Water Engineering & Environment (WEE Program)

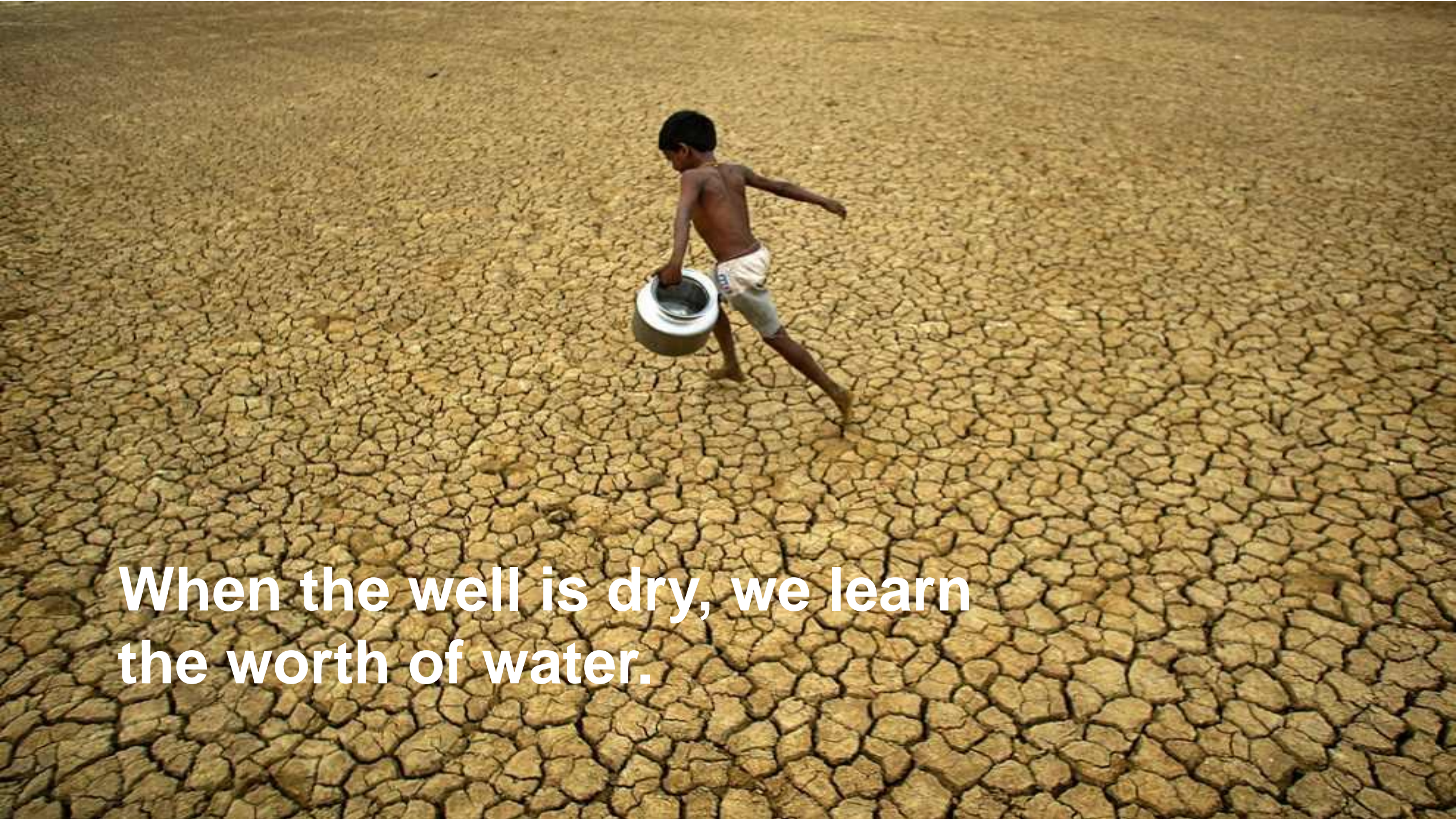Cairo University, Faculty of Engineering
Credit –Hour System

May, 2020

What is WEE ?

WEE are **Civil Engineers** !!!

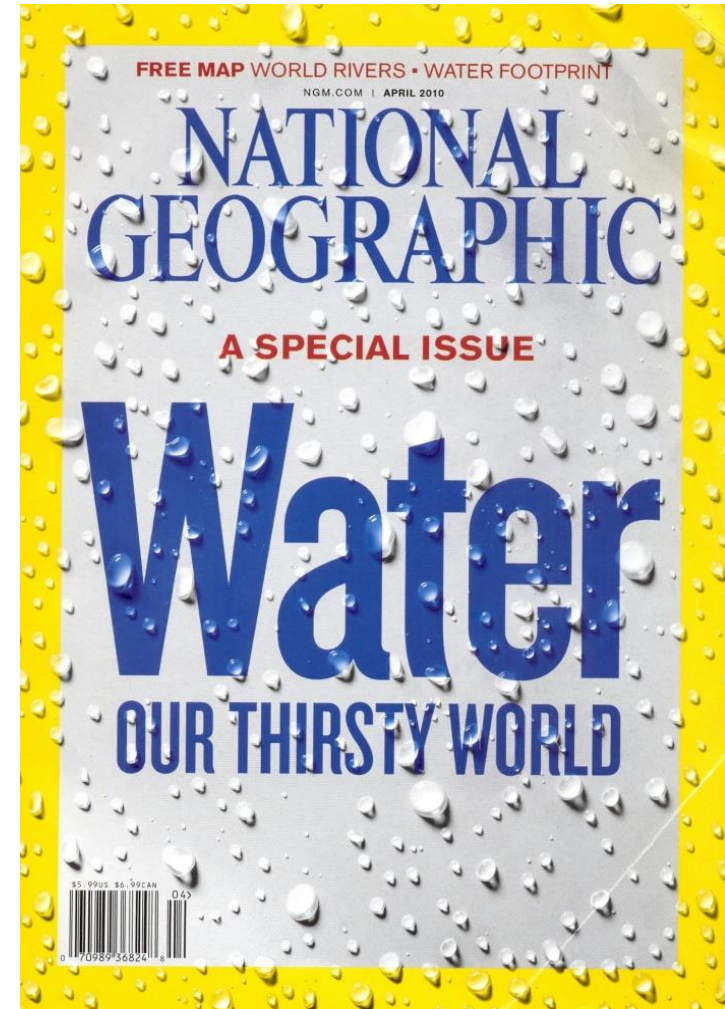with emphasis on the water subjects
& consciousness of the Environment

When the well is dry, we learn the worth of water.

Water Challenges & Environmental Concerns

- Water Scarcity

  (National, Regional and Global)

- Limited Freshwater Resources
- Increased Demands

  Population Growth and Aspiration for better standards of Living

- Transboundary Issues
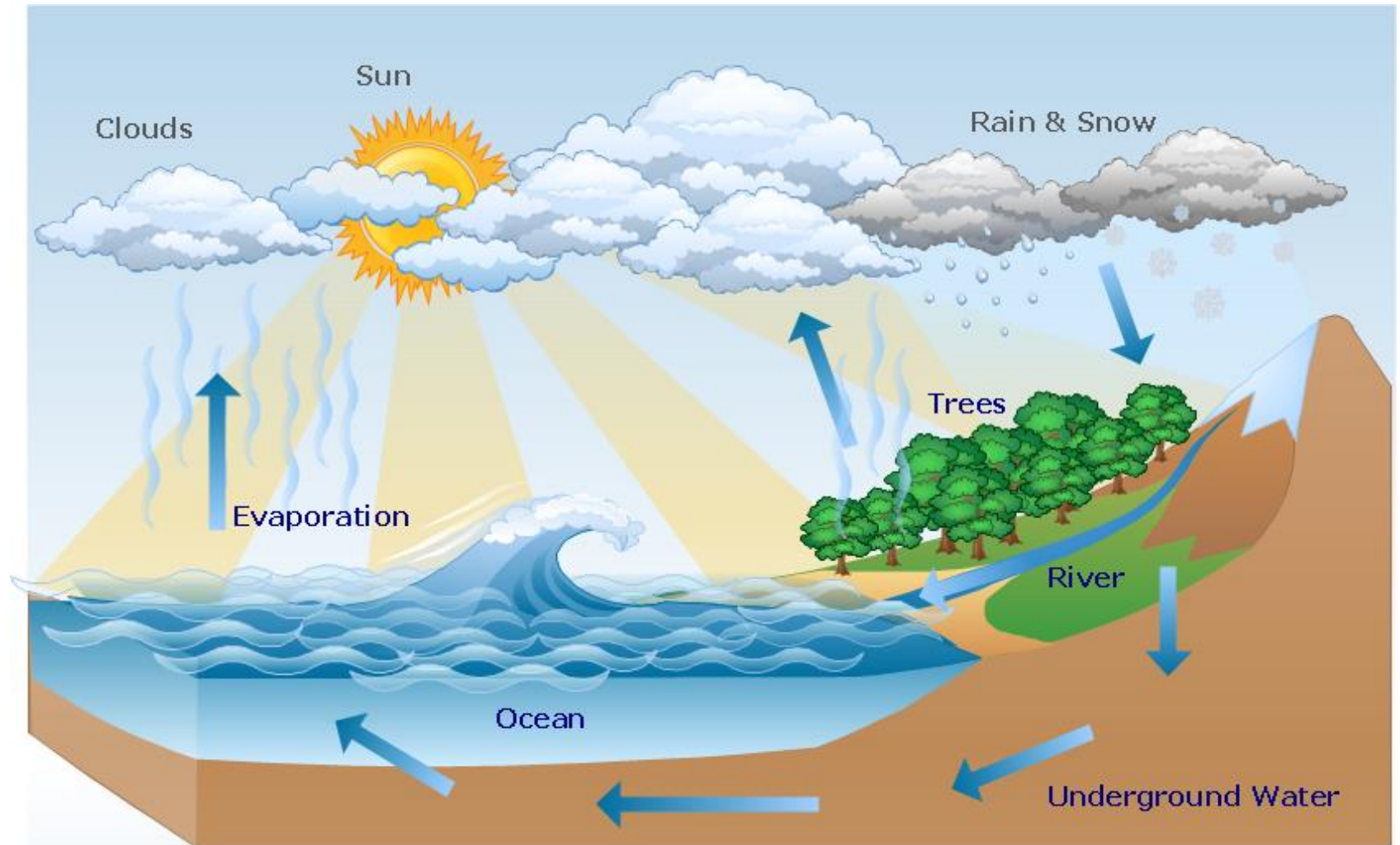- Climate Change
- Pollution of Resources

What Do Water Engineers Do ?

Rains
Rivers
Lakes
Oceans
Groundwater

Human
Animals
Plants

Quantity
Quality

Economics
Laws,
Regulations
Social Aspects

What Do Water Engineers Do ?
Wadi Studies, Flash Flood Protection

Yes it does happen!!
Egypt, Oman, Saudi Arabia, Jordan, Yemen, ….etc.

What Do Water Engineers Do ?
Hydraulic Structures (Dams)

Dam Site
Dam Type
Dam Size
Spillways

Hydropower
Generation

Environmental
Impacts

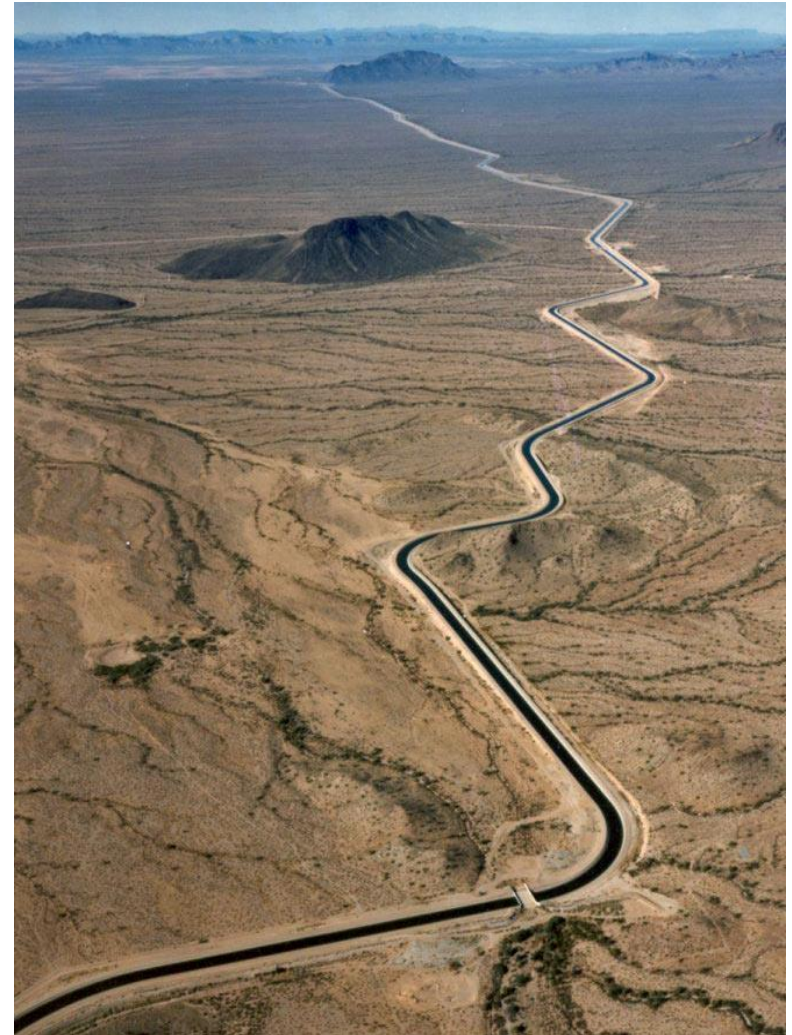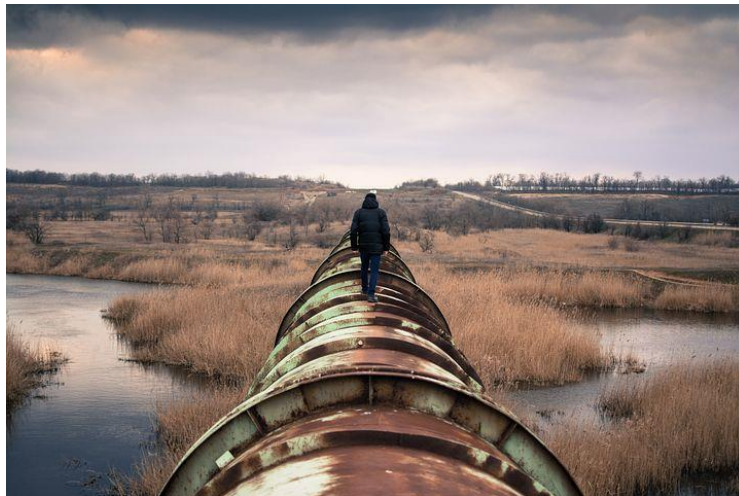# What Do Water Engineers Do ??
Water Conflicts !!

What Do Water Engineers Do ?
Water Conveyance

- Canals
- Pipelines
- Pumping Stations

For

- Domestic
- Industrial
- Agricultural Uses

What Do Water Engineers Do ?
Water Distribution Networks & Treatment Facilities and Desalination Plants

What Do water Engineers Do ?
Coastal Management, Ports, Marinas & Inland Navigation

Alamein New Developments

What Do Water Engineers Do ?
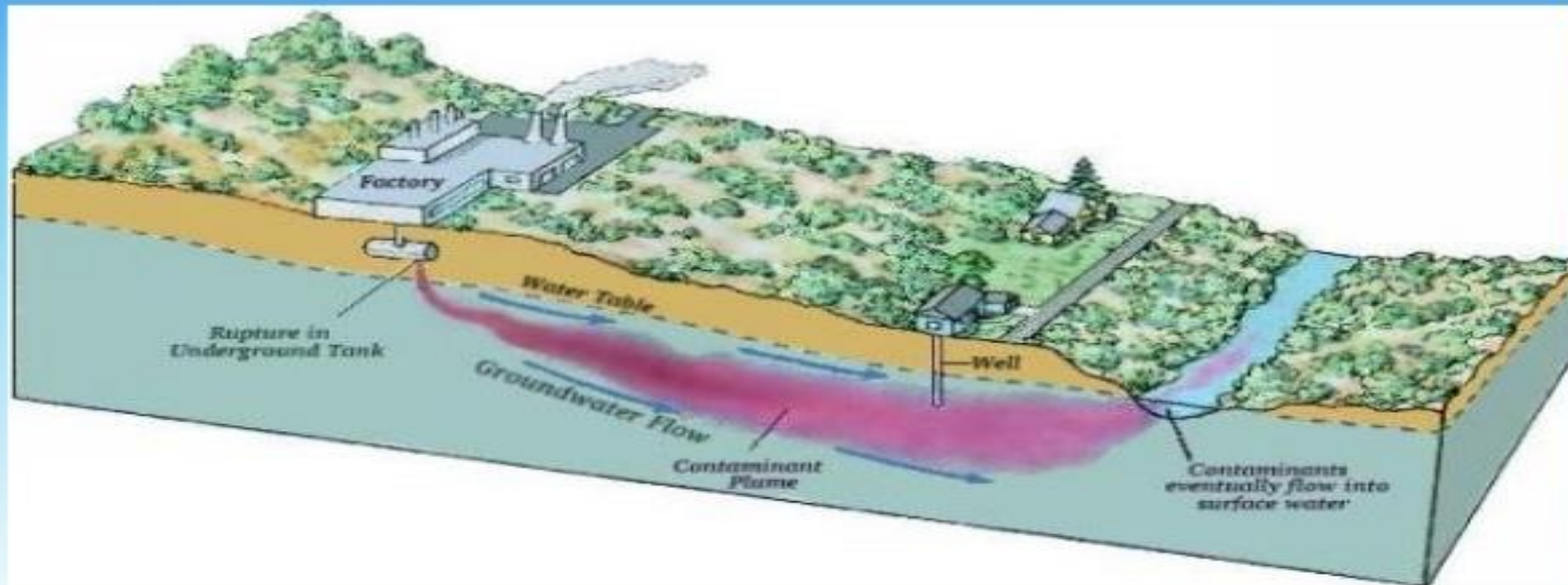## Land Reclamation, Irrigation & Drainage

Water Requirements
Water Application

Is there enough water?

What Do Water Engineers Do ?
Contaminant Transport (Surface & Groundwater)

Typical Problem of Groundwater Contamination

What Do Water Engineers Do ?
Contaminant Transport (Oil Spills)

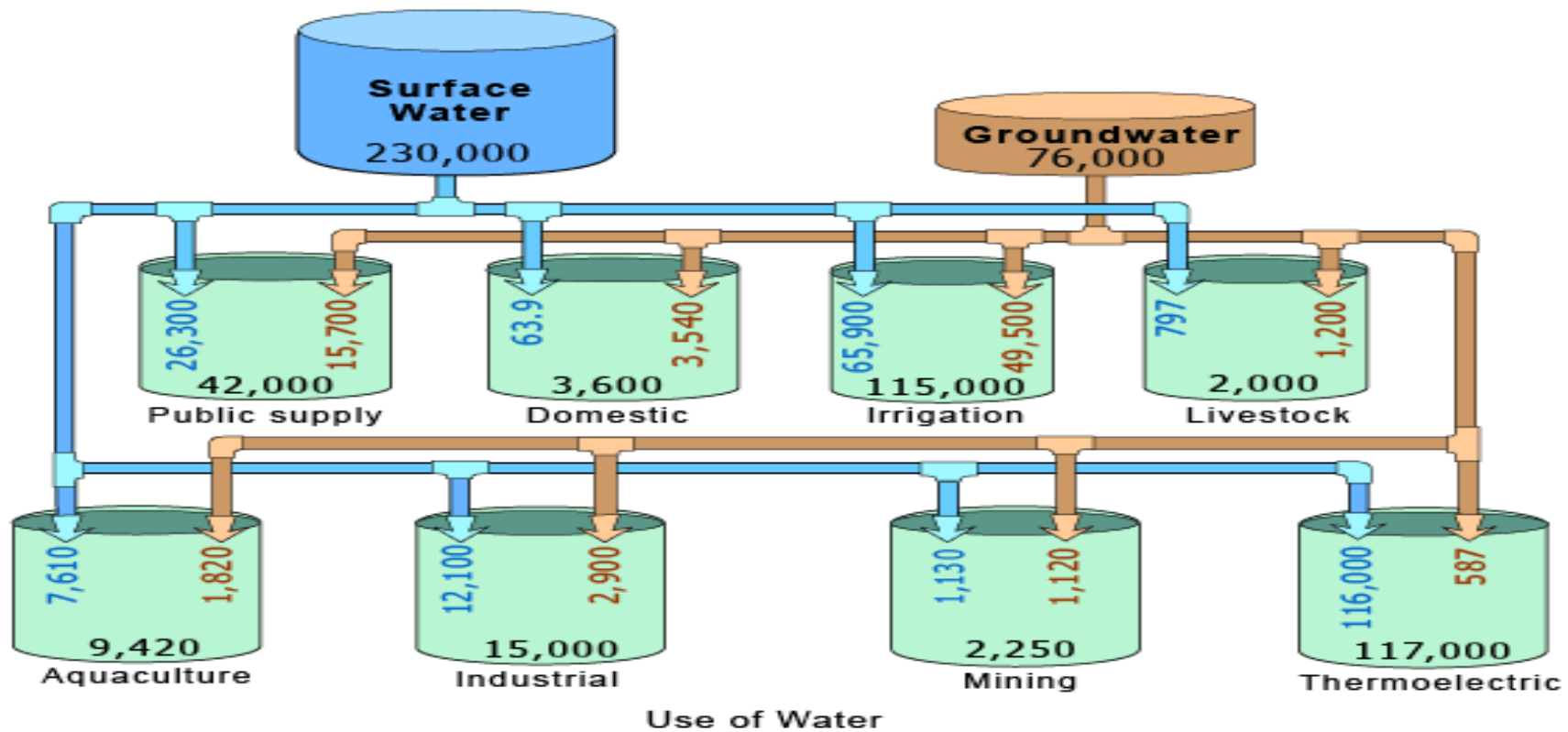# What Do Water Engineers Do ?
Waste Management, Pollution Control

What Do Water Engineers Do ?
Strategic Water Allocation

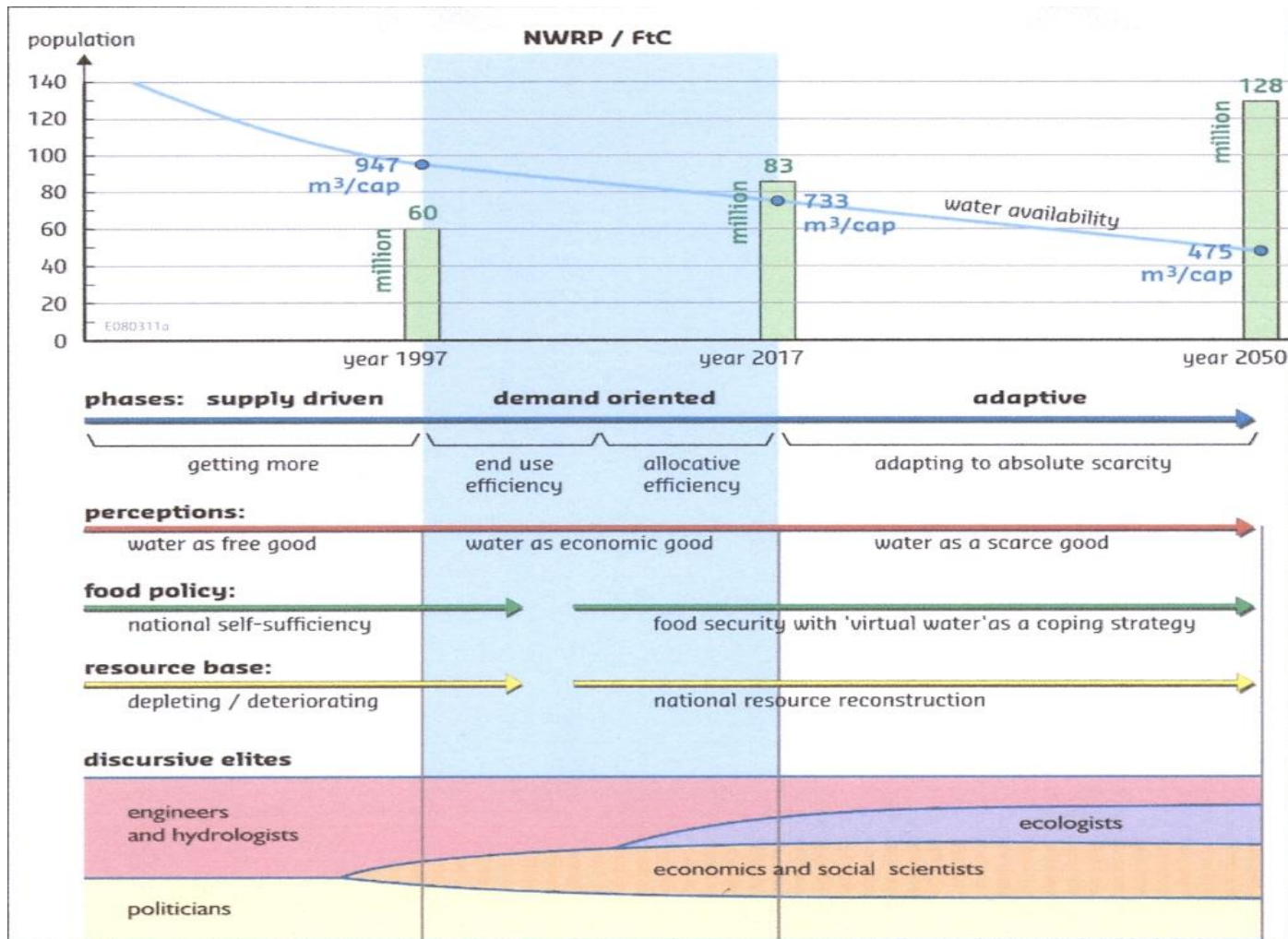Source and use of freshwater in the United States, 2010

Preparation of WEE Students
Curriculum

(**70-75) %** of the courses are shared with other **Civil Engineering** Programs

Univ. requirements are very much welcomed in the WEE program

Cr Hrs	Freshman	Sophomore	Junior	Senior I	Senior II
1–6	University Requirement 6 cr hrs	University Requirement 4 cr hrs	University Requirement 8 cr hrs	University Requirement 6 cr hrs	College Requirement 6 cr hrs
7–13	College Requirement 30 cr hrs	College Requirement 13 cr hrs	College Requirement 10 cr hrs	College Requirement	Civil Engineering Requirement 6 cr hrs
14–17				Civil Engineering Requirement 13 cr hrs	
18–31		Civil Engineering Requirement 16 cr hrs	Civil Engineering Requirement 13 cr hrs	Water Eng & Environment Requirement 14 cr hrs	Water Eng & Environment Requirement 25 cr hrs
32–36		Water Eng & Environment Requirement	Water Eng & Environment Requirement 5 cr hrs		

Preparation of WEE Students
Curriculum

After Turton, 1999

Preparation of WEE Students
Curriculum

Sample (Required Courses)

- Water Resources Engineering
- Integrated WR Management
- River Engineering
- Coastal/ Harbor Engineering
- Irrigation and Drainage
- Field Methods & Measurements
- Water Chemistry & Microbiology
- Environmental Hydraulics
- Environmental Impact assessment
- Water & WW Networks
- International Law (Water & Environment)

Sample (Elective Courses)

- Non-Conventional Water Resources
- Design of Pipelines & PS
- Water & WW Treatment Plants
- Remote Sensing & GIS
- Operations Research

Preparation of WEE Students
Field & Laboratory Measurements

Preparation of WEE Students
Site Visits

Preparation of WEE Students
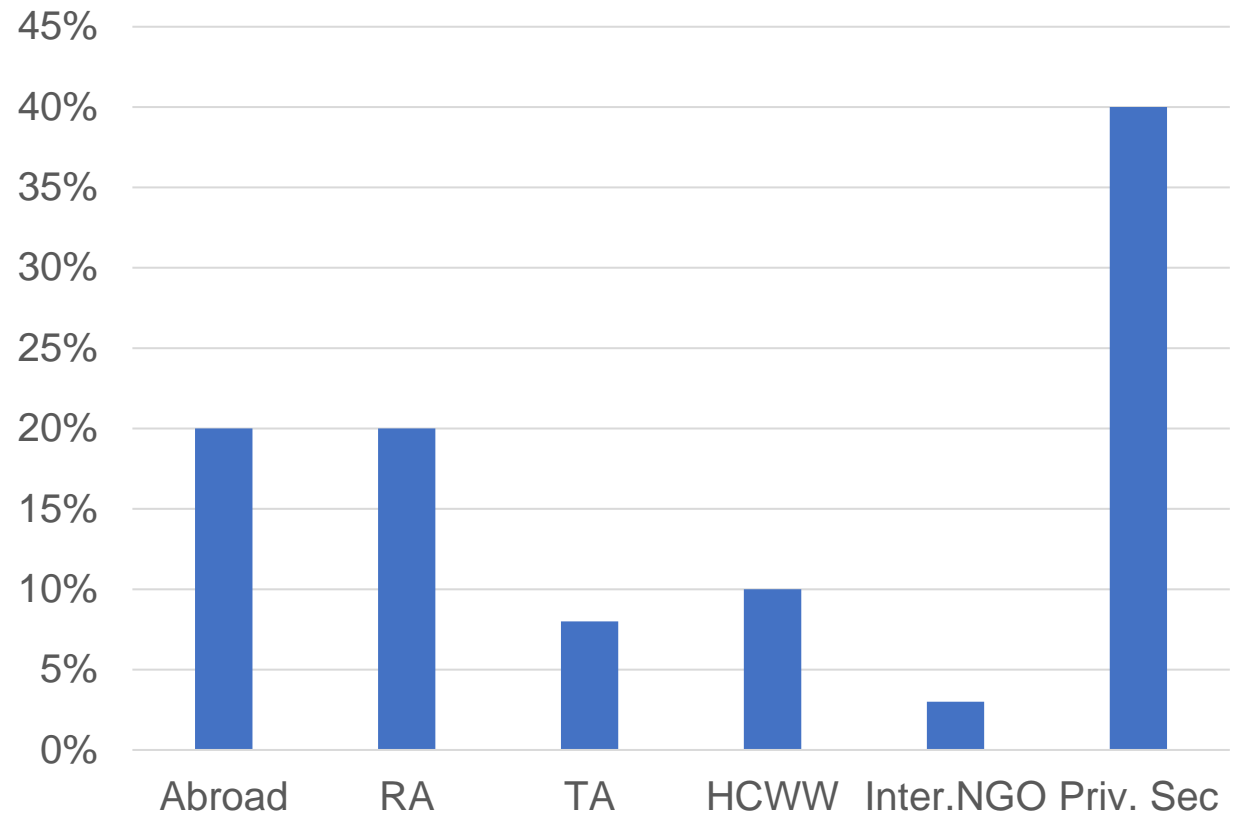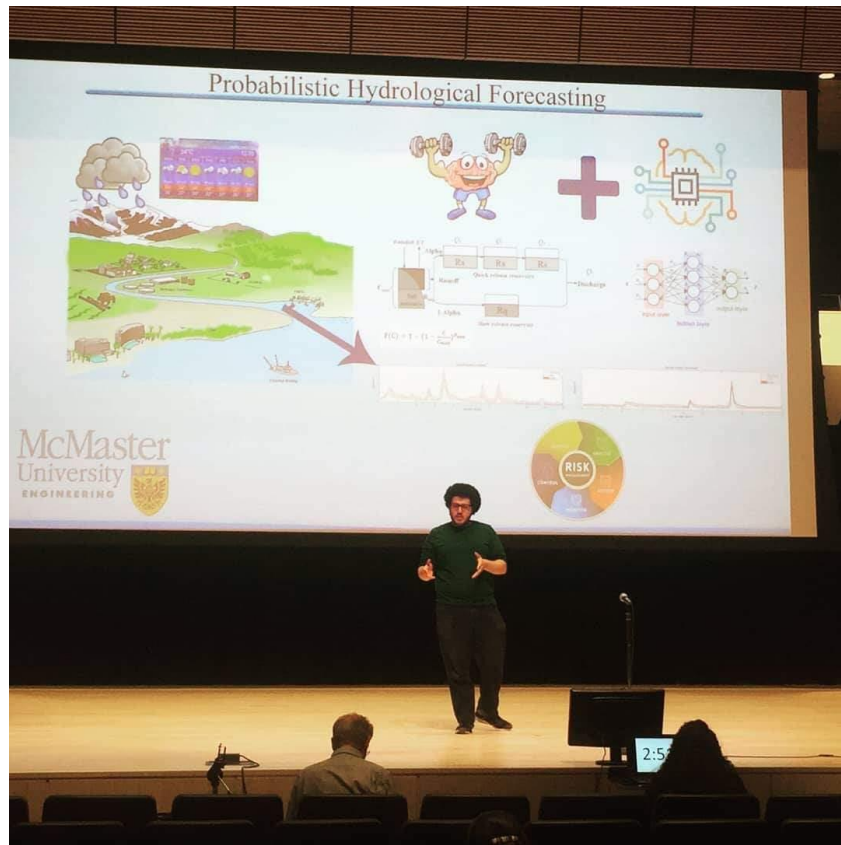## National & International Training

Preparation of WEE Students
Seminars & Conferences

Job Opportunities (WEE Graduates)

- Consulting Firms
- Holding Company for Water and Wastewater
- MWRI (Research Institutes)
- Graduate Schools (Higher degrees)
- Teaching Assistants (National & Private Universities)
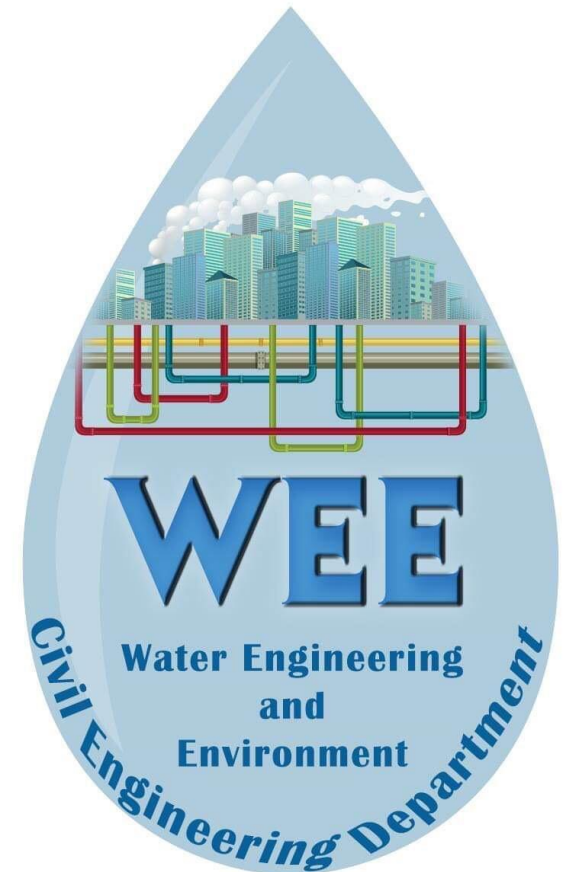- Donors and International Organizations
- NGO's

WEE Ambassadors Abroad (PhD in Canada)

Why Should I Join the WEE Program ?

- Facing the Challenges (Water & Environment)
- Civil Engineering (Stable career)
- Balanced Curriculum (Deep and/ or Broad)
- Small Numbers (Close attention, Hands on)
- Surrounded by serious, motivated colleagues
- Job Opportunities (Secured)
- HCWW Scholarships (Available)

WEE are Civil Engineers !!!

With two ribbons of excellence

Water

Environment

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