



**International
collaboration
in water RDI**

-

**Necessary or
not?**

Dr Mike Farrimond

Some topics

- Introduction
- Water supply & sanitation Technology Platform
- European Innovation Partnership for Water
- Joint Programming Initiative
- Acqueau
- Global Water Research Coalition
- Closing remarks

The water sector

- **Huge market:** 400 to 500 Billion € turnover /year
(drinking and waste water)*
- **Considerable assets:** > 3.5 million km² of sewerage collection
pipes
Europe > 2.5 million km²
- **Large social impact:** 46,000 operating organisations in Europe
- **EU annual Investment**
- **SMEs:** 9.000 SMEs

- * Source: Deutsche Bank

A World

TUESDAY NOVEMBER 29 2005

n

Climate
Change

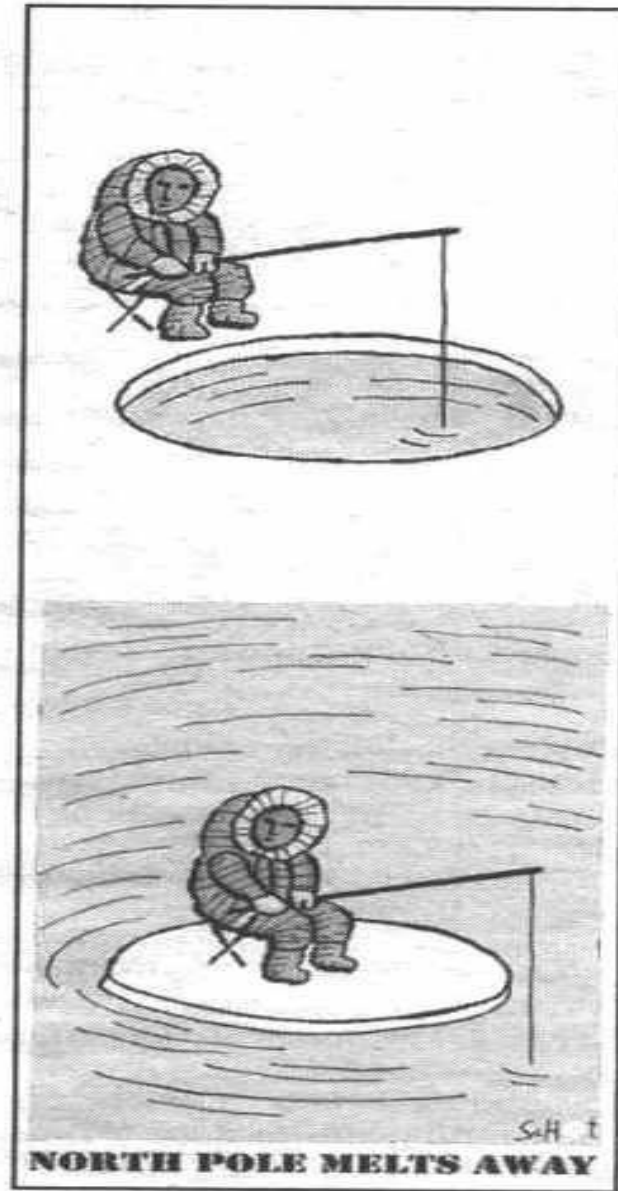
Customer
Needs

Pace of
Technology

Sustainability

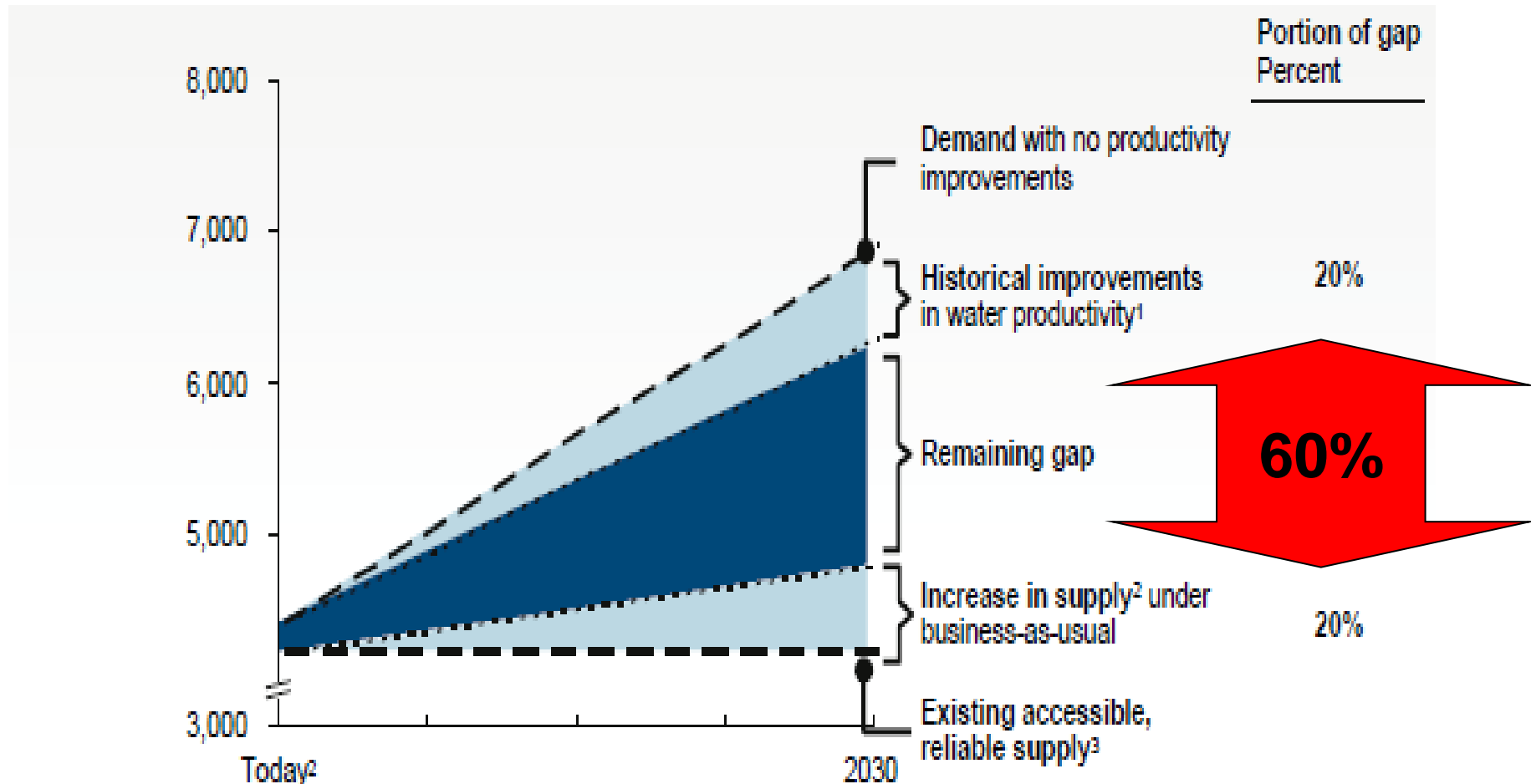
Demographics

Urbanisation



Doing nothing isn't an option

Billion m3



¹ Based on historical agricultural yield growth rates from 1990-2004 from FAOSTAT, agricultural and industrial efficiency improvements from IFPRI

² Total increased capture of raw water through infrastructure buildout, excluding unsustainable extraction

³ Supply shown at 90% reliability and includes infrastructure investments scheduled and funded through 2010. Current 90%-reliable supply does not meet average demand

source: 2030 Water Resources Group. *Charting Our Water Future: Economic frameworks to inform decision-making* (2009).

Mythe Water Treatment Works, UK – June 2008

**300,000
customers
without water
for up to 2
weeks**



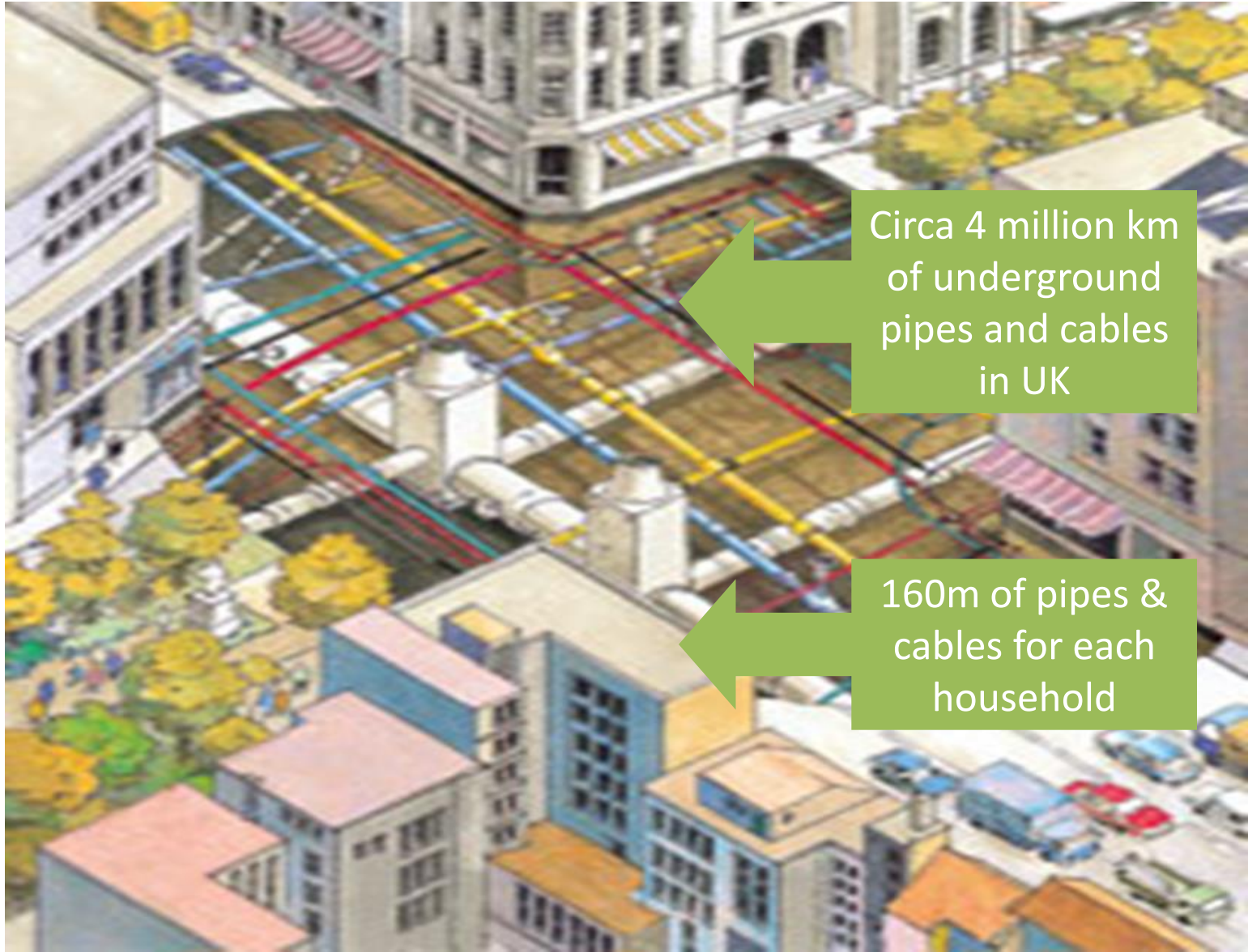
Surface water management



Increased Winter Rainfall
Flooding
Dam security
Security of supply
Diffuse Pollution
Intermittent discharges
Surface Water Management

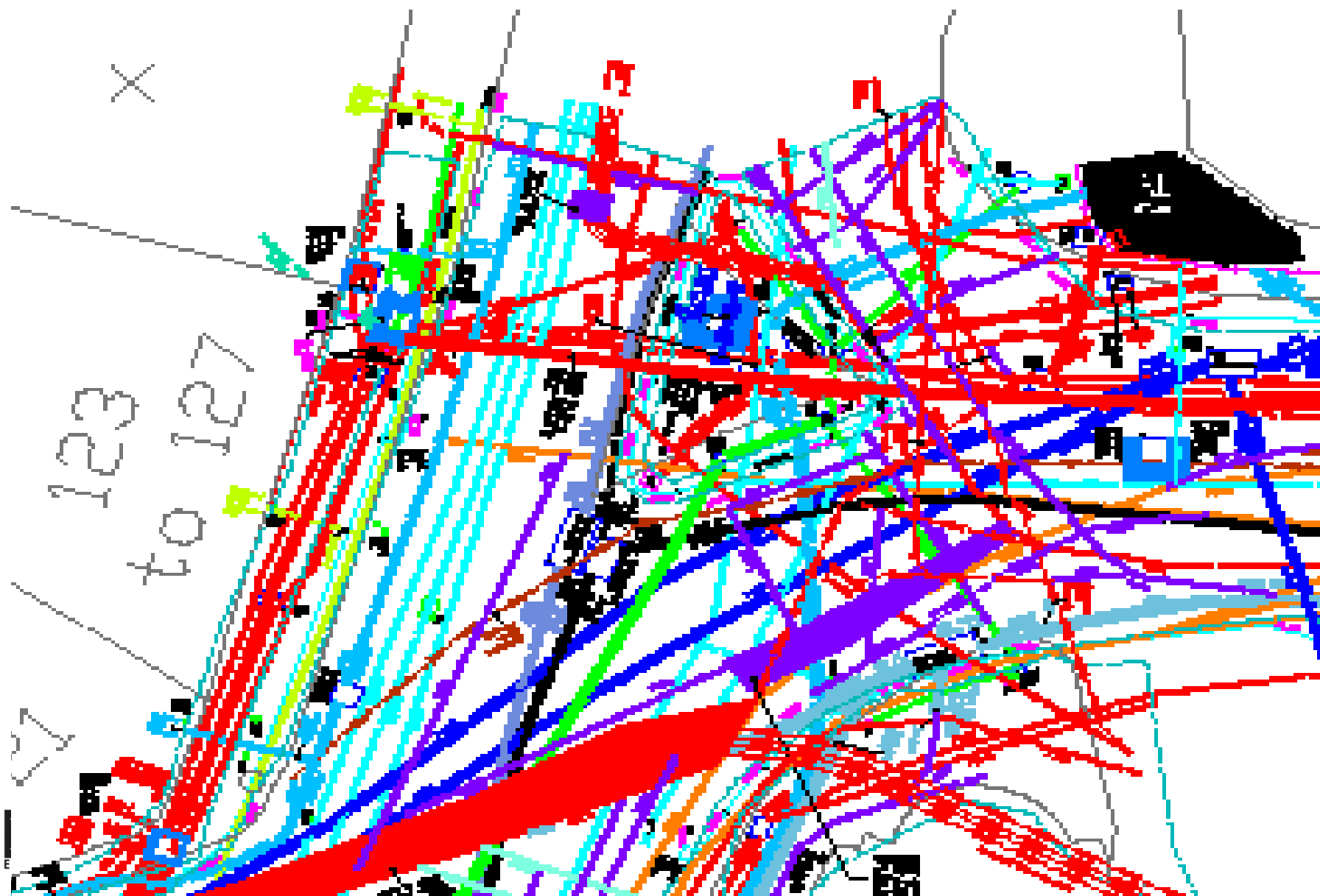
Underground – our cities Veins and Arteries

Telecomms
Internet
Gas
Oil/Petroleum
Sewerage
Road drainage
Power
Water
District heating
Street lighting
Traffic control



Circa 4 million km
of underground
pipes and cables
in UK

160m of pipes &
cables for each
household



Demand issues



Customer behaviour

- 💧 Economics and charges
- 💧 Patterns of use
- 💧 Efficient use

Leakage

- 💧 Find, fix, faster

Energy

- 2/3 used is for pumping
1/3 used is for biological
sewage treatment



→ GOAL – energy neutral sewage treatment



Contaminants in effluent
Ammonia, Phosphates, Nitrate,
trace of metals and organic
chemicals

Regulation



**Barrier
or
Enabler?**



Water supply & sanitation Technology Platform

A common vision for European Water Innovation

WssTP – the European Technology (*and Innovation*) Platform

- Strives to:
 - Improve **coordination and collaboration** in RTD & Innovation
 - Enhance **competitiveness** of the European Water Sector
 - Contribute to solving **societal challenges** through RTD & Innovation
- **Membership-funded ETP**
 - **Legal entity**
 - **Growing organization:** From 17 to 80 members from 2008 to 2012
 - **Openness and transparency:** 315 contributing organization, a network of more than 750 persons.

Members



The European Water Platform

Strategic Research Agenda (SRA)

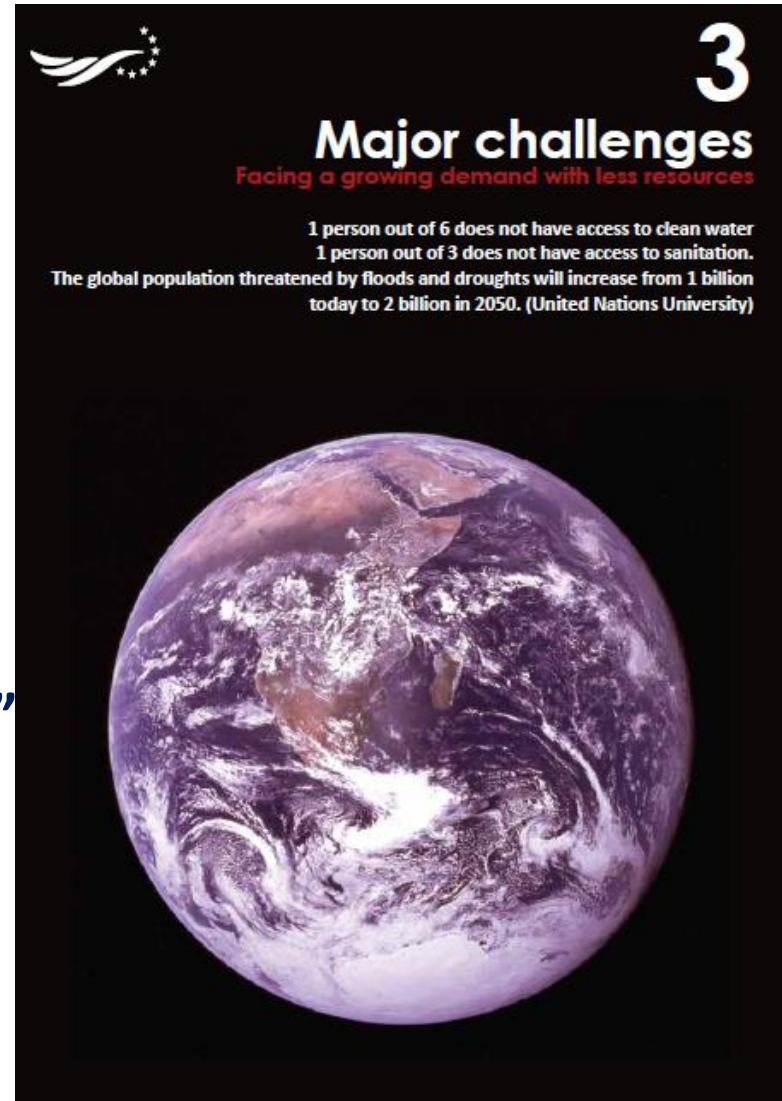
Drivers for change

- Water: a necessary but low cost good
- Demographic growth and urbanisation
- Increasing globalisation and wealth
- Spatial and temporal pressure (coastal urbanisation, tourism)
- Global warming

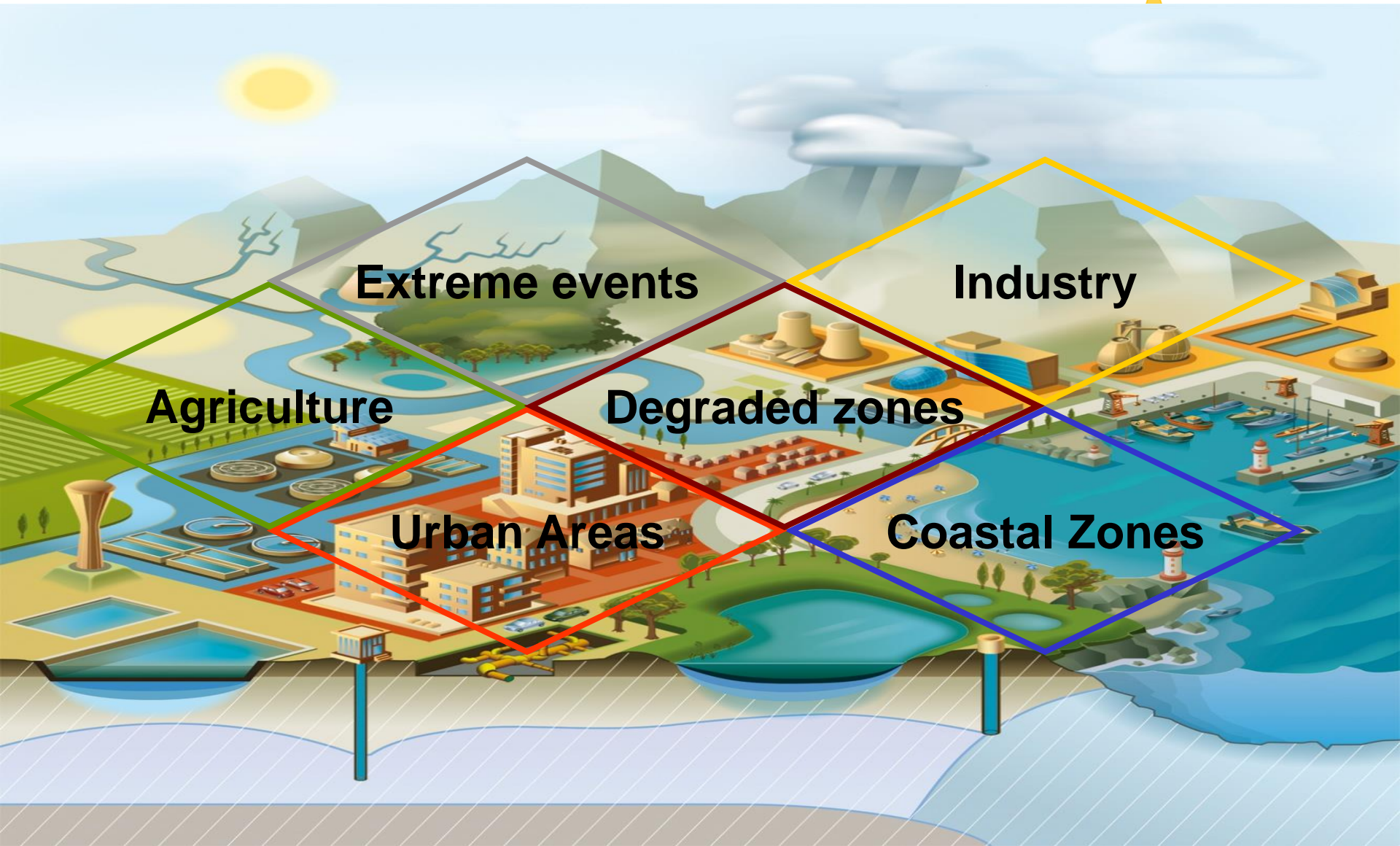


Major Challenges identified in SRA

- Coping with increasing water stress (quantity & quality)
- Reducing impact of extreme events (droughts and floods)
- Managing aging or lacking infrastructure
- Facilitating technology transfer
- Establishing an “Enabling Framework”
- The MDGs for Sustainable Water Supply & Sanitation Services in Developing Countries



Address research and innovation based on the water cycle



Extreme events

Industry

Agriculture

Degraded zones

Urban Areas

Coastal Zones



WssTP - Reports

- Coastal zones
- Scientific Publication: Research and Technology Development Needs
- Managing rain-related events and flooding in urban areas

Asset management for sustainable urban water

Supply Demand Balance & Public Participation

- Sustainable Sludge Management in Urban Areas
- Alternative Water Resources
- Sensors and Monitoring
- Water Treatment
- Agriculture - Irrigation Techniques
- Manage Aquifer Recharge
- State of the Arts and Research Needs

- Plus

*Water and Energy, Membrane Technologies for Water Applications,
Millennium Development Goals, Brines, Leakage*

**Written by
WssTP
members**

Current activities

- WssTP Innovation Strategy 
- European Innovation Partnership on water (EIP Water)
- Horizon2020
- Regional policy 2014-2020
- Eco-innovation Action Plan
- International cooperation:
 - EU-India
 - EU-China
- *SPIRE public Private Partnership*

Strategic objectives of the EIP - by 2020:

- ***To provide safe, available and affordable water for all, while ensuring sufficient water for the environment.***
- ***To achieve the relative decoupling of the depletion of water resources from the level of economic activity in key EU sectors (including energy, farming and chemicals).***
- ***To maintain and enhance the good status of waters in all EU river basins – in terms of quality, quantity and use, and in the context of increasing pressures on water resources.***

EIP – Steering Group

Potočnik, Janez – chairman of the Steering Group	Environment Commissioner, European Commission
Geoghegan-Quinn, Maire	Research and Innovation Commissioner, European Commission
Nunes Correia, Francisco	President of the Portuguese water partnership
Reiter, Paul	President International Water Association

.....and **22 others**

EIP Water has set clear targets:

- By the end of 2012 to agree on a Strategic Implementation Plan.
- By 2013 to effectively function as a platform for public and private stakeholders to cooperate efficiently on developing innovative solutions for water related challenges.
- **By 2013 to establish a web-based Market Place for water innovations**, which allow supply and demand side actors across the EU to co-operate.
- **By 2015 to show first results of actions to remove major barriers to innovation** at the EU, Member State and regional levels to ensure that legislation and financial instruments support innovations.
- **By 2020 to show tested solutions for 10 major water related challenges** that have been successfully disseminated and scaled up

EIP on Water

Cross-cutting issues
Water governance
Management models and monitoring
Financing for innovation

Water-
reuse and
recycling

Water and
waste
water
treatment

Water
energy
nexus

Risk Mgmt
of extreme
water
events

Ecosystem
services

Smart technology (enabling factor)

Vision and objectives

EIP Action groups

5. What are the responsibilities of an Action Group?

An Action Group will:

- be responsible for proceeding towards the goals it has set itself and as defined in its proposal;
- commit to deliver concrete results in the short to long term, as clear milestones in the application (dormant/inactive groups will not be funded by the EIP Water);
- report twice a year on:
 - progress towards the defined objectives;
 - barriers to innovation that are hindering the group, the way in which the Action Group is addressing them and their recommendations on how relevant barriers should be removed to remove such barriers.

**1st Call closes
4 April**

The Water JPI

Joint Programming Initiative
Water Challenges for a Changing World



**Coordinated by
Enrique Playán
Spain**

Joint Programming

Is

- Coordination of the national / regional, public, research, development and innovation programmes in Europe and beyond
- A process based on variable geometry
- A new way to address RDI problems with European dimension and global focus

Is not

- An ERANET, although it relates to ERANETs
- A EU driven process, although the EU is following and feeding the process

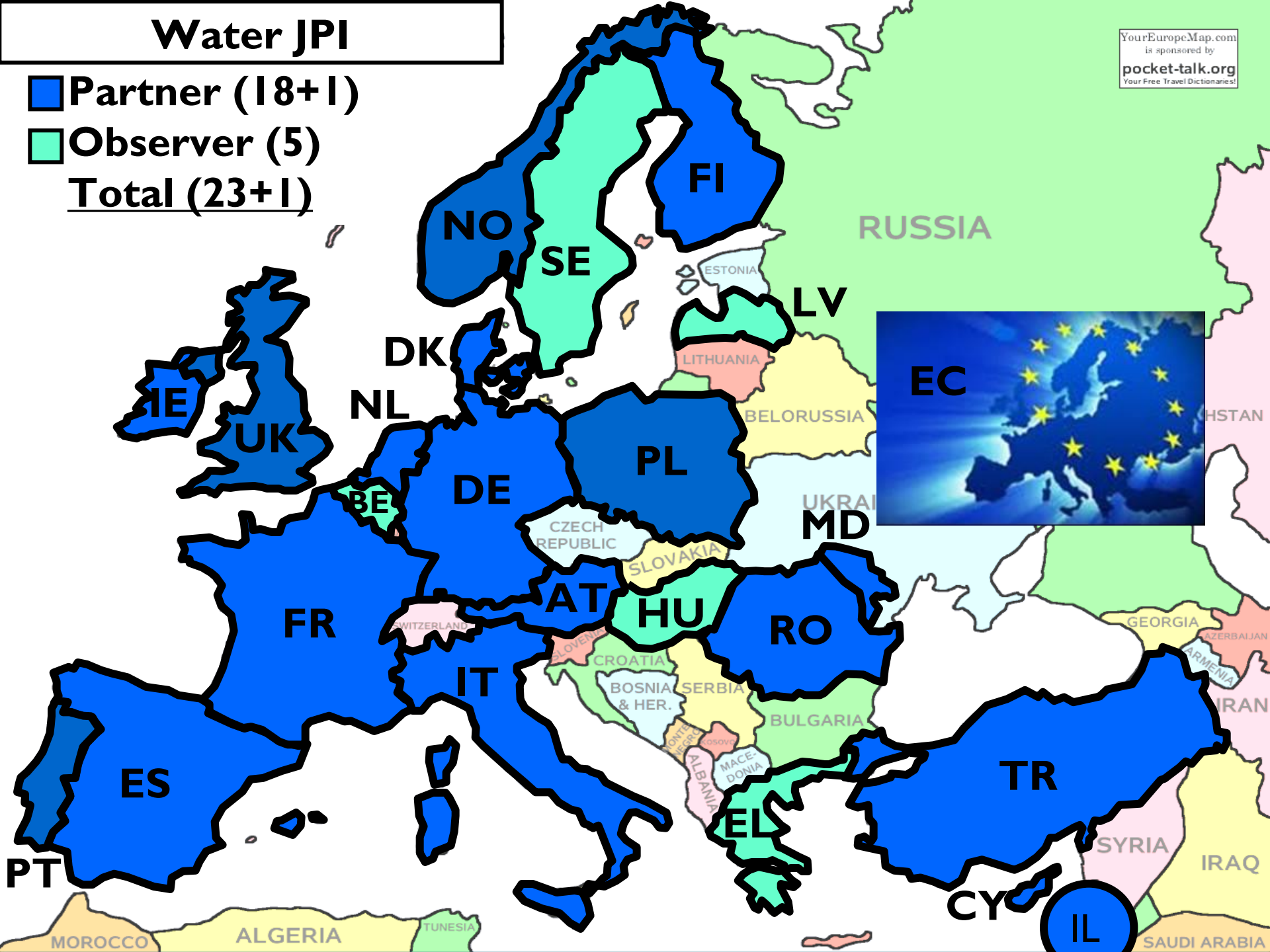
Water JPI

■ Partner (18+1)

■ Observer (5)

Total (23+1)

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Your Free Travel Dictionary!



JPI Partners: including -

Portugal



MCTES MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR
Ministry of Science, Technology and Higher Education

+ 23 others

Mapping EU water RDTI

Area	Public RDI Funding (M€/year)
EU – FP7	130
JPI countries	358

JPI Objectives

- Involving water end-users for effective RDI results uptake.
- Attaining critical mass of research programmes.
 - **Involve at least two-thirds of the public National water RDI investment in Europe.**
- Harmonising National water RDI agendas & activities in Partner Countries.
 - **Develop a catalogue of jointly programmed activities whose global budget amounts to at least 20 % of the total water RDI budget of partner Programmes.**
- Supporting European leadership in science and technology.
- Reaching effective, sustainable coordination of European water RDI.

...next steps

- First “external” activities planned for 2013:

- Refine Mapping of R&I activities
- Progress towards a Strategic Research and Innovation Agenda
- **Pilot call for proposals**
September 2013
- Search for strategic Alliances
- Strengthen external communication

www.waterjpi.eu



Water Innovates

- **Established in 1985**
(17 countries & EU)
German – French initiative
- **Today 40 countries including EU**
- **R&D supported projects**
 - Individual projects
 - Eurostars dedicated to SME's
 - Umbrellas
 - **CLUSTERS:**
industrial driven initiatives
Efficiency – light & rigorous Process

- 7 clusters
 - Mainly ITC & Energy
 - **WATER**
- Bottom up projects
 - Multi-national



- Dedicated to the water industry and related technologies
- Established in April 2010
18 countries support (today 25 countries)
- 10 Projects Labelled (volume of 29M€)
- ~15M € on-going projects
- Road Map:
 - 9 major components based on water cycle
 - 5 major programs for key technological needs
 - Open to any proposal relevant to the strategy
 - 2 Calls a year



Acqueau - operations



Submit proposal to AQUEAU

Secure “EUREKA labelling”

Each partner funding by their own
Ministry

At least 2 countries

SMEs welcome

⇒ 5 programmes considered as priorities

5 major programs

Strong environmental impact



Membranes Technologies

Real Time System Management

Sustainable Wastewater Treatment

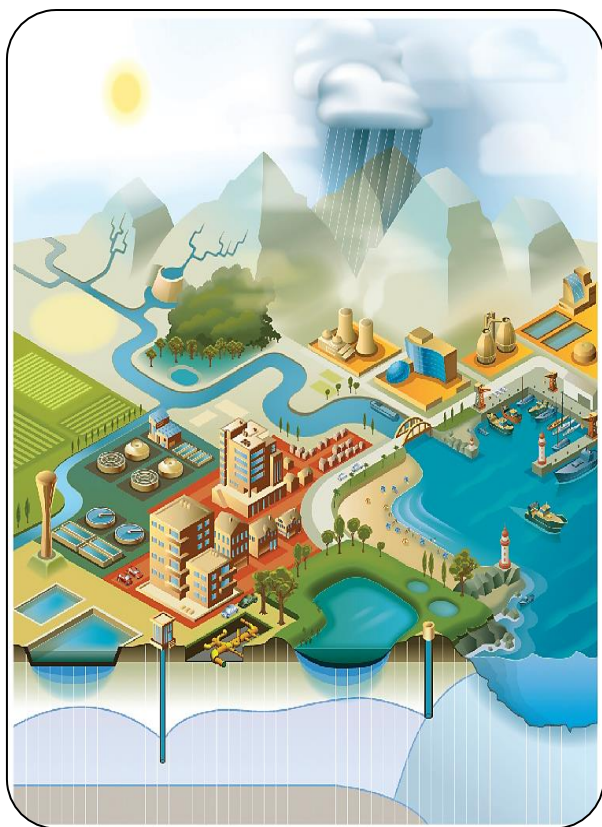
Materials for Pipes and Coatings

Disinfection and Oxidation with low environmental footprint



WATER & ICT

Smart Electronic Needs for the Water Cycle



- Issues
 - Total Cost of Ownership (TCO)
 - Reliable sensors for new parameters
 - Wireless communication
 - Energy
 - Integration

Inter-cluster cooperation
12 months WG
Call 5

Global Water Research Coalition



Global Water
Research Coalition

Global Challenge on Water

- Major issues:
 - Water quantity and quality, and growing demand
 - Impact of Climate Change (resources and location of demand, GHG) and Energy Efficiency
 - Review and redesign of urban water concepts
- Issues cross national boundaries
- Issues that can not be addressed alone
- Water industry has become a global community
- Coordination and collaboration is always beneficial

May 2002 => ***Global Water Research Coalition***

Global Water Research Coalition

- Network of water research organisations active in the urban water cycle
- Objectives:
 - Exchange of information and knowledge
 - Development of research strategies for global issues
 - Coordination of research efforts

Global cooperation for generation and exchange of water knowledge



Global Water
Research Coalition



CANADIAN WATER NETWORK
RÉSEAU CANADIEN DE L'EAU



stowa

KWR
Watercycle Research Institute



TZW

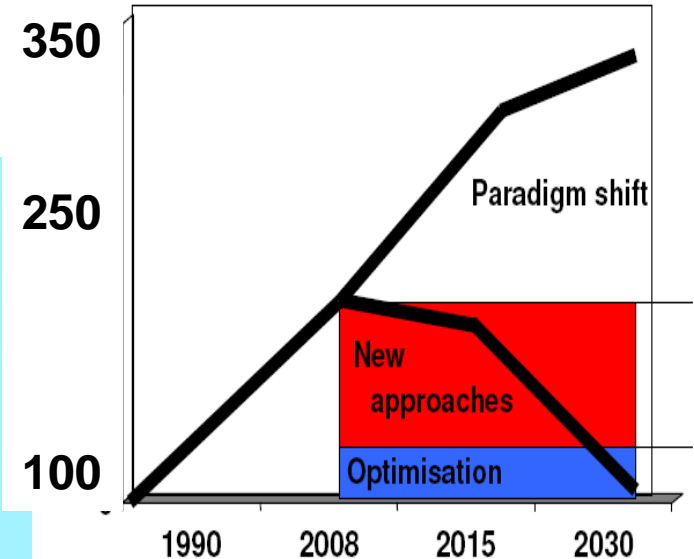


Energy Research Strategy

- Overall goal /ambition:
An energy and carbon neutral urban water cycle by 2030!
- Supported by GWRC members with concepts, tools, technologies

Via a 3 - phase approach:

1. Implement the State of the Science:
the low hanging fruit
2. Optimisation/innovation of present
systems: 20 % reduction
3. Paradigm shift: 80% reduction



Activities & Products in 2011 and 2012

Workshops:

- Water Footprint
- Nanotechnology & Nanoparticles
- Endocrine Disruptors
- Pipe Materials
- Wastewater Treatment

Network Meetings:

- WWT/Climate Change
- Water Quality
- Asset Management

GWRC in Practice

- Collaboration is a people game (cultures/characters)
- Sharing costs \Leftrightarrow sharing control
- Commitment by the members is the key factor
- Connect, communicate and collaborate
- Collaboration needs additional efforts, takes time and development of trust

..... but it pays off and is fun!

Some examples of collaboration

- Water supply & sanitation Technology Platform
- European Innovation Partnership for Water
- Joint Programming Initiative
- Acqueau
- Global Water Research Coalition

“In the future we believe that
significant advances in business
will come from increasing global
collaboration”

HSBC advertisement 2013

Dr Mike Farrimond

- Thank you

