

Nanotechnology and water: an overview

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Outline

- Introduce nanotech in water
- Risks
- Community involvement
- Technology transfer
- Sustainability

Nanotechnologies in water

- **Nanofiltration**
- **Desalination**
- **Nanoparticles for the Catalytic Degradation of Water Pollutants**
- **Magnetic Nanoparticles for Water Treatment and Remediation**
- **Nanosensors for Detection of Contaminants and Pathogens**
- **Others- Nanosponges**
- <http://www.merid.org/nano/watertechpaper>
- <http://www.merid.org/ndn>

Risks

- Shared knowledge
- Responsible nanotechnology research
- International Standards
- Global Governance
 - Policy brief by International risk governance council on application in food and cosmetics

Community

Poor depend on water in 3 main ways

- Water as an Input into Production and Livelihoods
- Role of Ecosystems in Supporting Livelihoods of the Poor
- Water for Health and Hygiene

Community Uptake, South Africa-NNS

- Community need for technology
- Education
- Community involvement
- Local capacity

Technology transfer

- **Technology**
 - Collateral Infrastructure
- **Adoption**
 - Market
- **Adaptation**
 - Local capacity

Sustainability

Desired impact

- **Economic-** growth, efficiency, stability
- **Social-** Empowerment, inclusion, governance
- **Environment-** resilience, natural resources, pollution

Munasinghe [1992], Rio Earth Summit

- **Technical expertise**
 - Higher learning Institutions
 - Local capacity
- **Strategic Partnerships**
 - Communities/public/private
 - Infrastructure

South Africa



North West Province



High nitrate ion concentration; Relatively high population density; Groundwater the sole source of water; Security considerations for water treatment plant.

Thank you!

