

Water: The Greatest Global Challenge

Fiona Regan

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Helix

Dublin City University

MESTECH

Marine & Environmental
Sensing Technology Hub



MESTECH's Water Agenda

Addressing national, international water resource problems;

Excellence in research, education and

Innovation in water science, technology, management and governance.

Our vision

To provide informed leadership decisions and sustainable action, using:

- advanced technology and data analytics with
- networking in a multidisciplinary dynamic research environment.

Europe 2020: strategy for smart, sustainable and inclusive economy

Horizon 2020 and Key Enabling Technologies innovative products and applications of the future.

Legislation: Water Framework Directive, Marine Strategy Framework Directive.

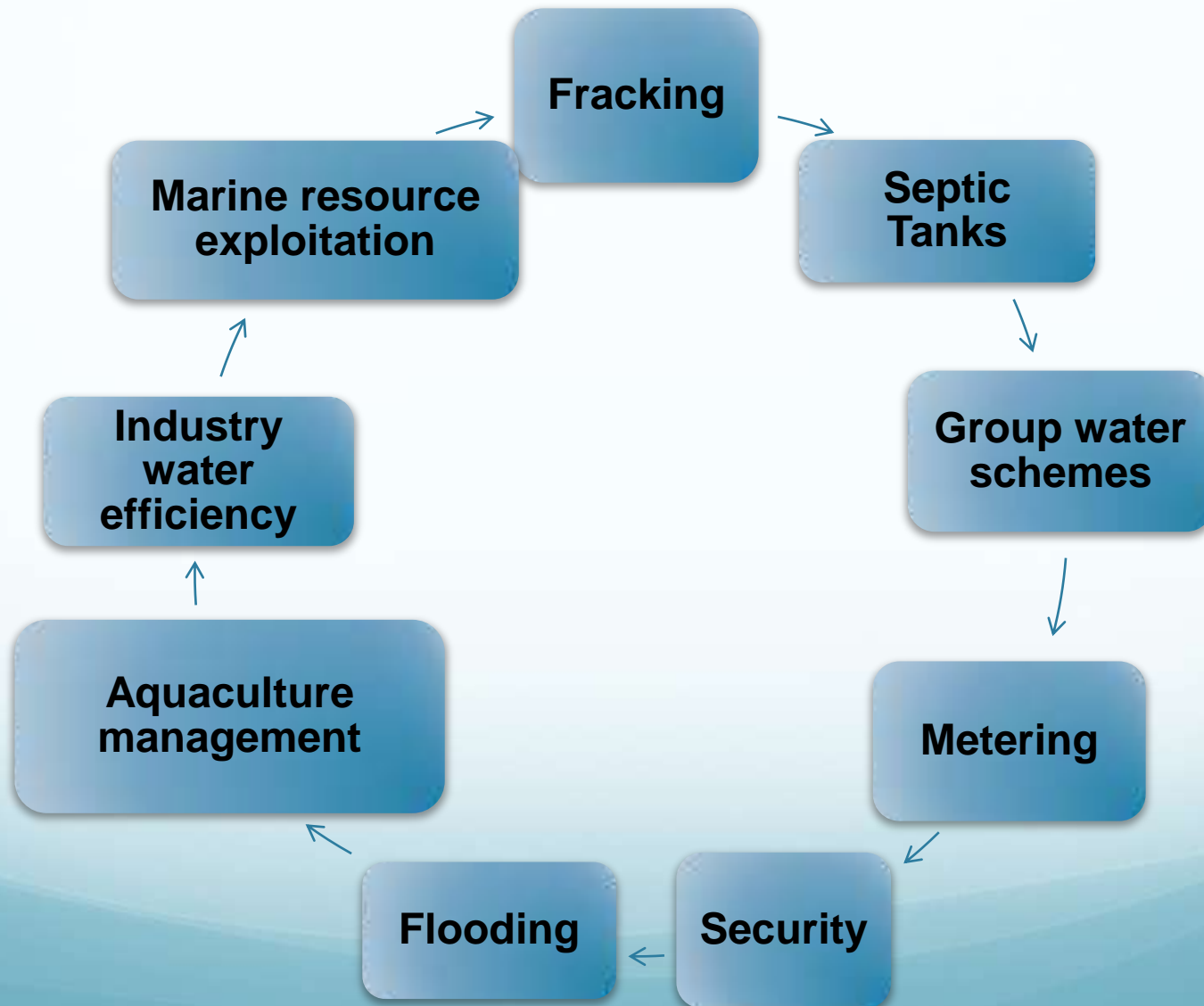
Goals

- Safe, secure drinking water;
- Healthy aquatic ecosystems;
- Reliable, energy efficient, quality water supplies for a sustainable economy;
- To enhance the understanding of human interactions and attitudes with water;
- To develop and promote improved methodologies for water management;
- To inform policy based on a foundation of science, engineering and computing technologies.

The current Irish challenges

- Water supply;
- Water quality & security;
- Water treatment costs;
- Compliance with legislation;
- Public usage costs.

What are the current water related issues in Ireland?



Policy & Governance

Water and Health

Wastewater & treatment efficiency

Pathogens

Emerging contaminants

Scarcity

Water safety

Security

Chemical threats

Bio-warfare detection / pathogens

Real-time monitoring

pollution

Drinking water

Marine

Biotechnology

Ocean energy

Aquaculture & fisheries

Water quality

Invasive species

Agriculture

Nutrients & run-off

Algal blooms

Coastal eutrophication

Catchment management & drainage

Autonomous sensors, Multimodal Sensors & sensor networks

Data analytics and models

Technology

Engineered distribution systems

Treatment technologies

Highlights 2013

- Naughton PhD Fellowship with **University of Notre Dame / DCU**:
 - To develop sensors for nutrient monitoring in water;
 - Gillian Duffy DCU;
- **SmartBay-Smart Cities** project supported by Intel looking at deployment in **Dublin Bay**, R. Liffey in collaboration with DCC;
- EPA supported **priority pollutant monitoring** in Irish waters using passive sampling – in collaboration with Marine Institute and UK Environment Agency, IFI & TeLabs;
- FP 7 project successes;
- National and International deployments established.

QUESTOR

- QUESTOR – an international partnership for environmental research and innovation.
- **Established in 1989, QUESTOR is the only Centre outside the US to be included in the National Science Foundation's Programme for Industry/University Cooperative Research Centres.**



QUESTOR @ DCU

- DCU a partner since November 2005
- Industry driven research
- Champions for projects
- Student internships
- Opportunities for testing technologies
- Access to expertise in university & industry
- **ATWARM** → Marie Curie ITN: valuable networking & collaboration opportunities – exchanges, summer schools,

The conference

- Local and international speakers
- ATWARM fellows
- Industry
- EEN brokerage event
- Networking opportunities
- Posters

Acknowledgements

- Aoife White – NCSR
- NCSR Team
- Helix
- QUESTOR - Patricia & Ciaran
- ATWARM Fellows
- Visitors & speakers

Enjoy !!!