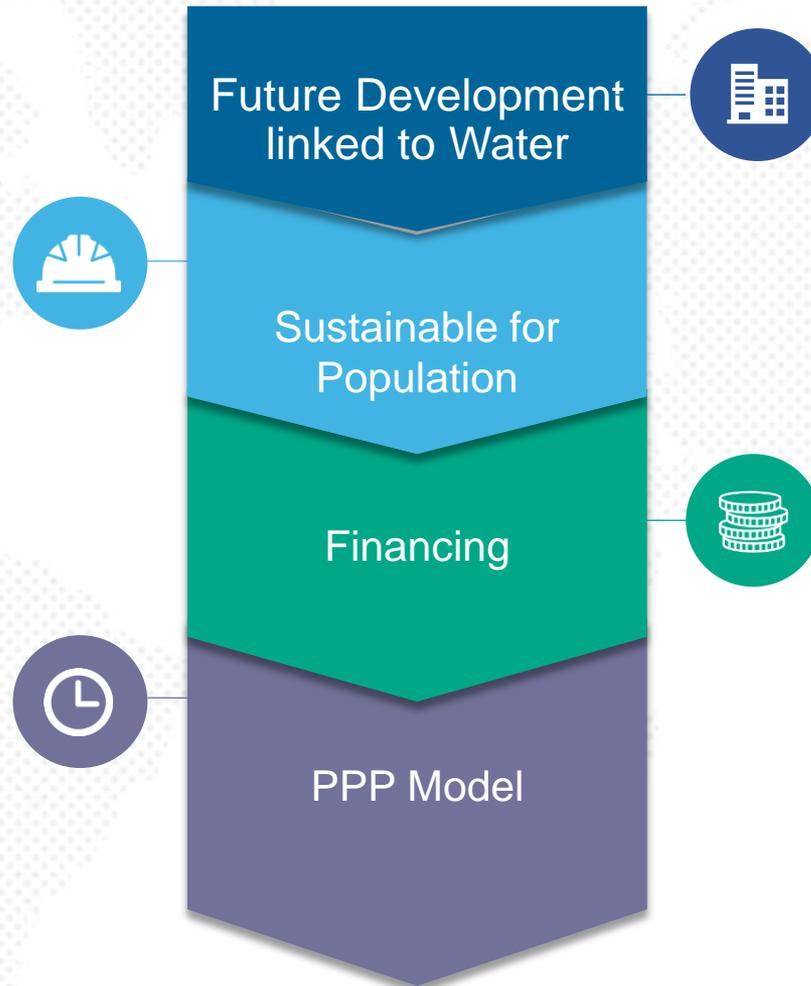
PPP Desalination Project

Tariffs

- Desalination water price could be transferred to tertiary sector more easily.
- Gradual price transference to rest of end-users.

Reliability on Private Sector

- Long development timeframe (almost 10 years) to choose this scheme vs. conventional EPC.



Government

- Increase of water demand put in risk future development of city (highly linked to tourism).
- Public budget constraints.

Local Financing

- Local investor (investment fund).
- Local private lender, capable to deal with local currency exposure.

USA – Challenges

Inland PPP Project

Permits and Clearances

- Highly strict procedures and long timeframe to obtain environmental approvals.
- Traditional water conveyance as an opportunity vs. brackish desalination.
- Proper legal framework to develop large conveyance projects throughout the state.



PPP Advantages vs. EPC

- American market strongly linked to DB model.
- Long delivery time from conception up to commencement of operation.
- PPP showed as a good scheme (i) to shorten project delivery time significantly, (ii) to assume increasing operational risks by private sector.



Local Government

- Conscious that city future plans were strongly linked to water availability.
- Strong financial position



Water Rights

- Local US regulation enables existence of water rights market (land owners).
- To match water rights with water needs far away from location of water availability (conveyance).

Conclusions: Key Issues for PPP success

1

Full Support from Government

- Political Willingness.
- Stability (long term).
- Proper Framework (legal certainty/security).

2

Financing as a Key Factor

- Government support (Guarantees).
- Proper framework (to attract local & international lenders).
- Dividends repatriation policy.

3

Private Sector involvement

- Private Sector 's Experience.
- Commitment (risk management).
- Security for financing.
- Technical and financial feasibility (model PPP).
- Flexibility to restructure the project during operation phase

4

A competitive BOT tariff

- Success (and sustainability) is just possible through a competitive tariff.
- Each party should play its role focusing on what each one better do (specialization, accommodate risks and efficiency).





Thank you!

