SDGA X
SUSTAINABILITY ACCELERATOR

International Emerging Technology Landscape in Sustainable Water Management

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SDGA X
SUSTAINABILITY ACCELERATOR

Overview

- Water Management Technologies
  - Water Sources
  - Water Management Sectors
  - Challenges
  - Issues
  - Ways to Meet Challenges
- Emerging Technology Landscape
  - Water Supply Side
  - Water Demand Side

Water Management Technologies

- Water Sources
  - Rivers
  - Aquifers
  - Rain harvesting
  - Sea - Desalination
  - Water Veins (underground rivers)
  - Reclaimed or Recycled
  - Imported

Water Management Technologies

- Water Management Sectors
  - Municipal
  - Industry
  - Irrigation

Water Management Technologies

- Water Management Challenges
  - Demand Side Challenges
    - Population growth
    - Economic development
    - Increasing food production
  - Supply Side Challenges
    - Cultural attitudes
    - Pollution & Contamination
    - Climate Change
    - Governance

Water Management Technologies

- Water Management Issues
  - Leakage
  - Salt water intrusion
  - Water resource protection
  - Conservation
  - Contamination
  - Non-point source pollution
  - Inefficient use of water
  - Poor governance
  - Financial viability of solutions
  - Cultural attitudes

Water Management Technologies

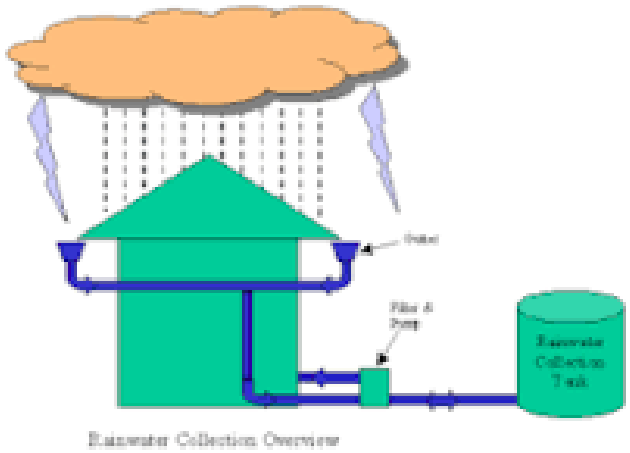
- Ways to Meet Water Management Challenges
  - Two Pronged Approach
    - Reduce the Demand
    - Increase the Supply

Water Management Technologies

- Ways to Meet Water Management Challenges
  - Increase the SUPPLY
    - Water recycling solutions
    - Remediation methodologies
    - Water infrastructure management tools
    - New water source development

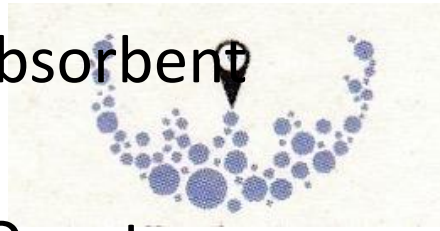
Water Management Technologies

- Ways to Meet Water Management Challenges
  - Reduce the DEMAND
    - Public Education
    - Water saving solutions
    - More effective enforcement of water governance
    - Water use efficiency solutions
    - Encouraging self-sufficiency



Emerging Technology Landscape

- Emerging Water Technologies – High Impact
  - AI deep learning for water management – Pluto AI
  - Water conservation in agriculture – hyper absorbent polymers
  - AI based virtual water prospecting – WaterQuest
  - Smart water meters – learning meters with mobile app interfaces
  - Shockwave membraneless desalination
  - Bio-remediation – Bluegold nano-bubble



Bluegold Eco-technologies

Emerging Technology Landscape

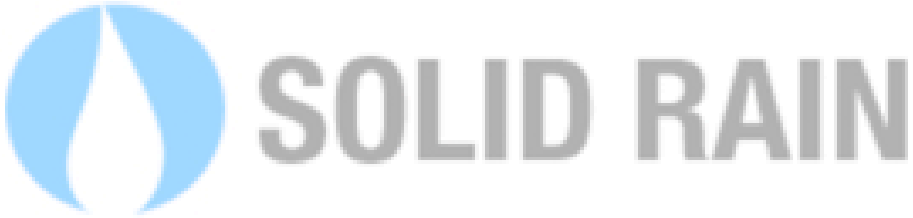
- Emerging Water Technologies – High Impact
  - AI deep learning for water management – Pluto AI

Pluto is an analytics platform for smart water management. Enabling water facilities to prevent water wastage, predict asset health, and minimize operating costs.

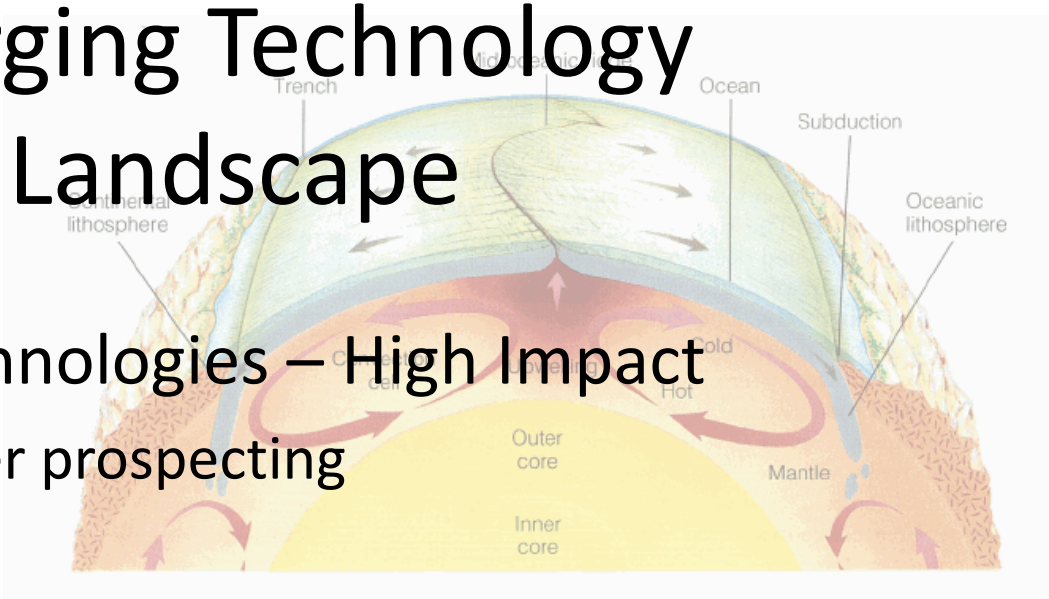
Emerging Technology Landscape

- Emerging Water Technologies – High Impact
  - Water conservation in agriculture – hyper absorbent polymers

Solid Rain is a potassium based powder which is capable of absorbing water up to 500 times its size. Solid Rain acts as a personal underground reservoir that retains water in the roots of any plant. This retained water is then slowly dispersed in the soil, keeping it constantly hydrated.



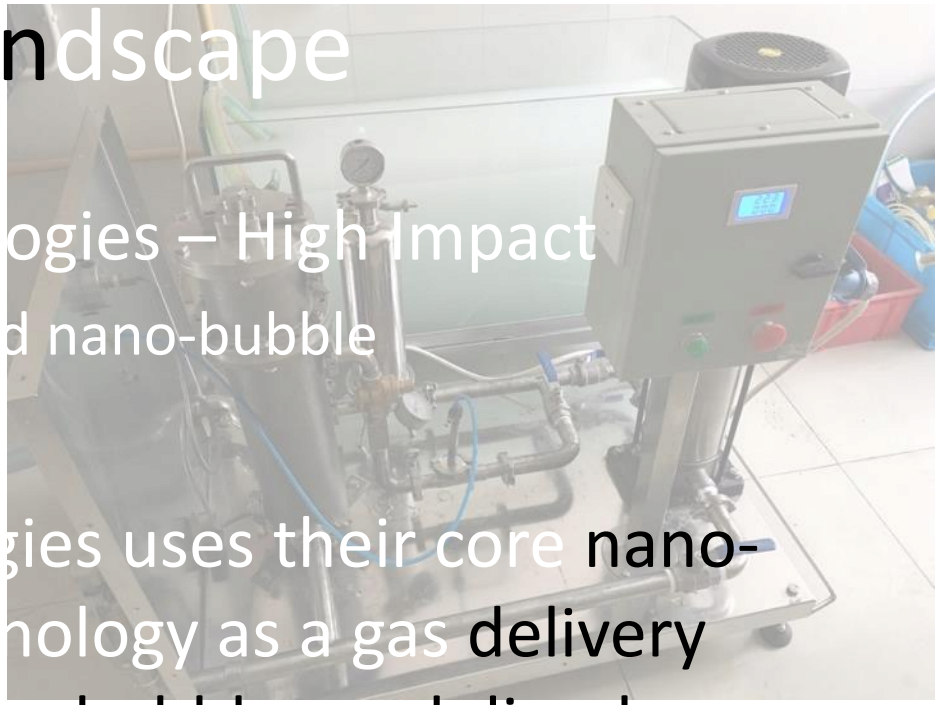
Emerging Technology Landscape



- Emerging Water Technologies – High Impact
  - AI based virtual water prospecting

WaterQuest is focus on developing decentralised, perennial, climate resilient, sustainable water sources for drinking water, irrigation and industrial use by deploying its proprietary solution for discovering, accessing & managing self-recharging water veins/underground rivers.

Emerging Technology Landscape



- Emerging Water Techn ogies – High Impact
  - Bio-remediation – Appli d nano-bubble

BlueGold Eco-Techno gies uses their core nano-bubble generati nology as a gas delivery system that disperses gas bubbles and dissolves gas into water to be used for sterilization, nutrient delivery, temperature control and many other applications.

Bluegold Eco-technologies

Emerging Technology Landscape

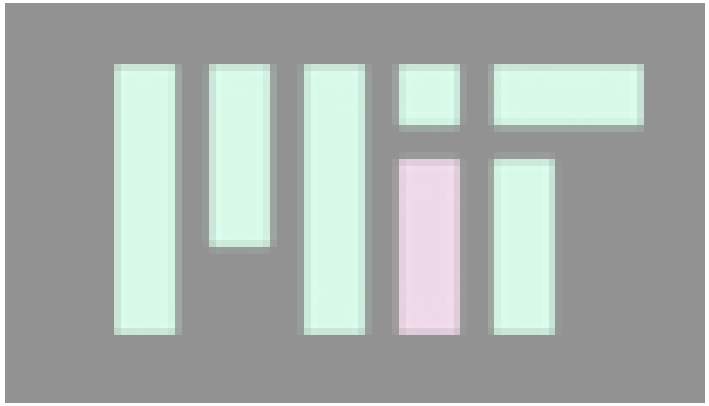
- Emerging Water Technologies
  - Smart water meters – learning meters with mobile app interfaces

FLUID is a smart water meter that helps you understand exactly when, where and how much water you're consuming in your home on a daily basis. Using ultrasonic technology — essentially sending pulses from one ultrasonic transducer to another — the device is able to measure the rate of water flow without cutting into the pipe.

Emerging Technology Landscape

- Emerging Water Technologies – High Impact
  - Shockwave membraneless desalination

Developed by **MIT**, he system uses an electrically driven shockwave within a stream of flowing water, which pushes salty water to one side of the flow and fresh water to the other, allowing easy separation of th .



Emerging Technology Landscape

- Summary
  - Evaluation criteria for emerging sustainable water management technologies:
    - lower capital costs
    - operations costs
    - maintenance costs
    - higher efficiency
    - easier operation
    - better effluent water quality
    - lower waste production

Emerging Technology Landscape

- Summary
  - Implementation process

    Stage 1: Successful demonstration in another field.

    Stage 2: Testing and development at bench and pilot scale levels (1 to 50gpm).

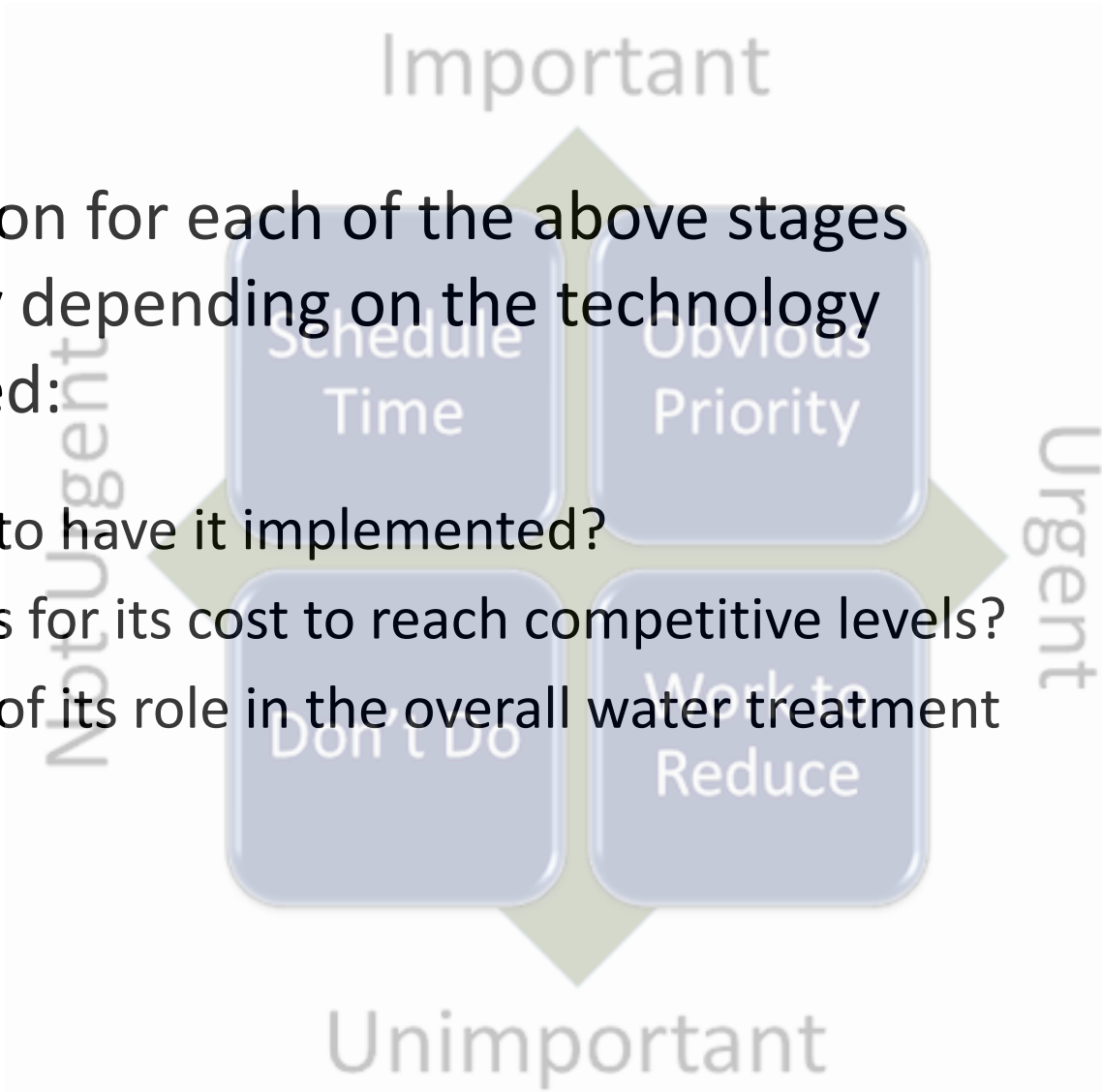
    Stage 3: Verification at demonstration-scale level (>100 gpm).

    Stage 4: Multiple successful installations and operations at small full-scale level (0.5 to 5 MGD).

    Stage 5: Implementation at a large-scale municipal water treatment plant.

Emerging Technology Landscape

- Summary
  - The time duration for each of the above stages can vary greatly depending on the technology being considered:
    - how urgent it is to have it implemented?
    - how long it takes for its cost to reach competitive levels?
    - the significance of its role in the overall water treatment train



Looking Ahead

- What's next?

Give your contact details

THANK YOU