

Mediterranean Regional Process Ordinary Session

Managing & restoring Mediterranean ecosystems for water services and biodiversity

Water Forum, Brasilia

Case Study, Egypt

Lake Manzala Engineered Wetland

A Successful Model for Natural Low Cost Treatment System

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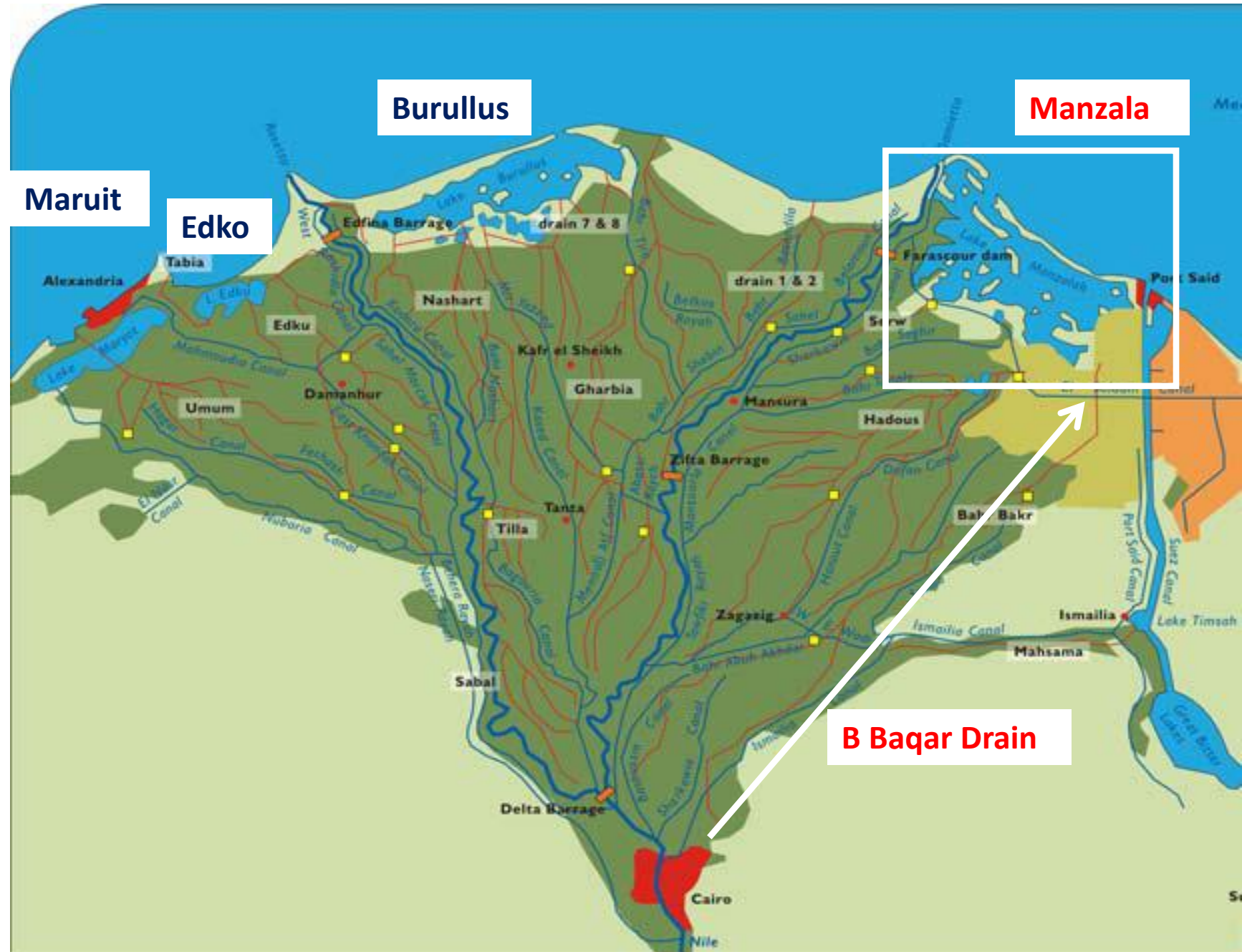
Ministry of Water Resources and Irrigation, Egypt

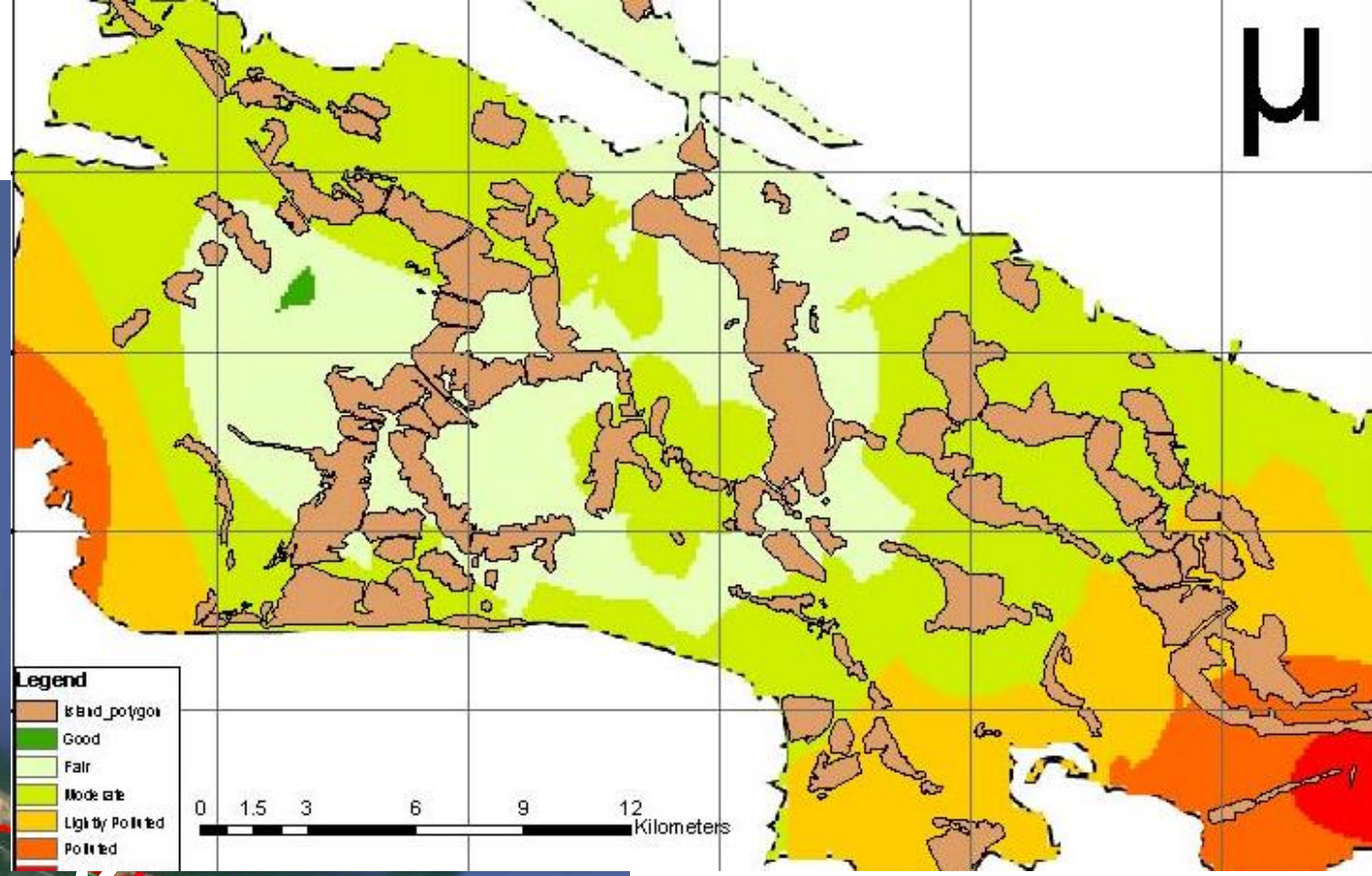
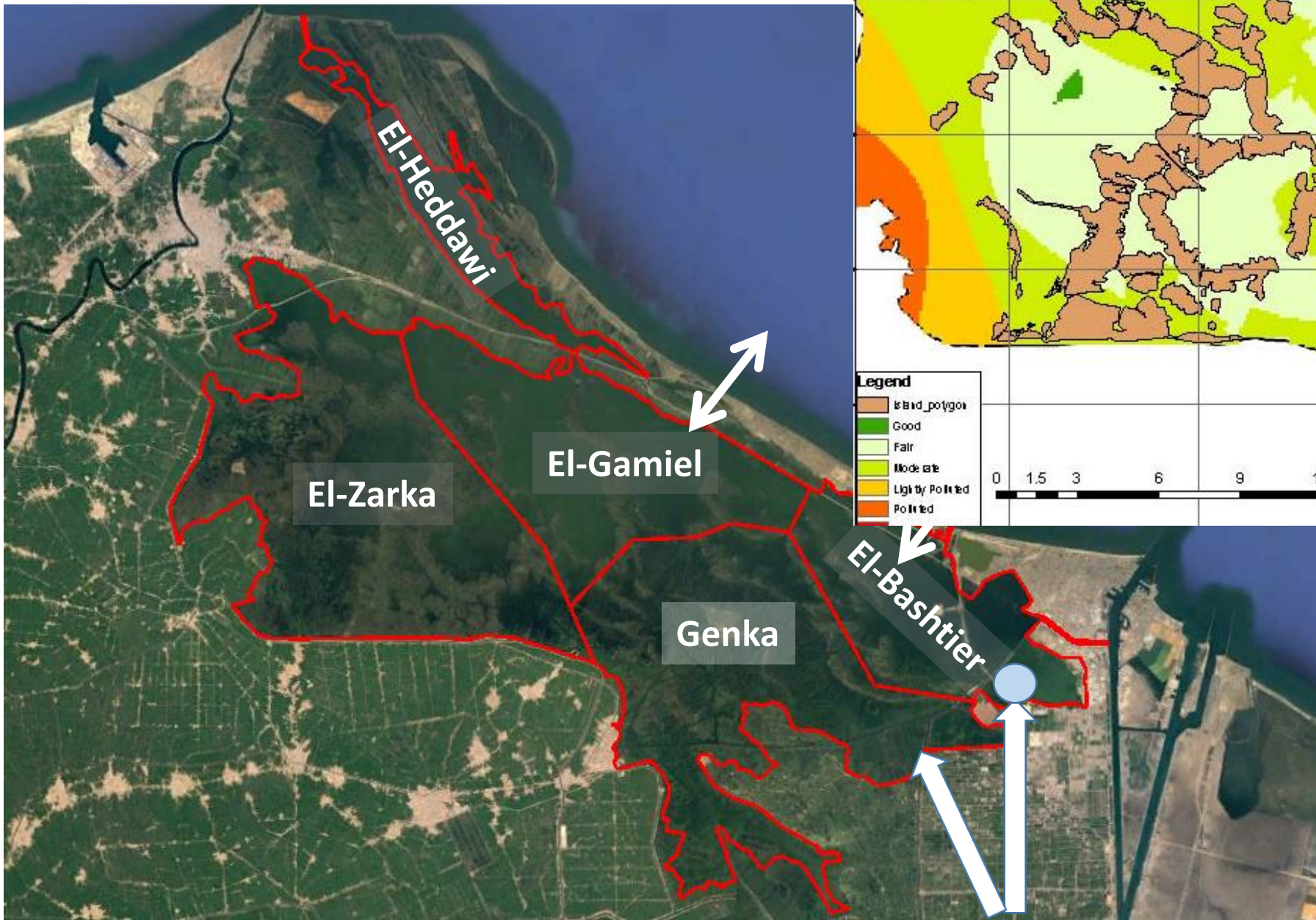


Delta Northern Lakes

Main source of pollution

- ❑ B Baqar Drain
- ❑ Flow 2 BCM/year
- ❑ 35 % Domestic waste
- ❑ 5% Industrial waste
- ❑ 60% Agricultural drainage





Physical Features

- 5 Basins
- 2 Openings to sea
- Constructed Wetland

Lake Manzala Engineered Wetland

- ❑ It was constructed on 2001 funded by UNDP/GEF
- ❑ Since 2005, the (NWRC)/(DRI) had taken the full project responsibilities
- ❑ It provided an economically and environmentally sound alternative to WWT facilities (just one-quarter of conventional methods cost)
- ❑ The objective is to provides Egypt with opportunity to become a recognized leader in the development of this innovative technology
- ❑ Protect the economic activities such as fisheries, raising livestock, and farming



Constructed Wetland

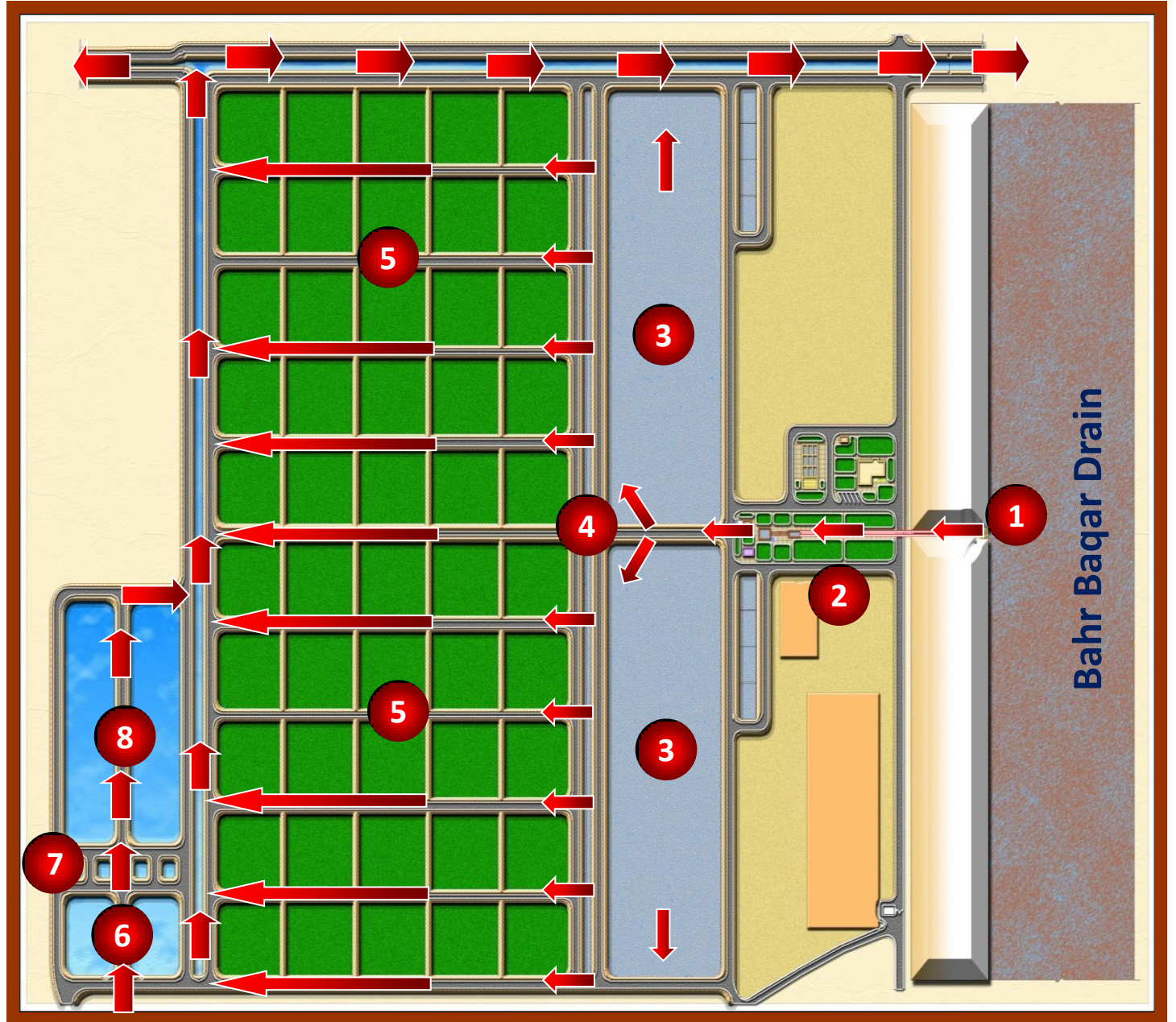
Lake Manzala

SFW (25000 CMD) 0.5% of the
BB drain flow

- 1- Intake
- 2- Pump Station
- 3- Sedimentation Basin
- 4- Distribution Channel
- 5- Surface Flow Beds

SSF (500m³/ Day)

- 6- Reciprocating Cells
- 7- Hatchery Ponds
- 8- Fingerling Ponds



Treatment efficiency:

- 61 % of BOD
- 80 % of TSS
- 51 % of TN
- 97 % of total coli form bacteria

Reeds Treatment Cells



Free Surface Water Cells



Primary treated Water

Conclusions

- ❑ LMEWP is a successful case
- It treats 25000 m³/d with excellent WQ
- ❑ It's a cost recovery project (fish production)
- ❑ Potential for replicating the technology
- ❑ Prove institutional sustainability and capacity development
- ❑ Provide socio-economic benefits and improved environment





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