



TRAINING PROGRAMME FOR ETP OPERATORS IN THE TEXTILE INDUSTRY

Promotion of Sustainability in the Textile and Garment Industry in Asia - FABRIC

Importance and elements of water management

GIZ FABRIC – ETP Operator Course



Contents

- Importance of water management
- Cycle of water
- Global and national water scenario
- Basic approaches

Initial thoughts

Water = Elixir of Life

- Unique to plant earth
- Anchor for development of civilizations
- Humans main contributor and influence on today's water scenario
- Pre-requisite for survival





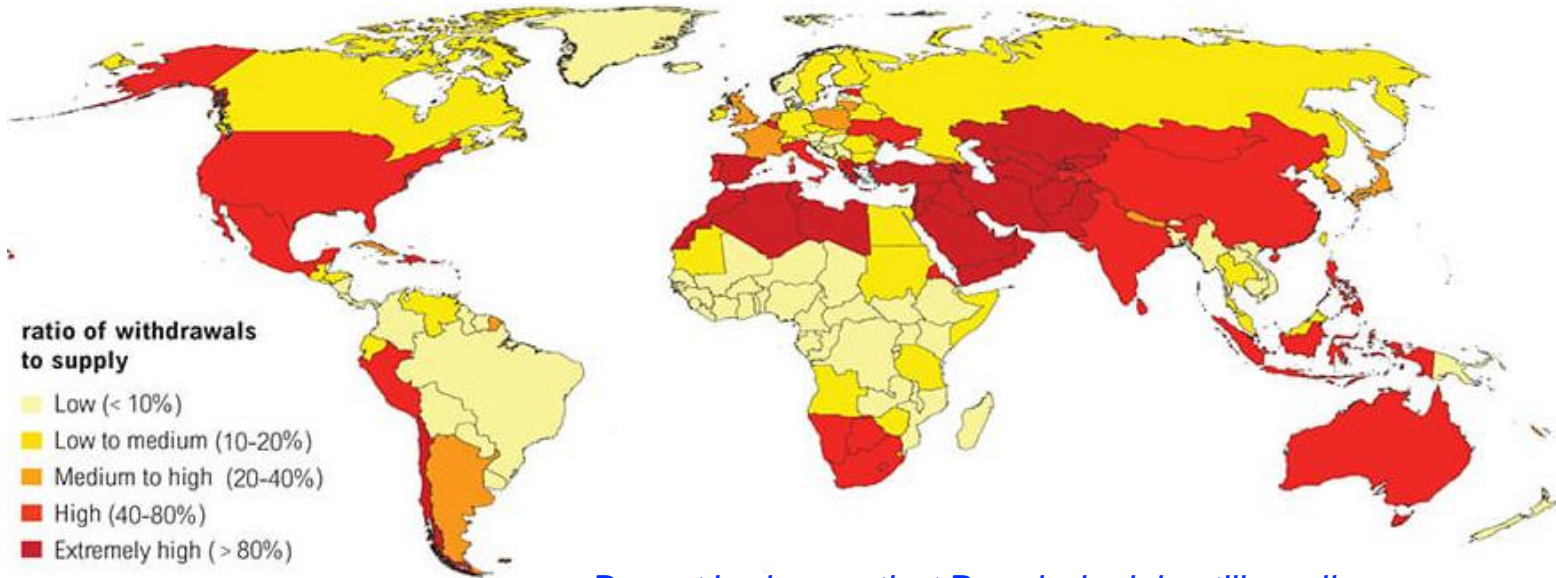
Where did all the water go?

Humans' influence

- Pollution of rivers and lakes
- Prevention of rivers' natural flow
- Uncontrolled ground water extraction
- Deforestation
- Global warming.



Global water scenario projection



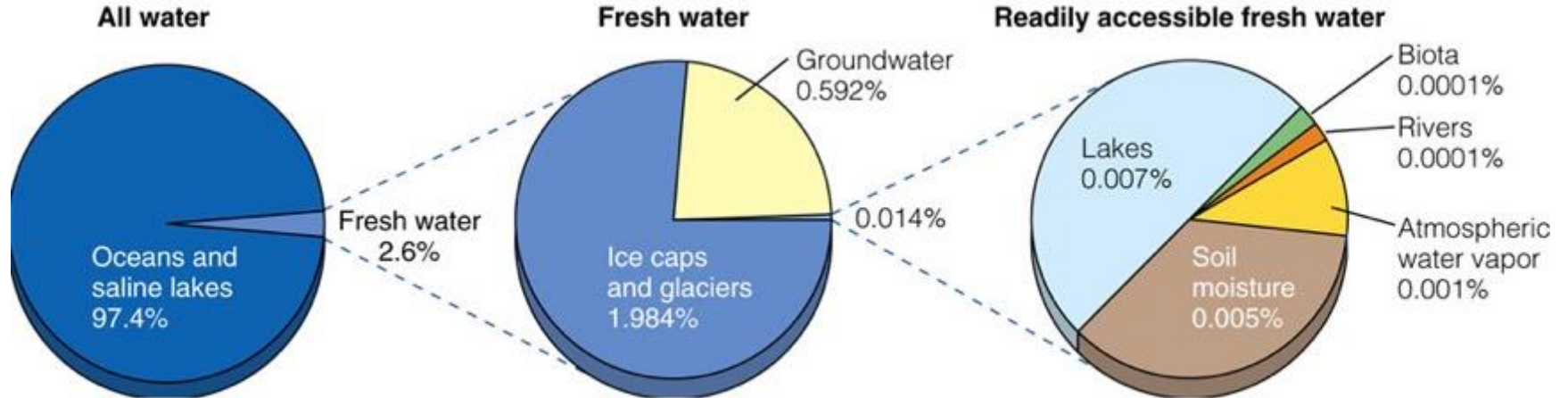
*Do not be happy that Bangladesh is still medium.
It is fast becoming high!*

Global water use situation

- Humans need water 100 -150 lcpd water for survival.
- Minimum requirement of 20 - 50 lit/d per person for drinking, cooking and cleaning.
- One in six persons worldwide having less than 20 l/d!
- Un-clean water world's second biggest killer of children.
 - 1.6 million people die every year from diarrheal diseases, of these **90%** children under 5.
- Water essential also for agriculture and industry



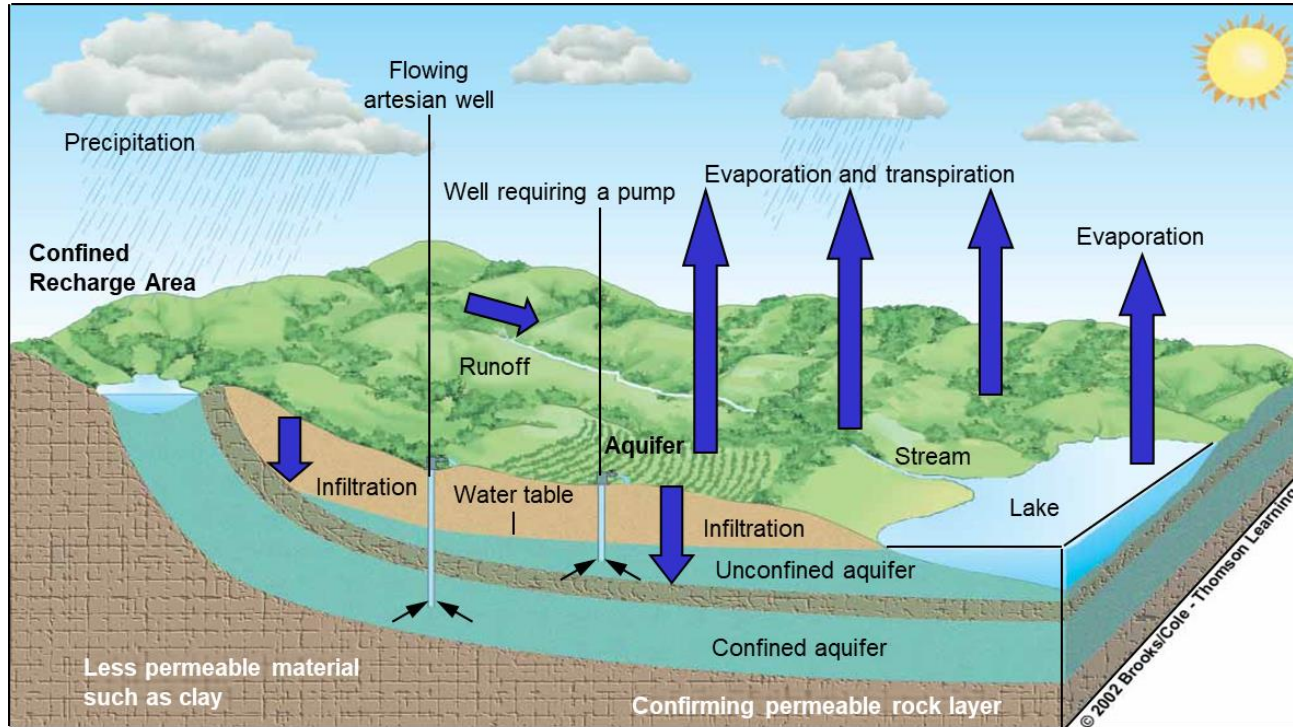
Water, Water everywhere....?



© 2005 Brooks/Cole - Thomson

Only a very small fraction (0.014%) is available for human use

Water cycle - maintained for millions of years!

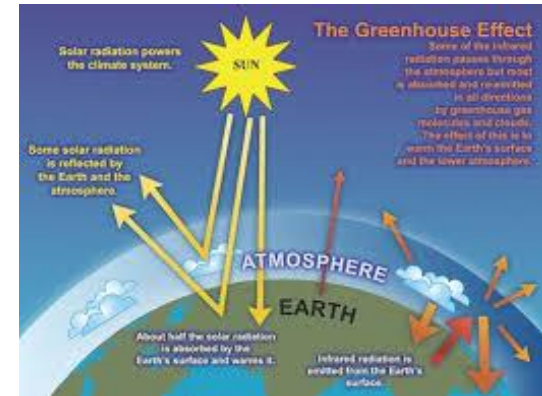


Construction & global warming

Human activities like widespread construction and pollution increasing higher thermal radiation and increase temperature by **4-5°C**

Effects on water resources:

- **Increased temperature** → Increased evaporation rates through strong convectional currents → **loss of more water.**
- Rapid evaporation of water results in heavier rains at some time creating **flash floods.**
- Result: No water when needed and floods when it rains!



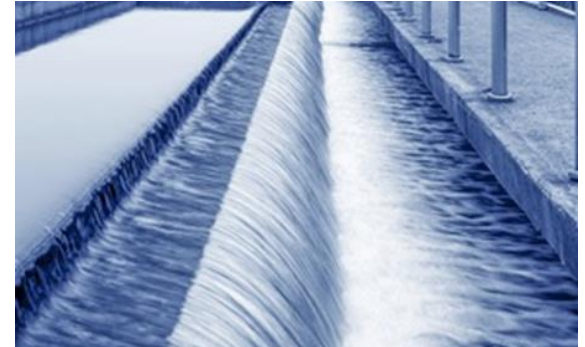
Industry in Bangladesh

- Contributing 31% of total 350-billion-dollar GDP of Bangladesh
 - About **20% by textile** and mainly **RMG sector**
 - Steady growth rate of textile and RMG sector
 - Presently No.2 position in world`s RMG exports after China
- Industry flourishing:
 - **High productivity** at relatively **low labour cost**
 - **Good quality control** in production
 - **Trust** earned with international brands & buyers.



Role of water in Bangladesh textile industry

- Textile processing **water intensive** industry
- **75 - 250 liters** of water needed **per kg of material** processed (depending on process and product)
- In Bangladesh:
 - Current water consumption at 4500 million liters per day,
 - Likely rising to **7000 million liters per day by 2030**.



Role of water in Bangladesh textile industry

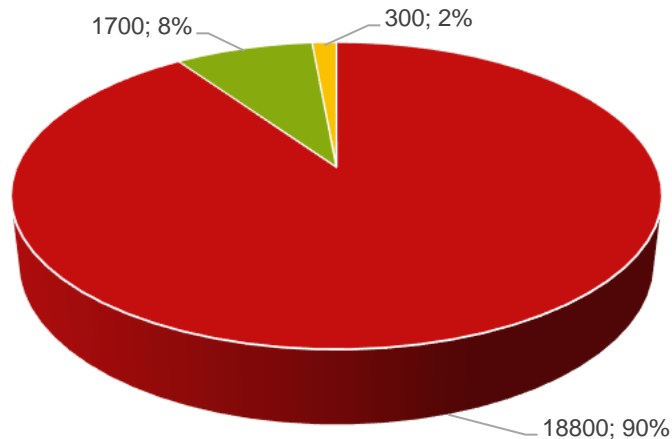
Challenges

- Industry **concentrated in Dhaka** region
- Mainly **using ground water** → In many places of Dhaka, groundwater table rapidly and alarmingly low.
- **No concrete plans** to ensure sufficient water for sustained continuation and growth of this industry and society.
- **Water security required** for growth of industry, protection of jobs and exports revenues.



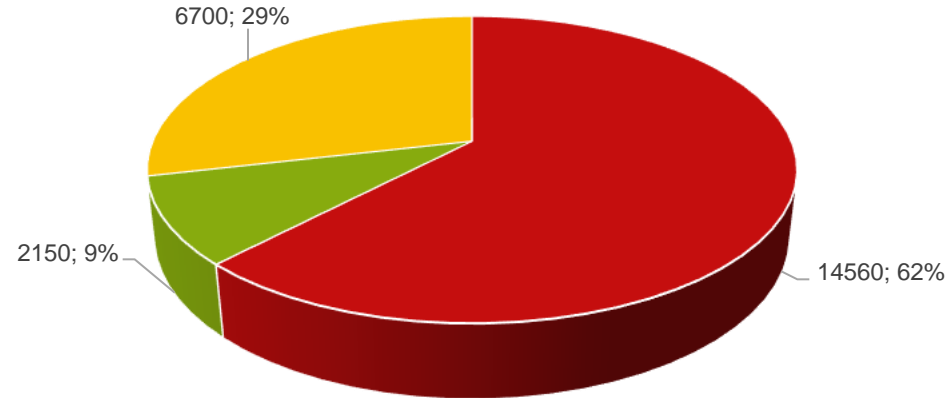
Change in water consumption pattern in Dhaka

Water consumption pattern 1995
Million liters/day



■ Irrigation ■ Municipal ■ Industry

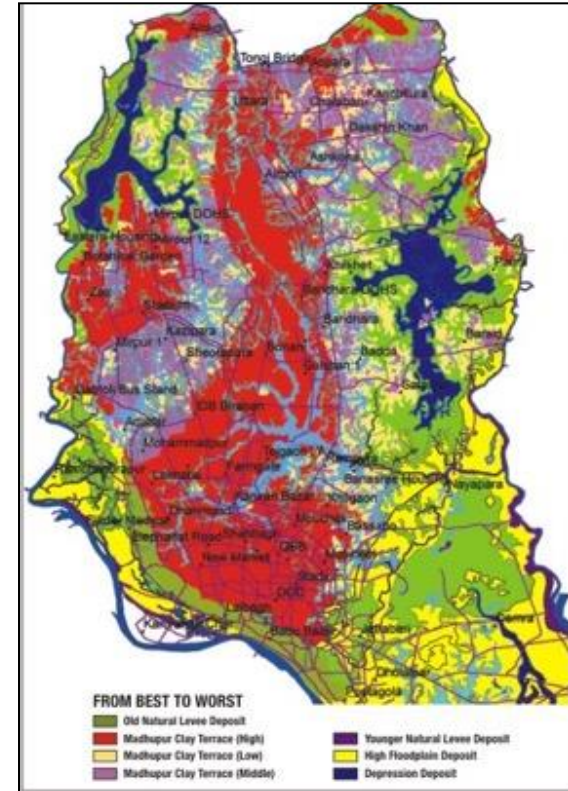
Water consumption pattern 2019
Million liters/day



■ Irrigation ■ Municipal ■ Industry

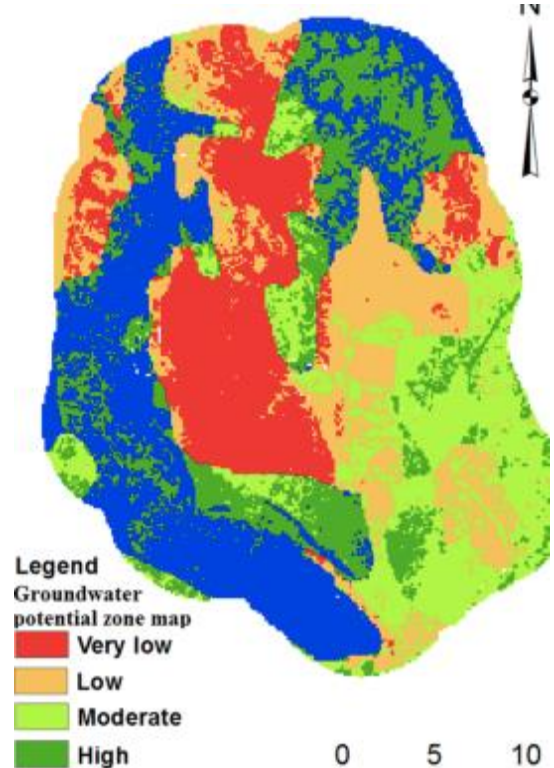
Ground water situation in Dhaka

- Ground water depleted by **2 m - 5m annually**.
- Drop in groundwater level, even below **800 ft (250 m)**.
- Depletion caused by
 - low re-charge rate due to **slow rainwater percolation**
 - **water extraction higher** than re-charge potential.
 - **Irregular annual rainfall** (period of low rains due to global warming effects)



Status of ground water in Dhaka

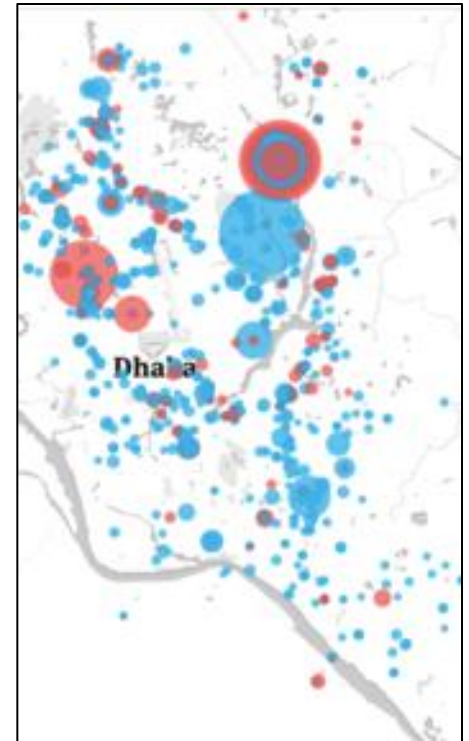
- Wide mis-understanding about source and recharge of ground water
 - **Ground not producing water**
 - Unless being re-charged, groundwater running dry sooner or later.
- **Poor industry practices**
 - pumping water from ground,
 - using it in process
 - discharging as effluent (and after treatment) into river



Status of ground water in Dhaka

Challenges in most industrial areas

- Low groundwater level making **ground water saline** or under yielding, threatening the survival of industry itself (as well as neighbourhoods).
- **Limited available land** by industries reducing scope of rainwater recharge
- **Rainwater harvesting limited** due clayey soil with low percolation rates



Water scarce areas in Dhaka

Status of Basic approaches to preserving waterground water in Dhaka

1. **Minimise ground water consumption** by textile industry and think of alternatives!
2. Promote and **apply cleaner technologies** consuming less water in textile production.
3. Popularize and promote **rain water harvesting** as much as feasible.
4. As final step, **consider recycling & reuse of effluent.**



Role of effluent treatment

- Almost entire quantity of water used **discharged as effluent**.
- Effluent (with or without treatment) irreversibly lost once discharged into flowing river, causing loss in two ways:
 - a. **Huge quantity of water consumed** being discharged and not available for further use
 - b. **Contaminated water polluting** receiving water body making more fresh water unusable.



Role of effluent treatment

Focus on **preserving water resources!**

- **Install and use ETPs**
 - fulfil legal requirement
 - satisfy buyers, brands
 - protect environment



To remember



- Water most important requirement of life and required for all our activities including the industry operations.
- Rapid industrialization a foundation stone for development and prosperity of Bangladesh, but also resulting in loss of water from over usage and pollution
- Change to more sustainable practices required to prevent future of industry and society being put in jeopardy.
- Focus on reducing water consumption and ETP efficient operation
- ETPs preventing loss of water through contamination and preserving water through recycling

**Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH**

Registered offices
Bonn and Eschborn

GIZ Bangladesh
PO Box 6091, Gulshan 1
Dhaka 1212, Bangladesh
T +880 2 5506 8744-52, +880 9666 701 000
F +880 2 5506 8753
E giz-Bangladesh@giz.de
I www.giz.de/bangladesh