



# WHAT DID YOU DO TODAY?

- What was the first thing you did after waking up?
- How did you get to school?
- How was water affected your life today?

# GREATEST ENGINEERING ACHIEVEMENTS OF THE 20<sup>TH</sup> CENTURY

- 1. ELECTRIFICATION
- 2. AUTOMOBILE
- 3. AIRPLANE
- 4. WATER SUPPLY AND DISTRIBUTION
- 5. ELECTRONICS
- 6. RADIO AND TELEVISION
- 7. AGRICULTURAL MECHANIZATION
- 8. COMPUTERS
- 9. TELEPHONE
- 10. AIR CONDITIONING AND REFRIGERATION

- HIGHWAYS
- 12. SPACECRAFT
- 13. INTERNET
- 14. IMAGING
- 15. HOUSEHOLD APPLIANCES
- 16. HEALTH TECHNOLOGIES
- 17. PETROLEUM AND PETROCHEMICAL TECHNOLOGIES
- 18. LASER AND FIBER OPTICS
- 19. NUCLEAR TECHNOLOGIES
- 20. HIGH-PERFORMANCE MATERIALS



## WATER SCARCITY

- Water use has been growing at more than twice the rate of population increase in the last century
- By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity
- By 2025, two-thirds of the world population could be under stress conditions

# ENGINEERING CHALLENGES OF THE 21ST CENTURY

- ADVANCE PERSONALIZED LEARNING
- 2. MAKE SOLAR ENERGY ECONOMICAL
- 3. ENHANCE VIRTUAL REALITY
- 4. REVERSE-ENGINEER THE BRAIN
- 5. ENGINEER BETTER MEDICINES
- 6. ADVANCE HEALTH INFORMATICS
- 7. RESTORE AND IMPROVE URBAN INFRASTRUCTURE

- 8. SECURE CYBERSPACE
- 9. PROVIDE ACCESS TO CLEAN WATER
- 10. PROVIDE ENERGY FROM FUSION
- 11. PREVENT NUCLEAR TERROR
- 12. MANAGE THE NITROGEN CYCLE
- 13. DEVELOP CARBON SEQUESTRATION METHODS
- 14. ENGINEER THE TOOLS OF SCIENTIFIC DISCOVERY



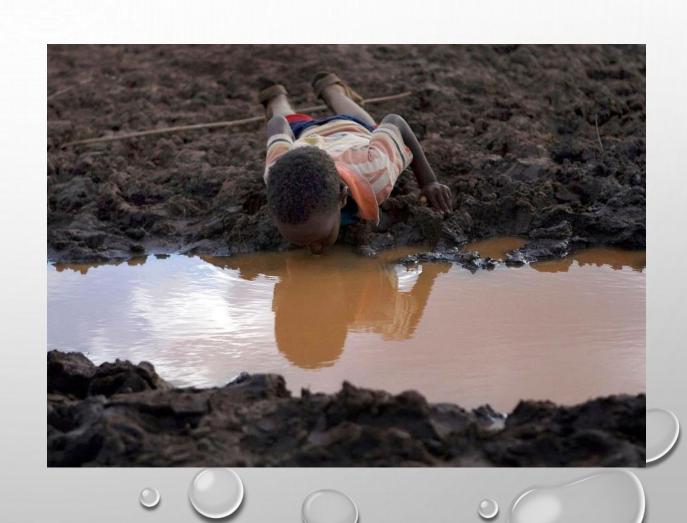
- One of 14 grand challenges for engineering in the 21<sup>st</sup> century
- Today the availability of water for drinking and other uses is a critical problem in many areas of the world
- Lack of clean water is responsible for more deaths in the world than war
- About 1 out of every 6 people living today do not have adequate access to water
- More than double that number lack basic sanitation, for which water is needed





### THINK ABOUT IT

Every minute, two children under the age of five die because of dirty water they drink, which they walked miles to get.





### WHAT CAN WE DO ABOUT IT?

 As a table, brainstorm all of the ways we use water in a tree map using categories like In a Family, In a City or In Nature

 On the back of your paper, brainstorm ways that we could help with the water crisis around the world