



Water Treatment Projects Outlook in Saudi Arabia

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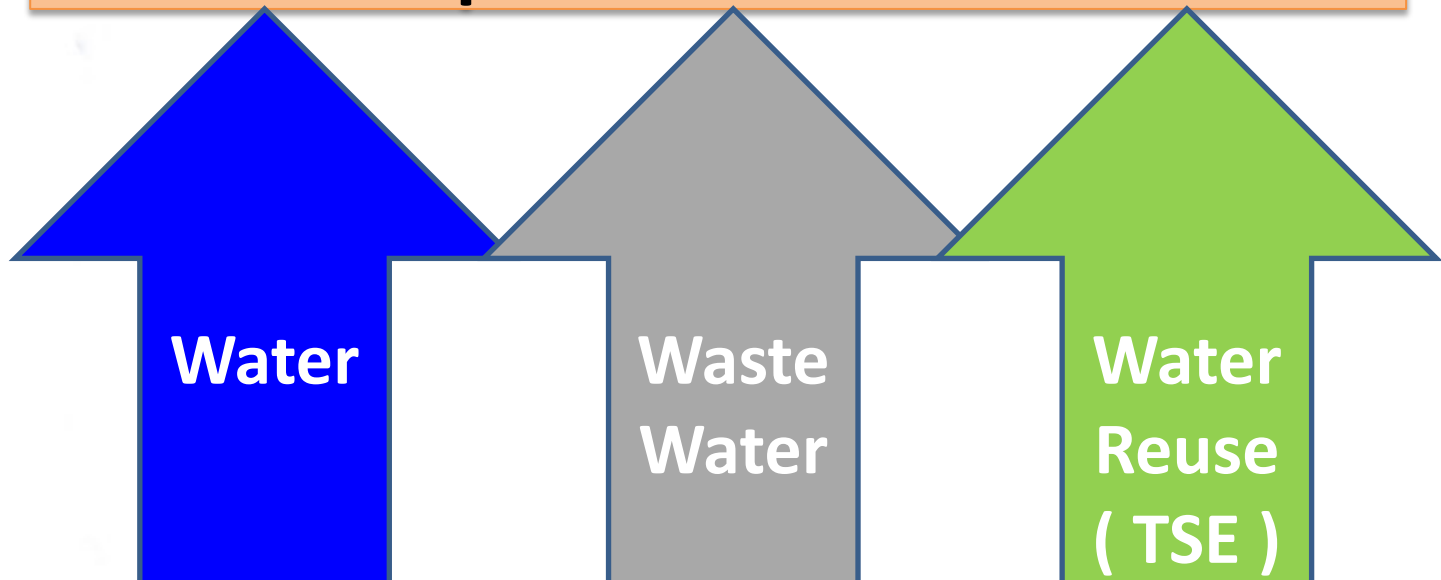
Agenda

1. Investment & Opportunities
2. Market Forecast –2020
3. Water Reuse Projects
4. O & M Opportunities
5. Investment (new technologies)
6. Conclusion



1/1. Investment & Opportunities

**USD 80 Billion
the anticipated investment - 2020**



- **Domestic , Industrial & Agriculture**
- **Plants, networks & O&M**

1/2. Water Demand

**Factors
driving
Water
Demand**

Growth in population

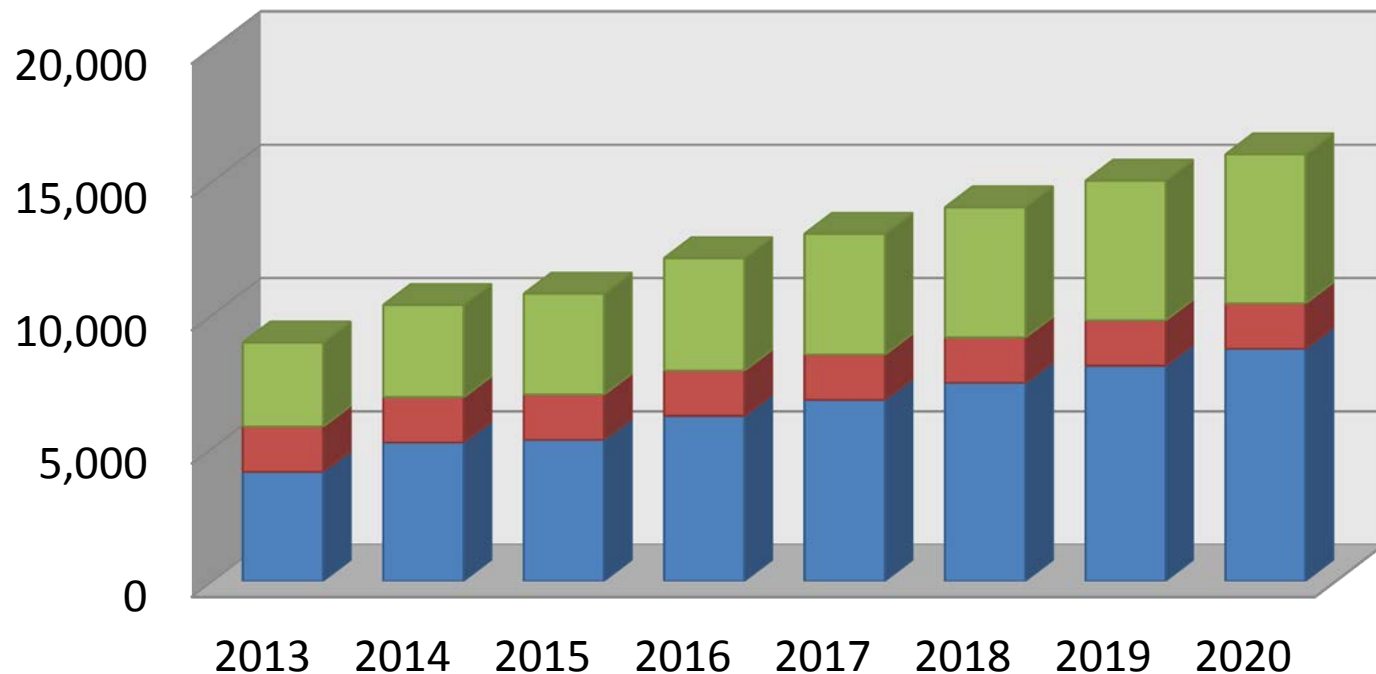
**Economic & Industrial
Development**

Government strategies



2. Market Forecast – 2020

Capex & Opex Forecast 2020 (Million USD)



Opex - Water & Wastewater

Capex - Wastewater

Capex - Water (Municipal & Industrial)

3/1. Water Reuse – Definition

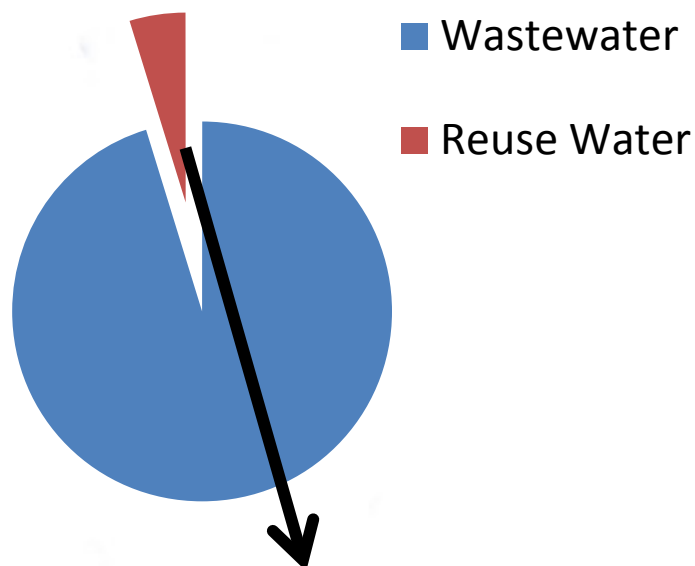
- **Reuse** → using a product / component in its original form more than once .
- **TSE** → might require further treatment if it needs to be used in industrial applications



Treated water quality

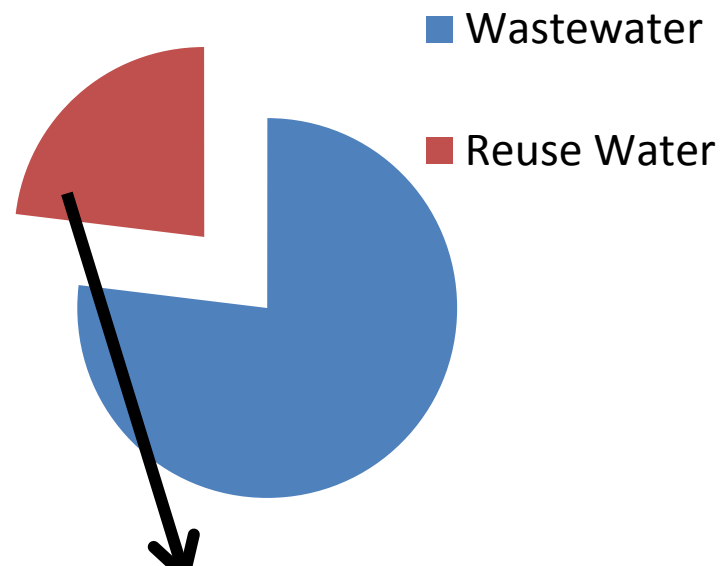
3/2. Water Reuse – Opportunities

Projected Water Reuse 2010



Water reuse account for 2
< 2 % of Saudi Arabia's
water supply

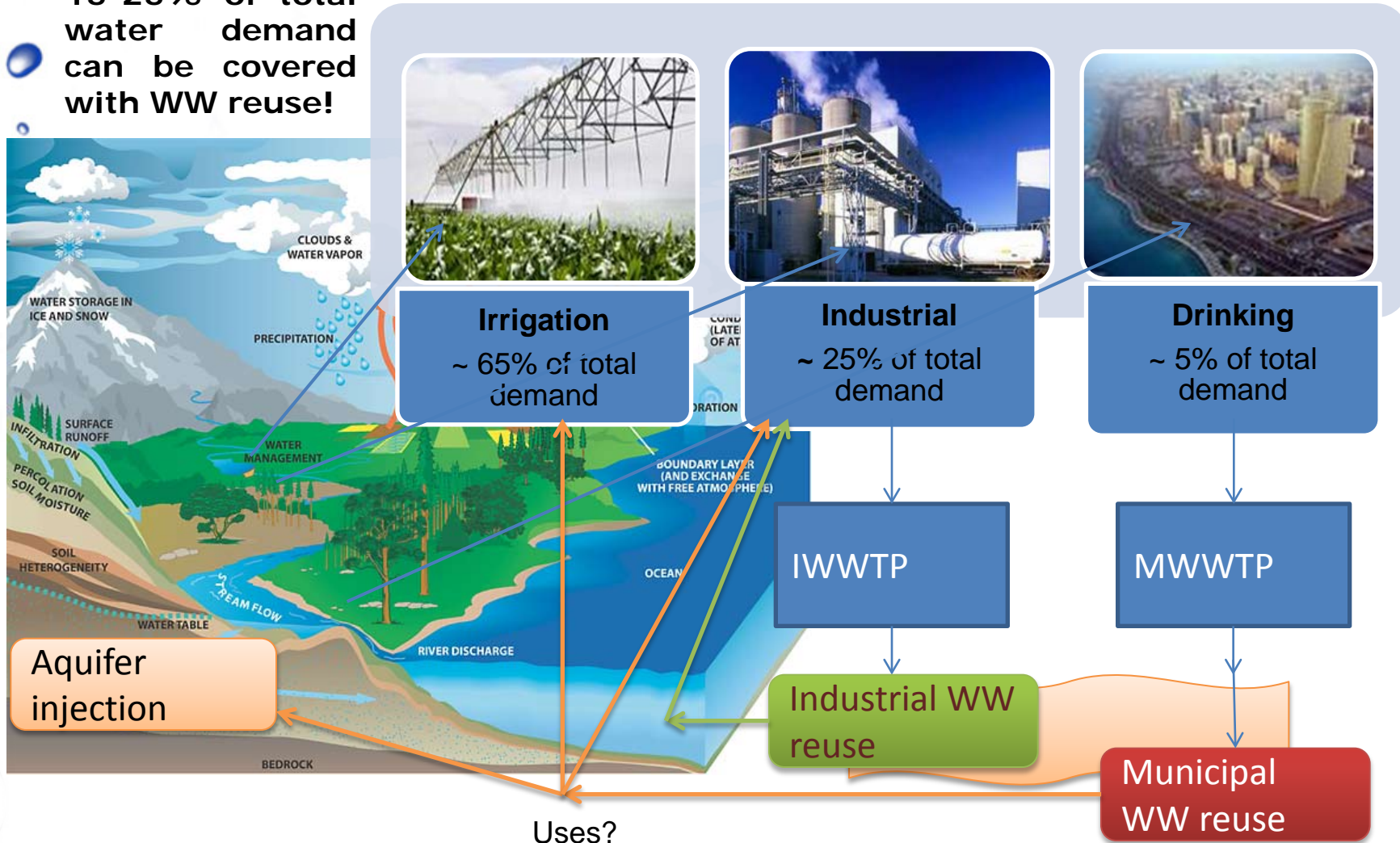
Projected Water Reuse 2020



Water reuse account for
about 30 % of Saudi
Arabia's water supply

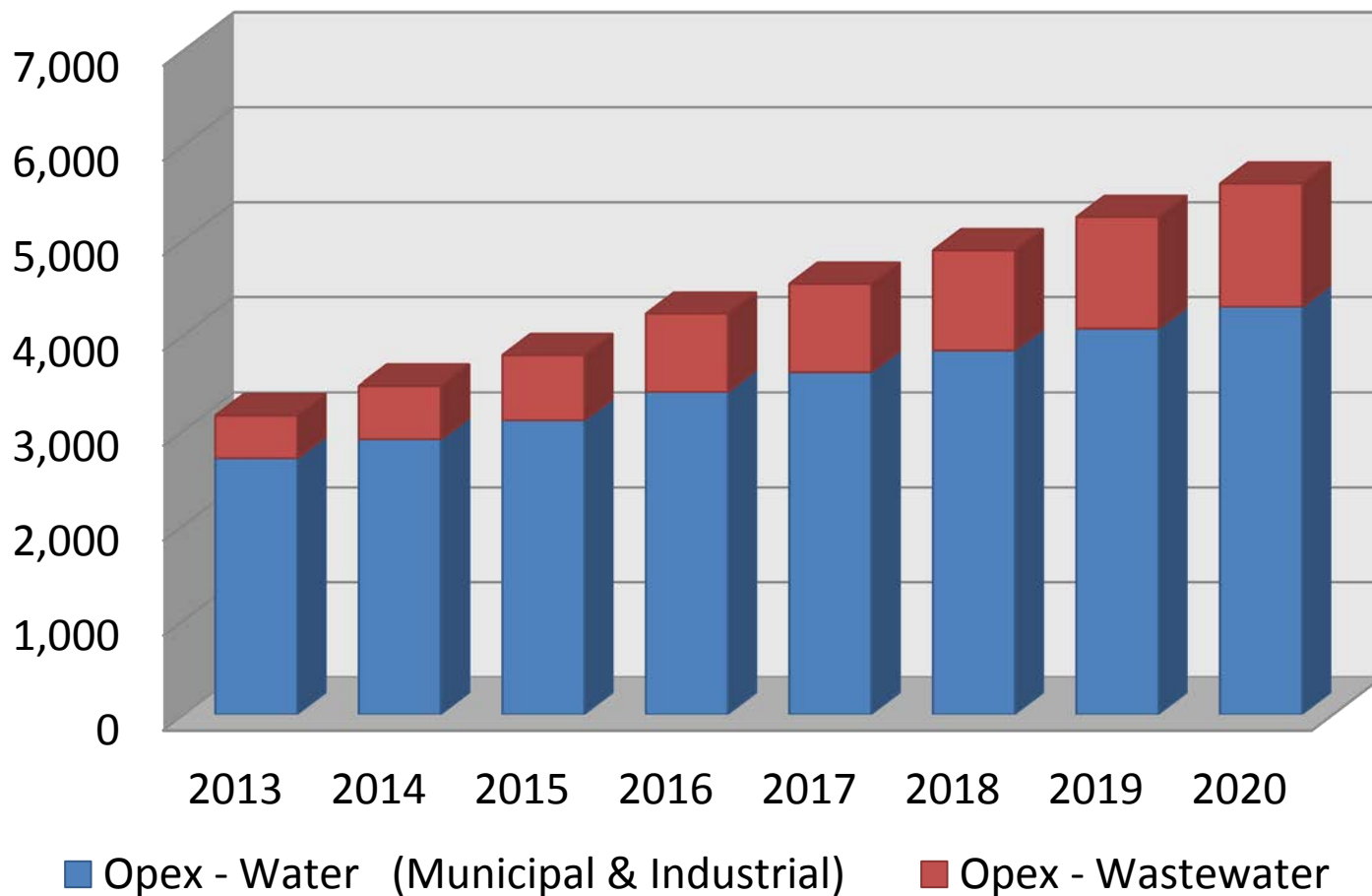
3/3. Water Reuse- Application

15-25% of total water demand can be covered with WW reuse!



4/1. O & M Opportunities

Opex Forecast – 2020 (Million USD)



4/2. Conventional vs BOT Models

	Strengths	Weaknesses
Conventional	<ul style="list-style-type: none">▪ Local knowledge	<ul style="list-style-type: none">▪ Efficiency▪ Old technologies
BOT/ BOO	<ul style="list-style-type: none">▪ Efficiency / performance▪ Technology / innovation	<ul style="list-style-type: none">▪ No local knowledge▪ Time for improvement

	Opportunities	Threats
Conventional	<ul style="list-style-type: none">▪ Planned growth	<ul style="list-style-type: none">▪ Meeting demand▪ Environment & social
BOT/ BOO	<ul style="list-style-type: none">▪ Supplementing public sector▪ Diversifying economy	<ul style="list-style-type: none">▪ Duration▪ Competitiveness▪ Social & Environment challenges

4/3. Key Players in Water Sector

1- The Ministry of Water & Electricity

- takes overall responsibility for water & power sector in KSA.

2- The National Water Company

- Responsible for underground water production & treatment , water distribution & wastewater treatment & collection.
- Covering Riyadh, Jeddah, Makkah & Taif which represents ± 40 % of water facilities in KSA.

3- The Water & Electrical Company (WEC)

- formed in 2003 to carry out the IWPPs.

4- The Saline Water Conversion (SWCC)

- responsible for water treatment plants & water transmission in KSA.
- Production facilities are in process of being privatized.

5- **Marafiq** ➔ the utility company for Royal Commission for Jubail & Yanbu

6- **Others** ➔ Aramco, SAGIA & Private Utilities.....etc.....



5/1. Investment (in New Technologies)

Cutting Edge Technologies

- Huge potential for investment in new technologies .
- Turning waste to resources .

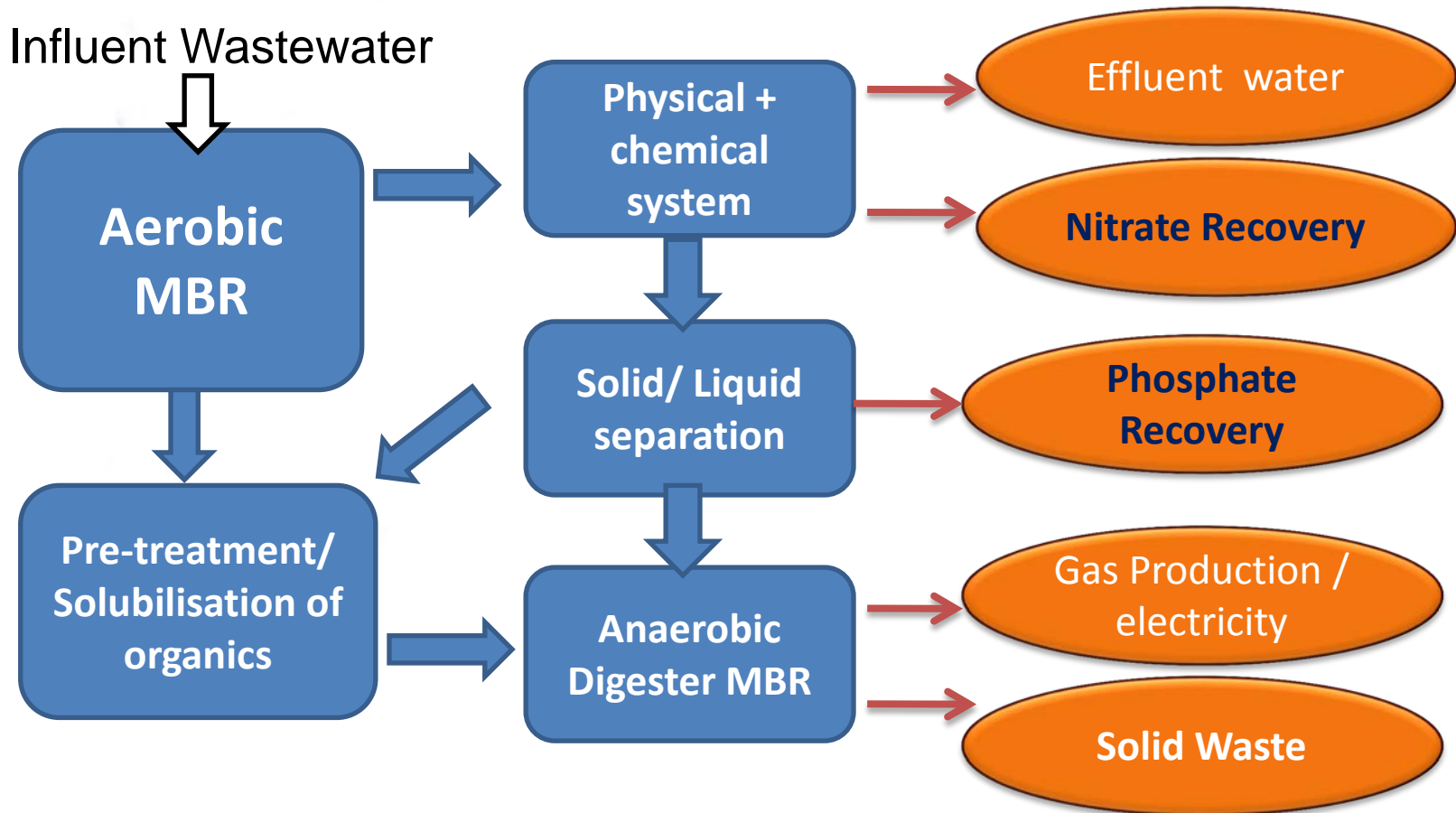
Creating Value from Waste

- Entering Water Refinery Age (recovering Nitrate& Phosphate)
- Recover salt from waste brine.



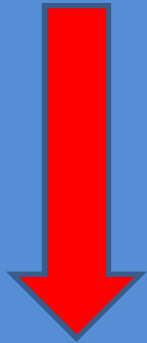
5/2. Resource not Sewage Waste

- The water refinery age



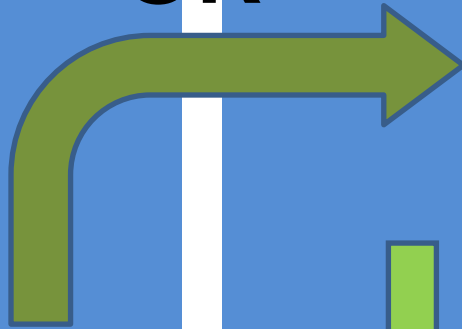
5/3. Opportunity & Sustainability

**Current
SAWACO**



**5,000 t/d Brine
water into Red
Sea**

OR



5000 t/d Salt recovery from waste brine



**+ Electricity
0.6-3.0 KW/t**



**3720 t/d
Fresh
water
\$x/t**



**280 t/d
Salt
\$y/t**



**70 t/d
bittern
\$z/t**



**\$α
Million/
year**

6. Conclusion

- ✓ **Indicators / Growth → significant investment is required in water & wastewater sector**
- ✓ **80 billion USD needed up to 2020.**
- ✓ **Meeting demand /performance & efficiency/ developing facilities → pave the way for Private Sector to invest in new projects (EPC, PPP &IWPP, BOT, BOOT).**
- ✓ **Implementing cutting edge technologies to secure clean & safe water for industrial reuse**
- ✓ **recovering resources from waste streams**





Thank You

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