WSTA 11th Gulf Water Conference

Desalination and Reuse in Latin America

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Figure 13: Annual new contracted capacity since 2006 by region – SWRO only

- Asia
- Australia
- USA
- Lat/Caribb
- RME & Afri
- Europe
- GCC

3WI DesalData / IDA
IDA Yearbook

12: Annual new contracted capacity since 2006 – by region

[Diagram showing annual new contracted capacity by region from 2006 to 2013]
“Early history of desalination in Latin America”

“…..

it was on the west coast of Latin America, namely in Peru Bolivia and Chile, that there seem to have been the widest number of applications, .... This started to happen from the middle of the nineteenth century and makes this area the cradle of modern applications of desalination.

…..”
Political map till 1879
The Desalting Plant Inventory of IDA published in 1968 already contains 30 plants for Latin America

- Argentina, Chile, Cuba, Ecuador, Honduras, México, Panamá, Perú, Puerto Rico and Venezuela, covering the period 1930 - 1968.

- The two oldest in Venezuela, 1930 and 1937.

- The largest is the Multi-Stage Flash plant of Rosarito, México, built in 1967, capacity 7.5 millones US gallon/day.
The IDA Desalting Plants of Desaldata.com and GWI contained 800 plants for Latin America in 2012.

- 300 México
- 120 each Brasil and Chile
- 70 Argentina
- 50 each Perú and Venezuela
- 25 each Colombia and Ecuador

Smaller numbers for: Belice, Bolivia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, Paraguay, Surinam, Uruguay
After 150 years Antofagasta is going back to depending 100% from desalination for his fresh water supply
### 1. Oil Recovery Technology Using “Water Flood” 2/3

**<Oil Recovery Using Seawater at Offshore-Platforms/ FPSO>**

#### Platforms

- **100~300m**
- **Oil Injection**
- **Oil Tanker**
- **FPSO**
- **Water Injection**

*Oil-field are filled with Porous rocks.*

(Floating Production, Storage and Offloading System)

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<th>Technology</th>
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| SR Water Flood   | Injection of SR (Sulfate Removal) Water | 1. Sulfate Scale Prevention (Ba²⁺, Sr²⁺ in Formation Water)  
                  | 2. Prevention of H₂S corrosion from SRB (Sulfate Reduction Bacteria)      | -SO₄²⁻ : 25~40ppm              | Many                              | NF        |
| (Secondary)      |                                       |                                                                            | -TDS : 28,000ppm               |                                 |           |
|                  |                                       |                                                                            | *High TDS is important.*       |                                 |           |
| LS Water Flood   | Injection of LS (Low Salinity) Water   | Recovery Rate Increase compared to SR (Effectiveness depending on the oilfields) | -SO₄²⁻ : 25~40ppm              | BP Claridge Project              | SWRO + NF |
| (Tertiary/EOR)   |                                       |                                                                            | -TDS : 500~1000ppm             | (1 project only)                |           |
| LS+Chemical      | Injection of LS + Chemicals (Polymer, Surfactant, Alkaline)               | Recovery Rate Increase compared to LS (Effectiveness depending on Oilfields) | -SO₄²⁻ : 25~40ppm              | None..                          | SWRO + NF |
| (Tertiary/EOR)   |                                       |                                                                            | -TDS : 500~1000ppm             |                                 |           |
Petróleos de Venezuela - 75 MLD SWRO
Vaca Muerta

Players in Argentina:

YPF
PETROBRAS
APACHE
TOTAL
PLUSPETROL
PAE
EOG
EXXONMOBIL
SHELL
GRANDE TIERRA
API
etc.
Aquapolo, São Paulo, produces 1,000 l/s of high quality water from effluent of a Sabesp WWTP intended for industrial reuse
ARGENTINA

50 MLD BWRO - surface water - Matanzas
UF and MBR are well established in the region, in particular in the Petrobras refineries, beverage industry, pulp and paper etc.
... new challenges and interest
... it is not a coincidence that Sao Paulo hopes to host the IDA World Congress in 2017

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... in the meantime ...