REUSE OF DRAINAGE WATER IN IRAQ

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WORKSHOP: FUTURE OF DRAINAGE UNDER ENVIRONMENTAL CHALLENGES AND EMERGING TECHNOLOGIES
1. IRAQ’S WATER SITUATION
2. THE NEED FOR ACTION
3. THREE OPTIONS FOR DRAINAGE WATER REUSE
4. CONCLUSION

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The SWLRI Project: The Strategy for Water and Land Resources in Iraq was realized by a consortium of International consultants from 2011 to 2014 for the Government of Iraq (GoI).
The need for a delicate balance between competing water uses.

A NEED FOR ACTION

Water Demand: the gap between supply and demand might be filled by wastewater reuse.

- Supply: 67.33
- Deficit: 56.52
- Water Demand: 70.80

ICID2015
Iraq's Water-Food-Energy-Environment Nexus
The Need for Urgent action for:
• feeding and providing energy for a growing population,
• combating drought and adapting to climate change,
• sustaining a healthy environment

The re-use of drainage waters was part of the strategy.

• Present water use in irrigation in Iraq is approximately 50 BCM/year
• Inefficiency of the Irrigation System
• Large parts of the irrigation water goes back to the river or goes to the MOD
• The MOD Collects 3.8 MCM per year
• In 2035, a total of 4.6 BCM per year will be collected and made available for reuse
1. Provision of water for re-injection into the oil fields of southern Iraq;
2. Provision of water for the development of green belts around cities;
3. Augment the flow to Hammar Marshes and the Shatt al Arab (via the use of the water from the East Tigris Drain).

**3 options for the re-use of agriculture drainage water in Central and South Iraq**

**Option 1: Re-injection in the Oil fields**

In a water-scarce future Iraq, there is no justification to use freshwater to support oil production. The country will have to rely heavily on the re-use of treated water to support the energy and industrial sectors. The Strategy assumes that 69.2% or 1.227 BCM per year of the water needs for the oil industry will be provided by alternative sources of water. The cumulative need for the oil sector is 1.773 BCM/year (or 3.25% of the total available fresh water).
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Option 1: Re-injection in the Oil fields

69.2% of the water needs of the Oil Industry in Central and South Iraq can be covered.

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Option 2: Green belts around the cities

Green belts have been proposed for development around cities. The objectives are:

- to mitigate the effects of wind erosion, thereby preventing desertification and reducing other negative impacts of dust.
- To provide shelter and habitat for wildlife, supporting biodiversity.
- To create a space that can be used for as parks for recreation.
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**Option 2: Green belts around the cities**

- 150m wide Green belt
- Selected species of salt tolerant tree varieties and bushes
- Drip irrigation in the first years
- The project covers the governorates and district capitals
- A total of 28,000 Ha are concerned
- A total water demand of 0.313 BCM / Year compared to the 9.3 BCM of drainage water generated

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**Option 3: Supply the Hammar Marshes**

Net from the re-use of water for oil field re-injection (0.550 BCM/y) and the proposed green belts program (0.313 BCM/y), the MOD will still provide an additional 2.611 BCM annually from the drainage of irrigation projects
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STRATEGY IMPLEMENTATION: AN ALTERNATE FUTURE

CONCLUSION

- Water scarcity necessitates efficient use of water and identification of creative ways for reusing water.
- The re-use of drainage water greatly expand the ability of Iraq of meeting its objectives for 2035 and beyond.
- Poor water quality and topographic constraints limits the reuse in agriculture.
- The reuse of drainage water can sustain industrial and environmental needs.
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THANK YOU!

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