



*British Council Event*  
*22<sup>nd</sup> March 2018, Santiago, Chile*

# **Mining, Energy and WATER**

*MSc and PhD opportunities at Exeter University*

**Prof Fayyaz Ali Memon (Water Engineering)**  
**Director International & Development**

**(f.a.memon@ex.ac.uk)**

- Member of the **Russell Group** – Top **research Intensive** universities
- Among **top 200** worldwide
- 22000 students (178 countries)
- The UK's **FASTEST growing** and **FASTEST rising** research university
- **TEF Gold** Award + **5 STAR** QS rating

**(f.a.memon@ex.ac.uk)**

# CAMPUS LOCATIONS

Streatham Campus



St Luke's Campus



Penryn Campus



Truro



# Camborne School of Mines - MSc Programmes

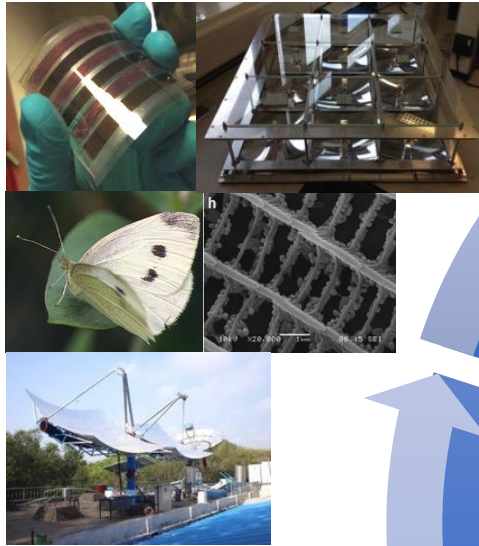
1. MSc Mining Engineering
2. MSc Mining Geology
3. MSc Applied Geotechnics
4. MSc Surveying and Land/Envir. Management
5. MSc Tunnel Engineering
6. MSc Geotechnical Engineering
7. MSc Minerals Processing

**Among  
Internationally Leading  
places**



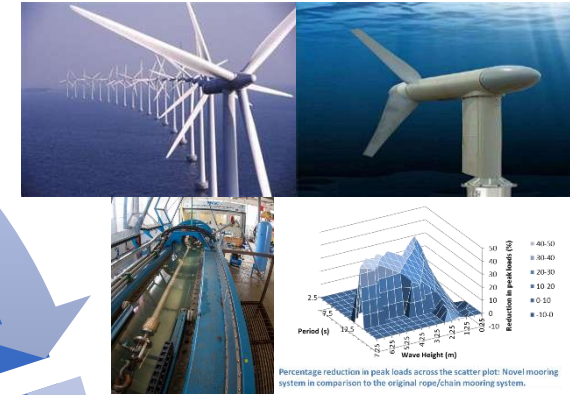


# Energy - Current Research Area

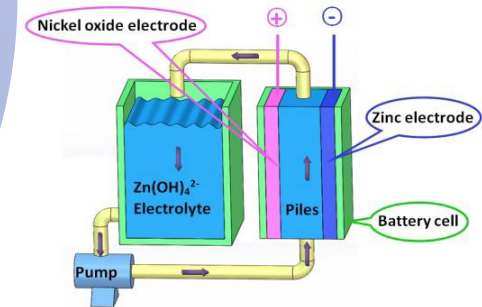


**Solar Technologies**

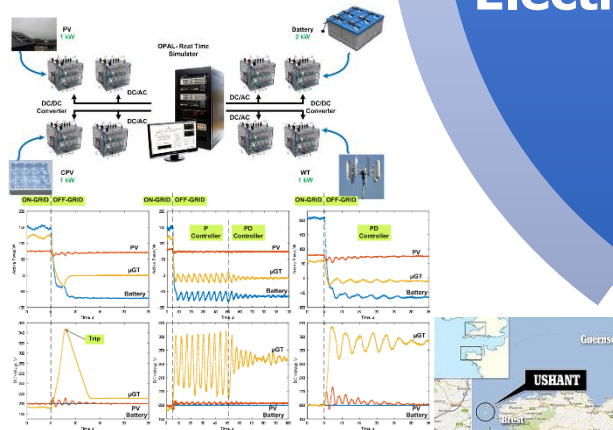
**Offshore Renewable Energy**



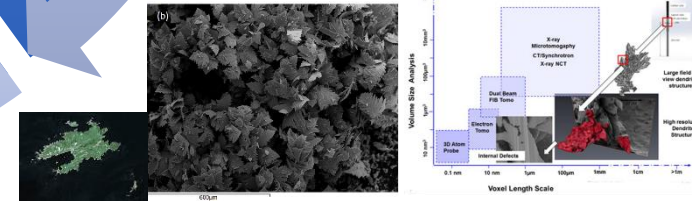
**Energy Storage**



**Power Electronics**



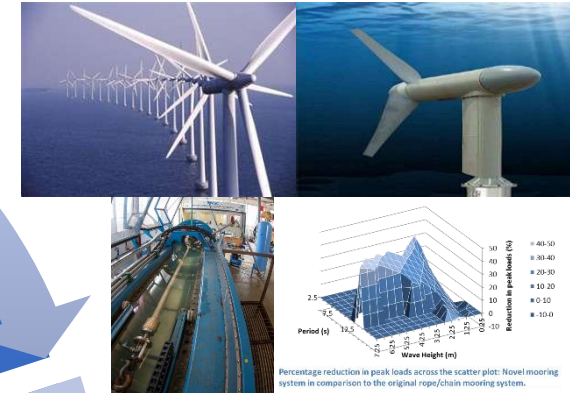
**Energy Policy**



# Energy - Current Research Area

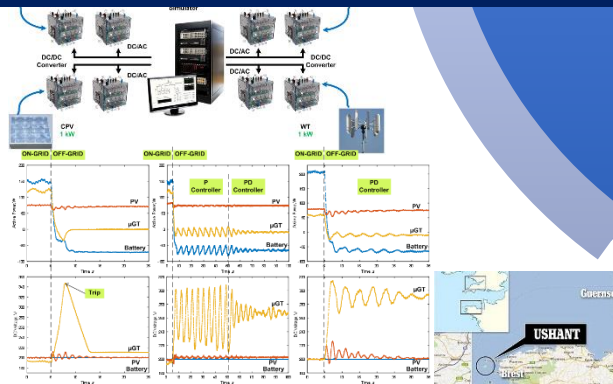


Solar  
Technologies

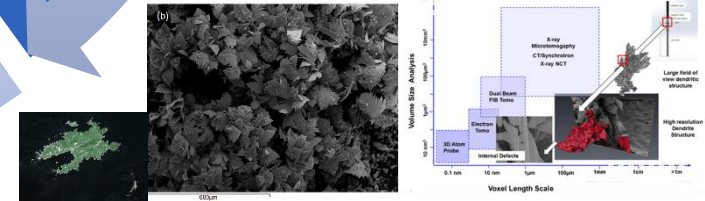
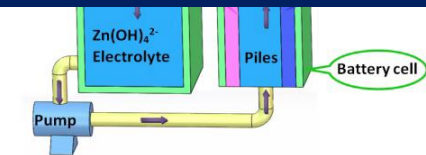


Offshore  
Renewable  
Energy

**MSc Renewable Energy**  
**> 50 PhD students**



Energy  
Policy



# Centre for Water Systems



**Prof Fayyaz Ali Memon**



# Centre for Water Systems



Prof Dr



Prof SI



Prof A



Prof G



Prof E



Dr Alb



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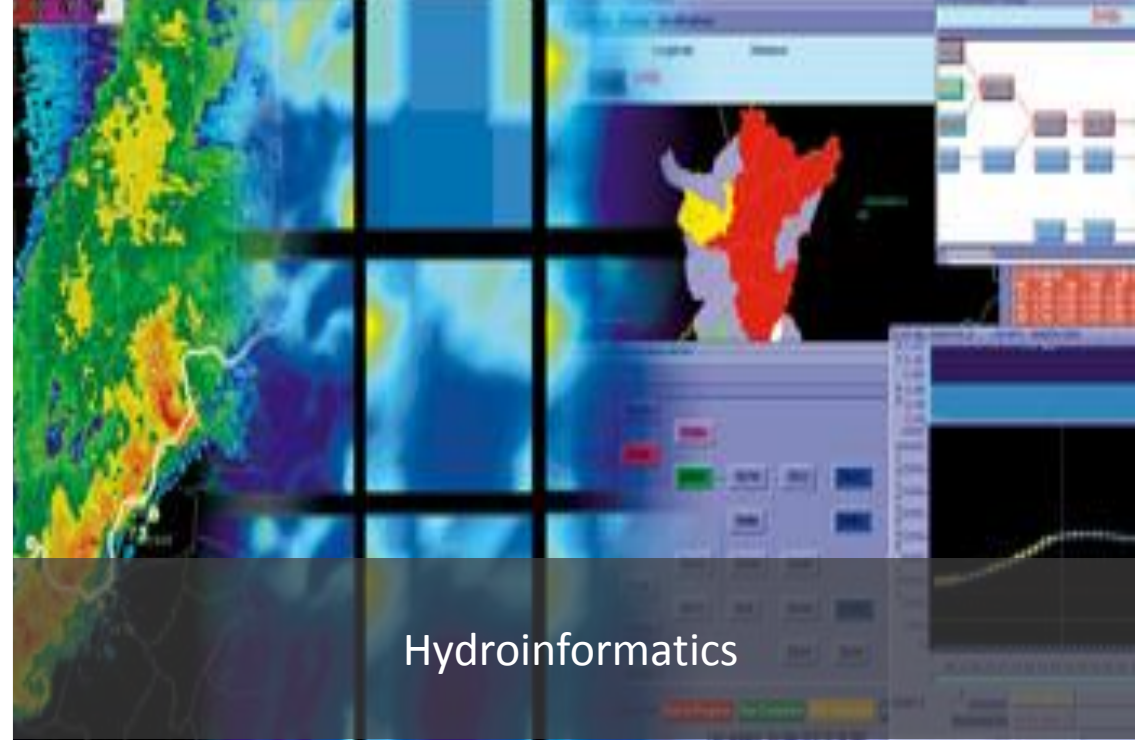
aran







Urban Water



Hydroinformatics



Working Closely with Partners  
to Deliver Impact

Multidisciplinary

Part of College of Engineering,  
Mathematics and Physical  
Sciences

Delivering Sustainable &  
Resilient Solutions

Grey, blue and green water .....



MSc Water Engineering or  
Water Eng and Management

# MSc Programmes

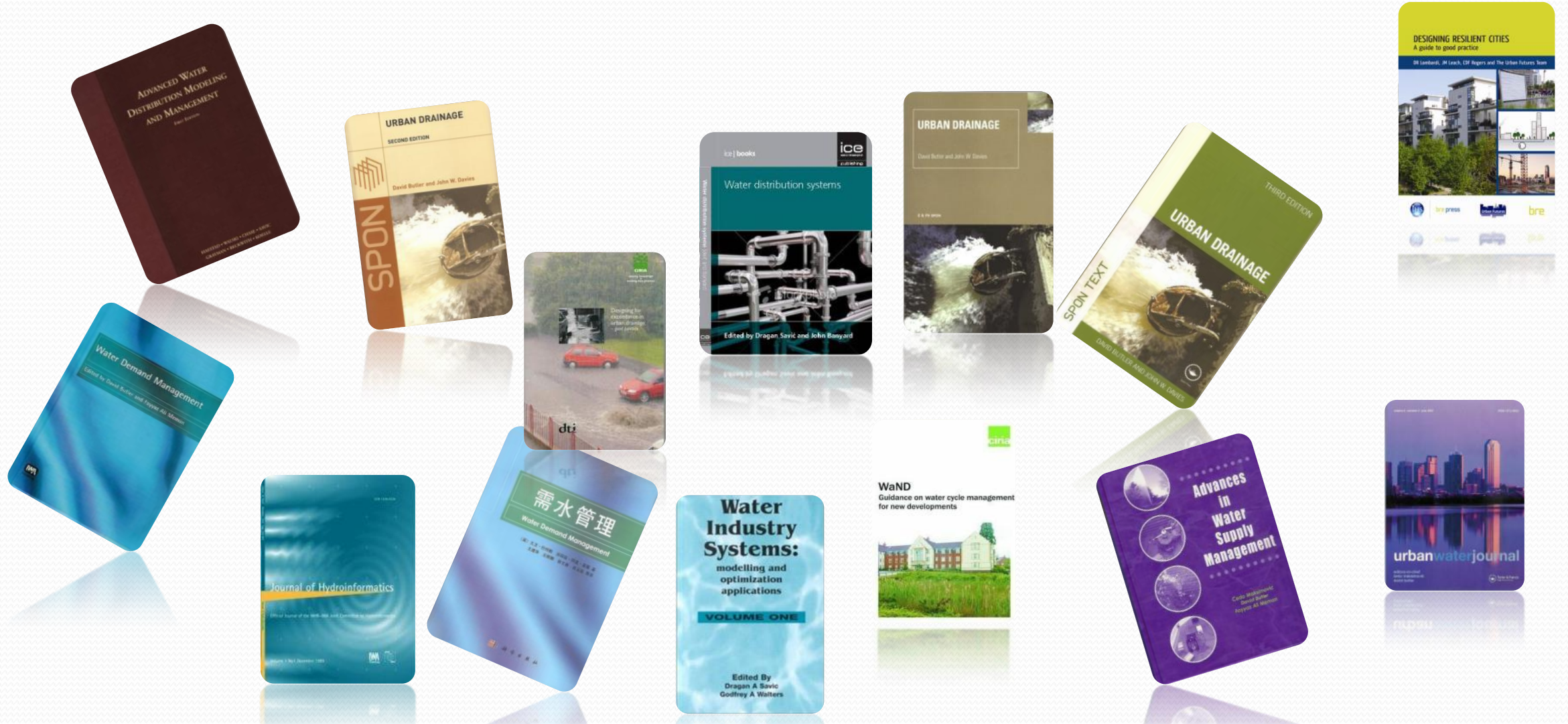
- **Water Engineering**
- **Water Engineering with Management**
  - **Accredited programmes**
  - **Full /Part time**
  - **Taught (2 Terms)**
  - **Dissertation**
  - **Extensive interaction with Industry**

# Industrial Collaborations





# Dissemination of best practice



# Current (2018) European-funded projects

PEARL (Preparing  
for extreme and rare  
events)

EU-CIRCLE (Pan-  
European framework  
for strengthening  
critical infrastructure  
to climate change)

RESCCUE  
(Resilience to cope  
with climate change  
in urban areas)

SIM4NEXUS  
(Water-energy-food  
nexus in erms of  
resource efficiency)

#Reconnect (Nature-  
based solutions)

#NextGen (Circular  
economy)

# Current (2018) EPSRC/NERC-funded projects

Safe & SuRe: Towards a New Paradigm for Urban Water Management

Risk Assessment of Masonry Bridges Under Flood Conditions

Human-Computer Optimisation for Water Systems Planning and Management (HOWS)

BRIM: Building Resilience Into risk Management

Susceptibility of catchments to INTense RAINfall and flooding (Project SINATRA)

TWENTY 65: Tailored Water Solutions for Positive Impact

Urban Flood Resilience in an Uncertain Future

Emergency flood planning and management using unmanned aerial systems

Fate and Management of Emerging Contaminants (FAME)

STREAM CDT

WISE CDT





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- 80 PhDs over 5 years
- 4 universities
- 20 industry partners
- Focus on informatics in the water industry



# Expertise and areas of research interest

- **Climate change:** impact, mitigation and adaptation, resilience.
- **Energy/carbon management:** customer contributions, process and system optimisation.
- **Water/energy/food nexus:** interplay and interrelationships at different scales, resource efficiency, circular economy.
- **Water demand management:** water efficiency, life cycle assessment, rainwater harvesting, water neutrality, systems dynamics, smart metering.
- **Serious games:** various applications.



# Expertise and areas of research interest

- **Water distribution:** modelling, monitoring, optimal design and operation, real time control, leakage detection.
- **Asset management:** whole life costing, data mining, deterioration and impact modelling.
- **Sustainable water management:** water cycle models and studies, optioneering, urban redevelopment, suitability.
- **Risk, uncertainty and resilience:** quantification, interventions and management approaches.
- **Water quality management:** fate and treatment of prior. pollut.

# Expertise and areas of research interest

- **Flood risk management:** urban drainage, sewerage, urban flood modelling, sewer operational management, SuDs.
- **Integrated urban wastewater systems:** modelling, water quality, real time control, variable consenting.
- **Computational fluid dynamics:** product development, performance optimisation.
- **Groundwater modelling:** flow, contaminant and thermal transport, seawater intrusion.
- **Water management in developing countries: India, Africa**

# Safe&SuRe

## Water management

[www.safeandsure.info](http://www.safeandsure.info)

### Aim of the S&S research project:

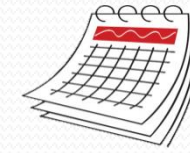
To develop a new paradigm for 'Safe & SuRe' urban water management in the UK in response to emerging challenges and global uncertainties

Safe: *Reliable*

SuRe: *Sustainable and Resilient*

# EPSRC

Engineering and Physical Sciences  
Research Council



Duration:  
2013 - 2018



BLACK & VEATCH



LUNDS  
UNIVERSITET



Llywodraeth Cymru  
Welsh Government



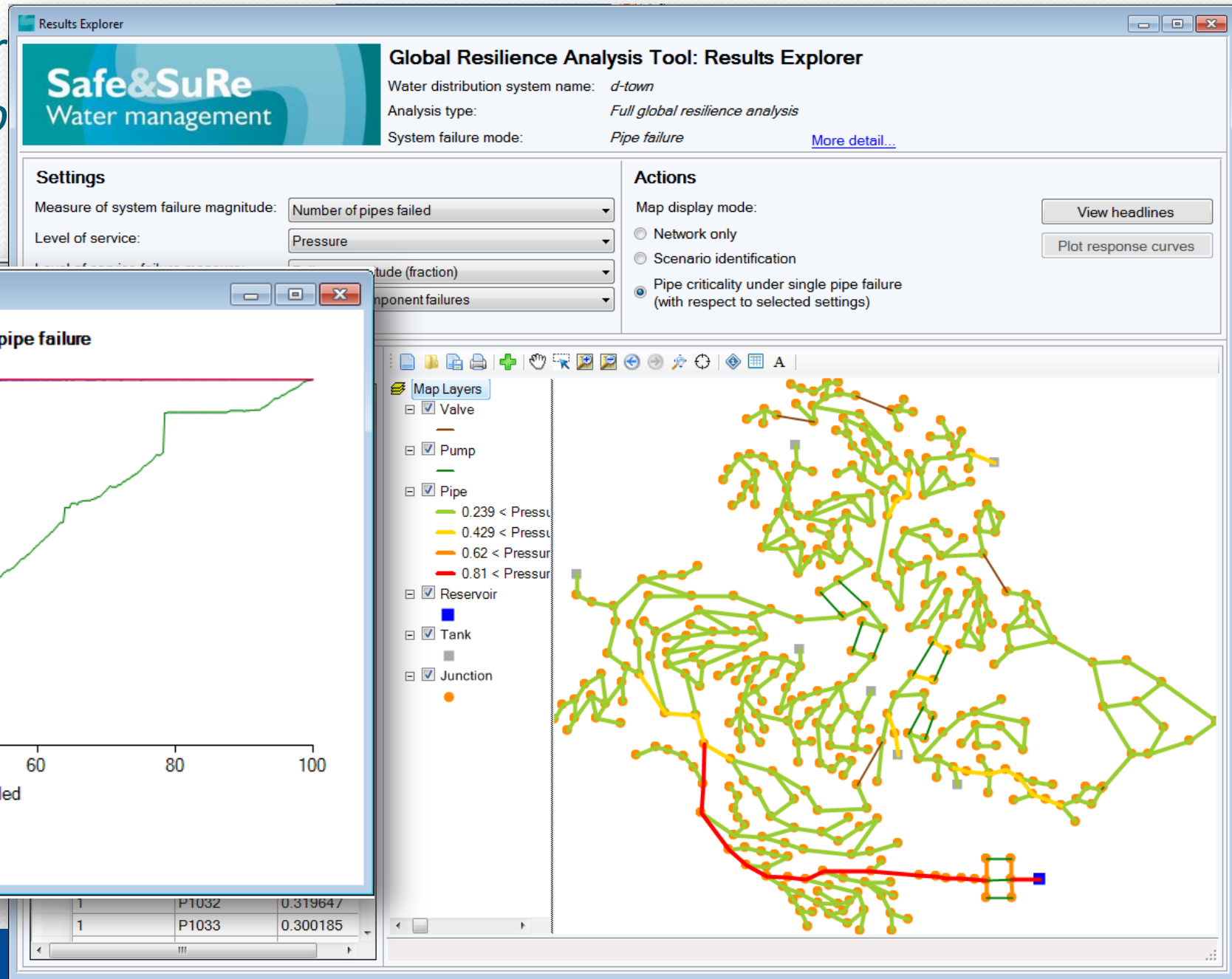
Environment  
Agency

ARUP





*Example outputs: Global resilience methodology and a tool for distribution systems*





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