

Think Infrastructure Partnerships



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PRESENTATION

**8th Arab-Hellenic
Economic Forum**

Water Reuse:

**The Neglected
Opportunity in the
Arab World**



Date

27-28 November 2019



Location

Arab Hellenic Economic Forum



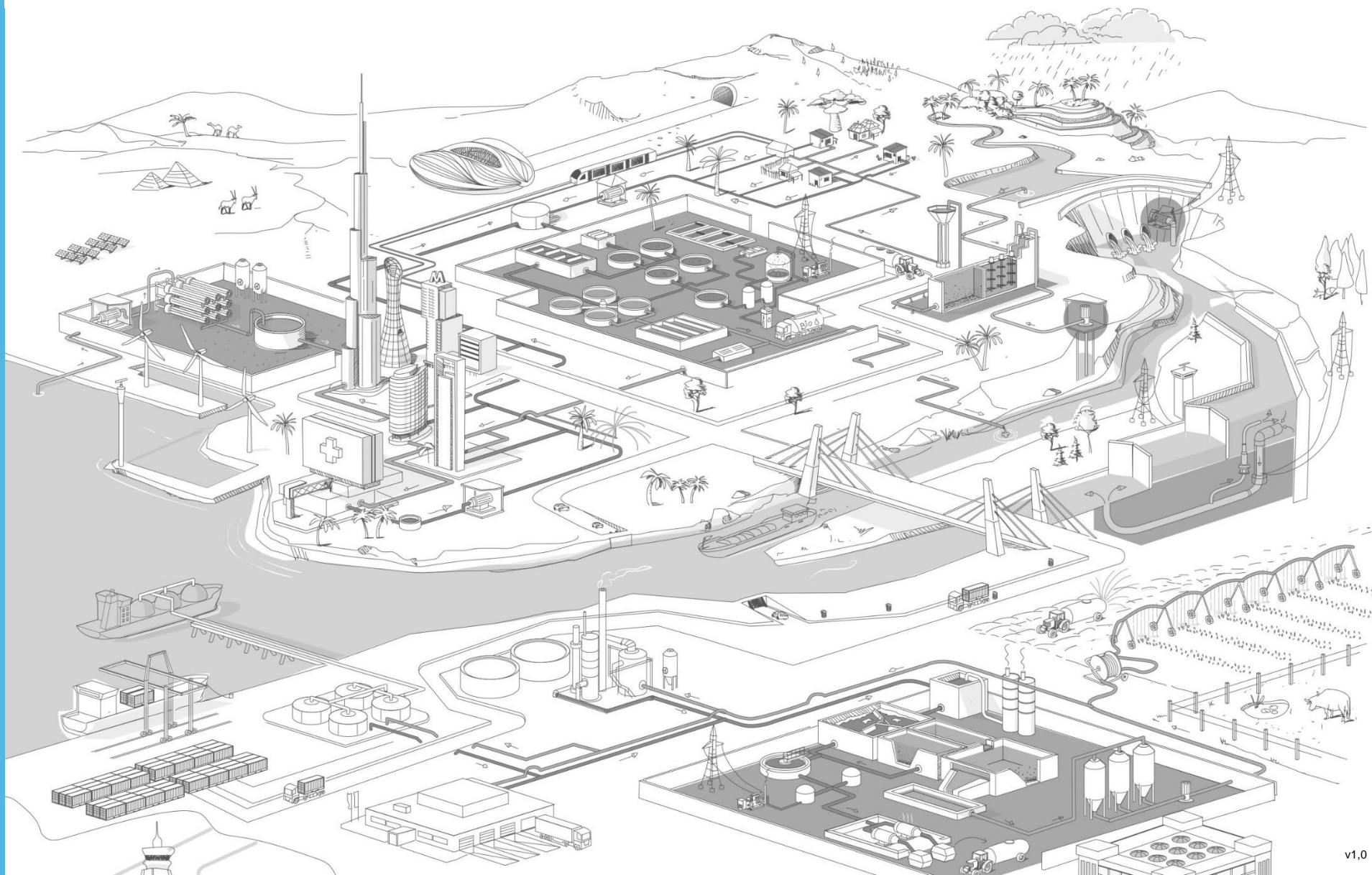
Presenter

Ghassan Ejeh



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Concessions & Assets

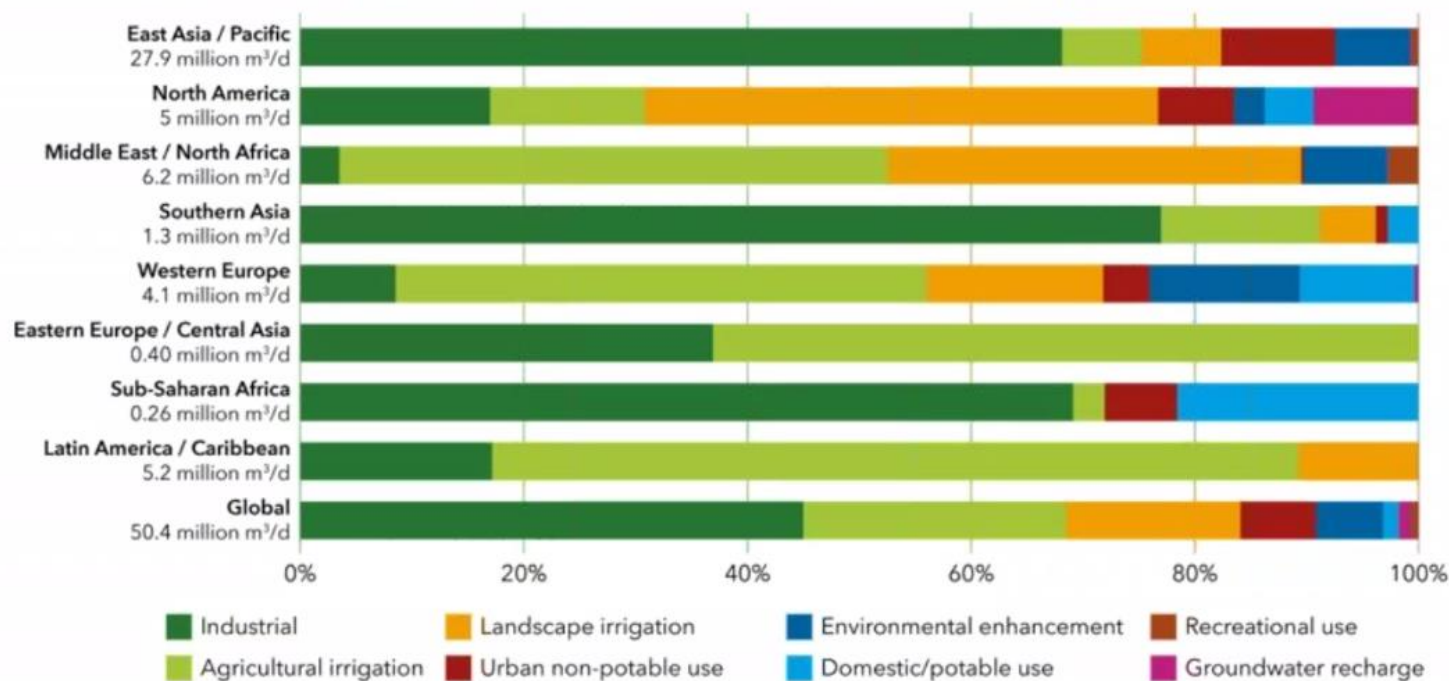


Global Water Reuse- Low in MENA



Water reuse: installed capacity by reuse application 2010-2017

- Industry has overtaken agriculture as the largest user of treated wastewater, particularly in Asia
- Agricultural/landscape irrigation remains a key application for water reuse
- Potable reuse represents a small but growing and high-profile market segment



Source: GWI



CHALLENGES	CURRENT PRACTISE	OPPORTUNITIES
<ul style="list-style-type: none">➤ Limited Natural Resource➤ Costly Desalination	<ul style="list-style-type: none"><input type="checkbox"/> Subsidized Tariff<input type="checkbox"/> Individual Desalination	<ul style="list-style-type: none">✓ Close the loop✓ Reuse Water



If every human would use the same amount of water that is used by population of the Middle East, we will need the water supply of 5.5 planet Earth

Reuse WATER

Sustainability GOALS



CHALLENGES	CURRENT PRACTISE	OPPORTUNITIES
➤ Limited Natural & Costly Desal Resource	<input type="checkbox"/> Subsidized Tariff & Individual Desalination	✓ Realize True Value & Close Boreholes
➤ Inefficient Allocation & Use of TSE	<input type="checkbox"/> Irrigation: Recreation & Agricultural Use	✓ Allocate for Industrial Use
➤ Weak Regulatory Framework	<input type="checkbox"/> Government Finance & Manage Alone	✓ Engage Private Sector & Realize Sustainability
➤ Seasonal Demand Fluctuation	<input type="checkbox"/> Non-Revenue Discharge of TSE to the Sea	✓ Integrated WASR System Using Class A Water

Reuse Water-

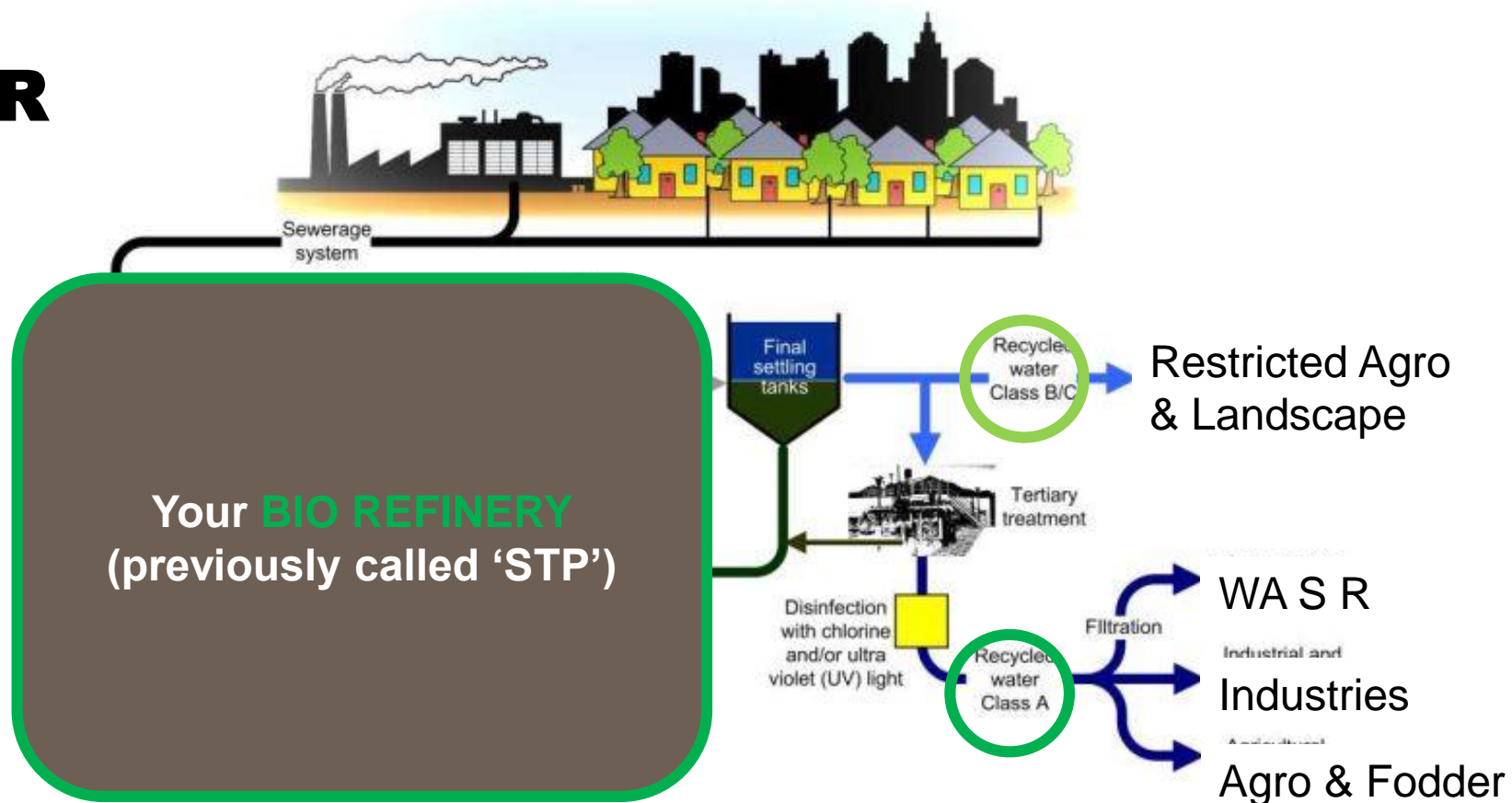
BIO REFINERY WATER

Definition

BIO REFINERY

From Wikipedia

A bio refinery is a facility that integrates biomass conversion processes and equipment to produce fuels, power, heat, and value-added chemicals from biomass.



It's “BIO REFINERY WATER” (BRW)

“WATER RECYCLING IS PART OF NATURE”

BRW POTENTIAL

100% Value

BIO REFINERY WATER

1,000 gallons of wastewater contains the equivalent of \$1.88* worth of fertilizer, energy as methane, beneficial organic matter for soils (like compost), and clean water

*~\$0.41 (AED 1.51) per m3

RESOURCE

“EVERY DROP COUNTS”

FIGURE 3.2

Overview of waste resources and potentials for improved management and recovery

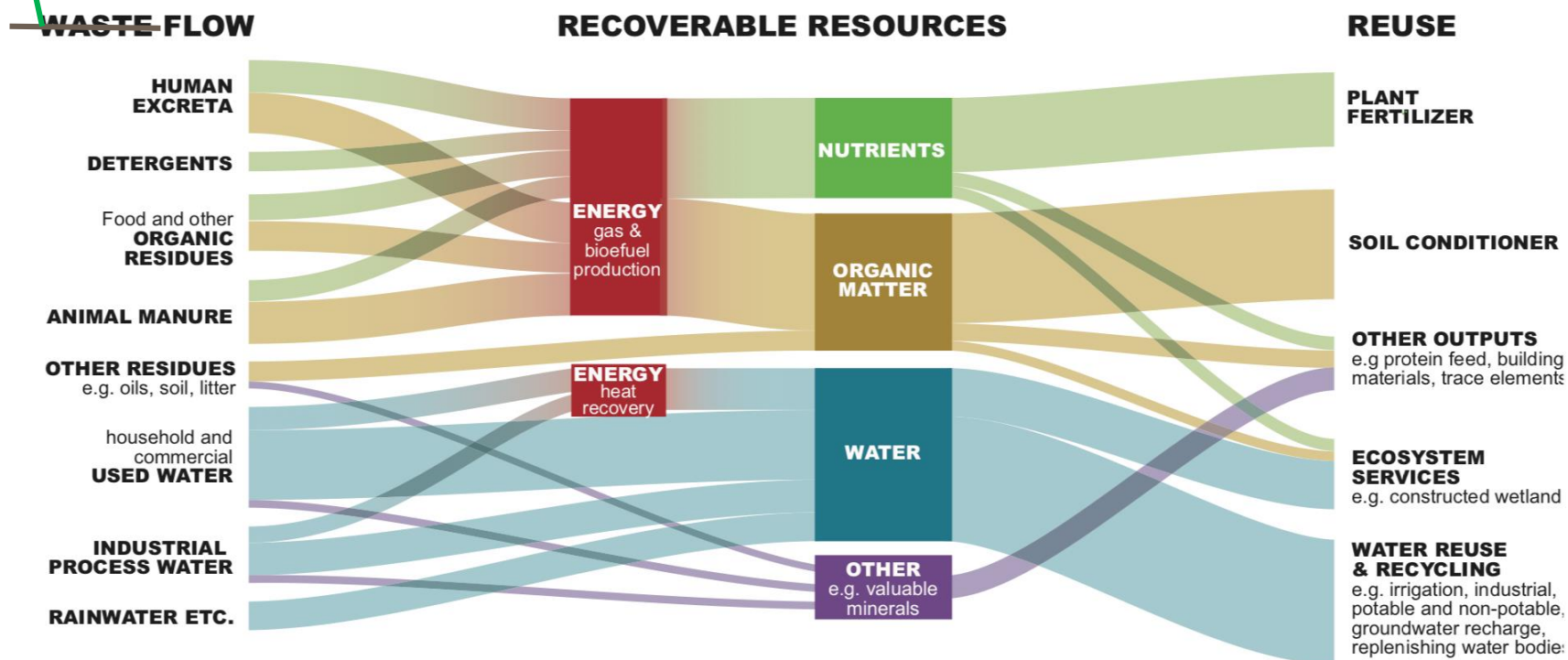
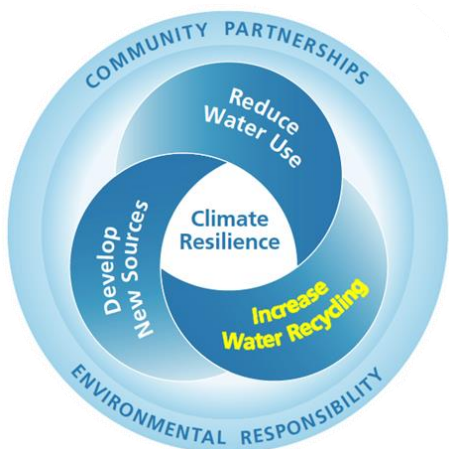


Figure: Stockholm Environment Institute

Total Integration Using WASR



AQUIFER STORAGE & RECOVERY (WASR) #1 Reference in Middle East

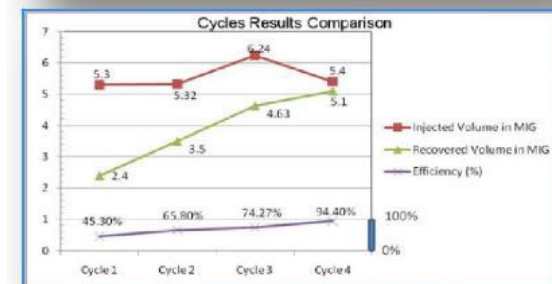
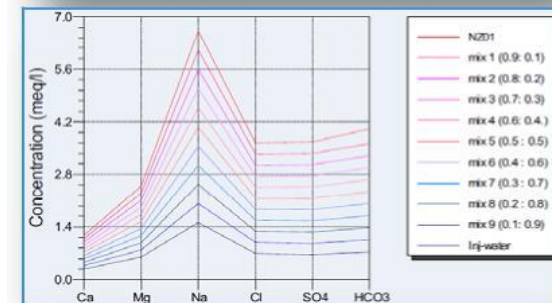
- ✓ The SHARJAH Model & Opportunities with **BRW**

THE MODEL

- ✓ 2001-02 feasibility, 2003-04 pilot project
- ✓ Aquifer Storage and Recovery of water
- ✓ System efficiency: 95% recovery
- ✓ Cost efficiency: 10% of surface storage

THE OPPORTUNITY

- To use WASR for TSE/BRW from the STP
- Produce Class A **BRW** Quality
- Locate **BRW** Production at strategic point
- Reuse as potable water through WASR
- Realize true value





THANK YOU

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