

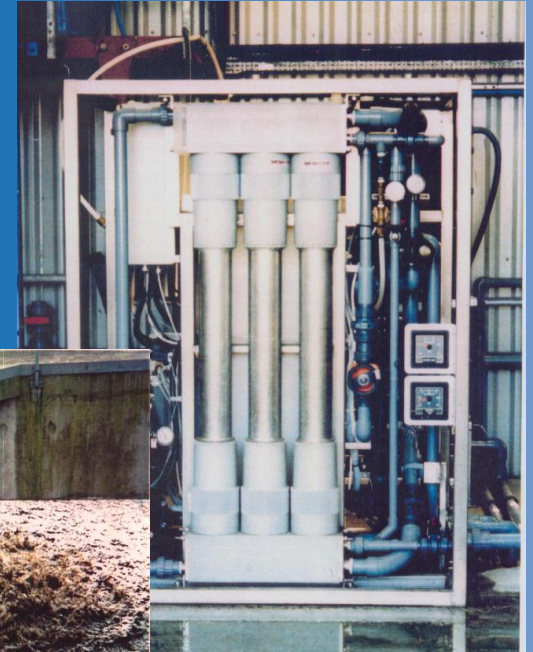
R&D in the Water Sector and then What?

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British Water

25th October Milton Keynes



British Water

Who are we?



- Lead trade association for the water industry supply chain.
- Developing our scope to cover sustainability, CC, energy-water nexus etc

Member Benefits and Services:-

- Facilitating business opportunities in municipal, industrial and international markets;
- Facilitating outward and inward trade and technology missions;
- Providing networking opportunities for companies with a common interest;
- Lobbying Government, regulators and the European Commission;
- Improving awareness of legislative and regulatory requirements and promoting best practice;
- Publish magazine articles, Cascade, Codes of Practice, (e.g. SUDS Technical guidance)
- Facilitate training, accreditation schemes for personnel & equipment.

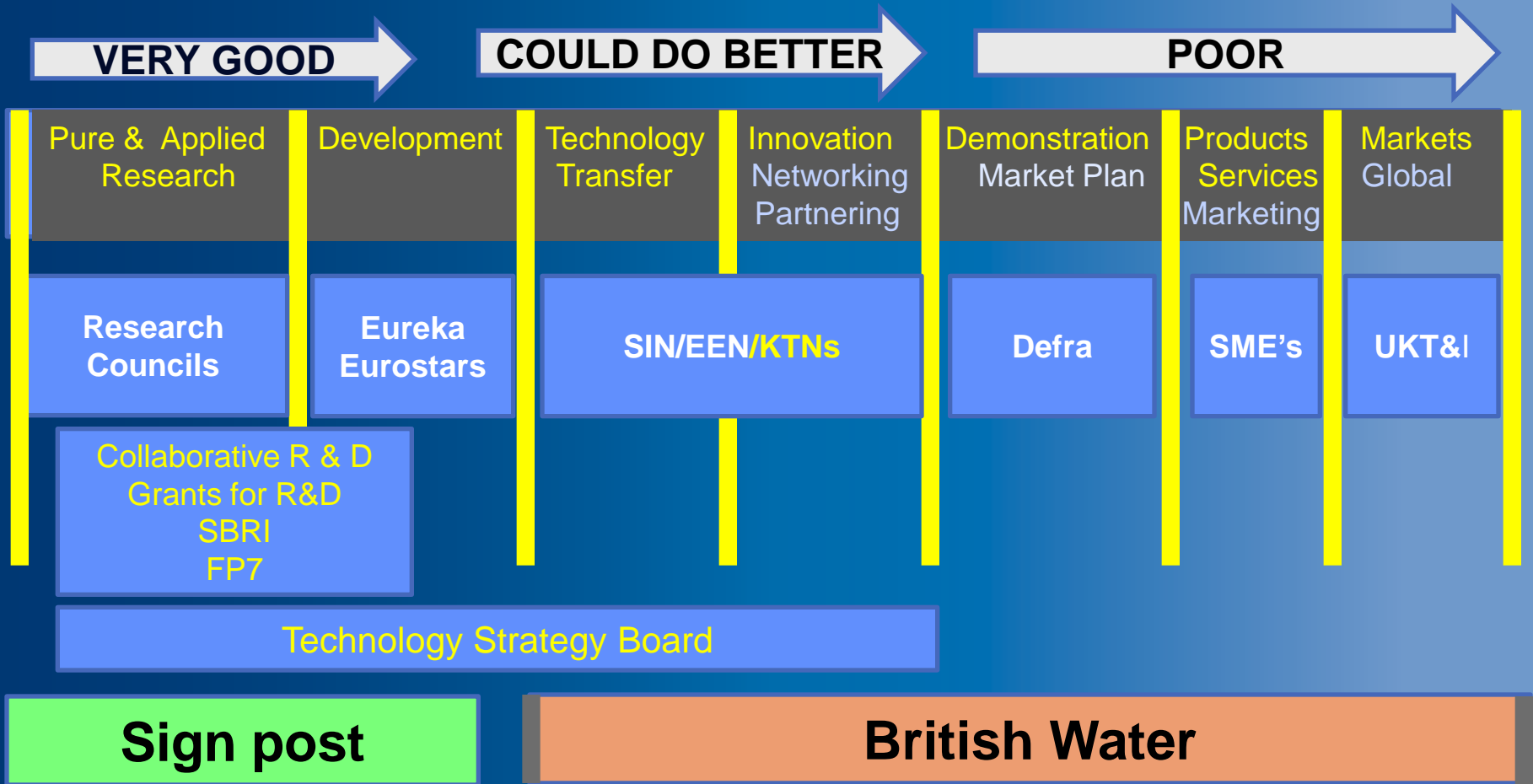
www.britishwater.co.uk

Overview of Presentation

1. *The Business Chain or Value Chain*
2. *Funding and Need For Innovation*
3. *Technology Strategy Board*
4. *Ways Forward*
5. *Supply Chain Actions and Benefits*
6. *Water Markets*
7. *Summary*

AFATA!

Business Chain



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Government Spending on R&D & Innovation

- Research & Development & Knowledge Exchange
 - Research Councils - £2.8billion per year** (RCUK)
 - Universities and Institutes - <100%?
- Knowledge, Exchange & Innovation
 - TSB - £0.33 billion per year (1/8th)** (TSB)
 - SME's – 50%

Nb. Water Utilities R&D 1990's £45m per year

£18 m per year (60% drop)

(Cave Review)



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Need for Innovation

DEFINITION: First Report of Environmental Innovations Advisory Group

DTI & DEFRA November 2006

‘It is said that innovation is the process of turning knowledge into successful products and ultimately into money. It is not the same as research, which has been described as a process of turning money into knowledge’



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Need for Innovation – A Changing Water Industry

- **Climate Change**
 - **Global Warming and Global Wetting** gives us acute and chronic problems with the weather.
- **Population Growth and Migration**
 - **Wealth, health, migration, urbanisation, industrial activities and food production.**
- **Infrastructure Management**
 - **There are technological and financial challenges to maintain and upgrade infrastructure.**
- **Millennium Goals**
 - **Meeting the MG is a challenge. (e.g. Public health and access to safe and affordable DW).**
- **Sustainability**
 - **Sustainable solutions - descendants have secure water supplies and a healthy environment.**
- **Pollution**
 - **Remediation and Prevention technologies are required to protect Water Resources.**
- **Security**
 - **UN recognise that there is a potential risk of 'Water Wars'.**
- **EU Directives**
 - **Compliance with EU Directives e.g. WFD.**
- **Competitive Edge Global Market**
 - **Provision of a competitive edge.**



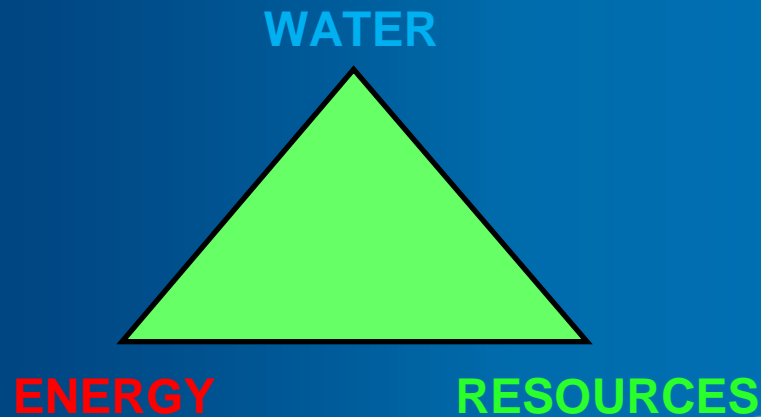
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Need for Innovation

1. Holistic Approach Water Management

Integrated Water Management

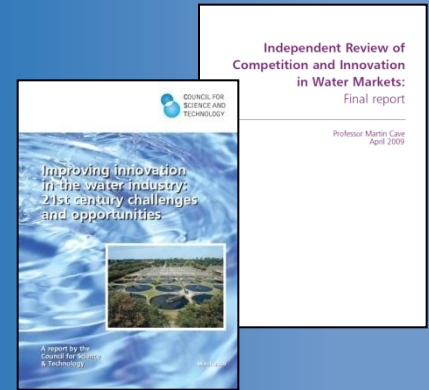
2. Integrated Management



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Need for Innovation

Recent History of Water Industry reviews



1. The Race to the Top: A Review of Government's Science and Innovation Policies
(Lord Sainsbury of Turville October 2007)
2. The Future of the UK Water Sector
(All Party Parliamentary Water Group - 2008)
3. Improving Innovation in the Water Industry: 21st century challenges and opportunities
(Council for Science and Technology – March 2009)
4. Independent Review of Competition and Innovation in Water Markets
(Cave Review – April 2009)



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Need for Innovation

Cave Review

*“The current framework of **economic regulation** does **not always encourage** significant investment in **research and development** or the trialling or adoption of innovations. This is because, depending on the level of investment, the probability of a successful outcome and value of the saving, the current outperformance period of between five and seven and a half years may be insufficient. Moreover, any increase in operating expenditure may be viewed as an apparent increase in inefficiency.”*

Prof. Martin Cave 2009 74 words

The AMP Process stifles investment in R&D and innovation is a risk not worth taking.

British Water 14 words

Main Recommendations

- R&D Expenditure falling £45m 1990 - £19m 2000
- Need More competition
- Water bill 50p per customer - £20m per year
- Central Water R&D Body
- Utilities to undertake the R&D



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Technology Strategy Board

- Non Governmental Body, Based in Swindon, 100 staff,
- Strategic Plan: “**Connect and Catalyse**” May 2008
 - TSB want to make the UK a global leader in innovation.
 - To do so:
 - **Business needs to be at the forefront of technology and innovation developments globally;**
 - **Government provides support which allows innovation to thrive;**
 - **Society understands, embraces, values and is excited by innovation and technology.**
 - TSB has four directorates:
 - Innovation Programmes
 - Knowledge Exchange and Special Projects
 - Strategy and Communication
 - Operations and Services

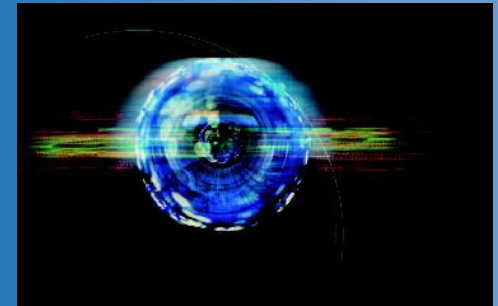


www.innovate.org

Technology Strategy Board

Programmes:

1. Collaborative research and development
2. European/FP7 competition
3. Grant for R and D - Single Business
4. SBRI



Search: Water - 4 results

❑ **Nanotechnology – enabled solar energy harvesting: Building the supply chain**

Nanotechnology – enabled solar energy harvesting: Building the supply chain

❑ **Developing High Value Chemicals through Industrial Biotechnology**

The Technology Strategy Board is running a competition to fund the development and commercialisation of innovative processes that will generate high value chemicals through industrial biotechnology, on behalf of the Department for Business, Innovation and Skills (BIS).

❑ **Future Sensing of Underwater Threats**

Seeking innovative approaches to detect and counter both static and mobile underwater targets.

❑ **Energy Efficient Soldier**

Specifically looking for the rapid implementation of novel lightweight or high density power technologies to reduce the weight burden carried by infantry soldiers.



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A Way Forward – Case Failed

Innovation Platforms

- Innovation platforms focus on specific *societal challenges* where the UK Government is taking action through *policy, regulation, procurement or fiscal measures* to tackle the problem.
- By improving *co-ordination between the key players from industry*, academia and government, innovation platforms can identify barriers to meeting the challenge, map possible routes to overcoming the barriers and align activities to support innovative solutions.

Current Innovation Platforms

- *Intelligent Transport Systems and Services*
- *Network Security*
- *Low Carbon Vehicles*
- *Assisted Living*
- *Low Impact Buildings*
- *Detection and Identification of Infectious Agents*

Business Case Water Innovation Platform – Sept 2009

- TSB constructing a Business Case (6 mths duration)
- Board Decision 2010
- Typically funded £10m per year for 5/10 years
- Business Case not accepted



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A Way Forward – Water TIC Application Failed

- Technology and Innovation Centres (TIC's)
- £200m+ programme was announced in October 2010 by Prime Minister David Cameron.
- Three underway:
 1. High value manufacturing, was announced in January.
 2. Cell therapies.
 3. Offshore renewable energy.
- A technology and innovation centre will:
 - provide businesses with access to world-leading technology and expertise
 - reach into the knowledge base for world-leading science and engineering
 - be able to undertake collaborative applied research projects with business
 - be able to undertake contract research for business
 - be strongly business-focused with a highly professional delivery ethos
 - provide skills development at all levels
- British Water and Water UK joint application for a Water Security TIC



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A Way Forward - Knowledge Transfer Networks

- Single over-arching national network in a specific field of technology or business application
- Funded by Government (TSB).
- 17 in number?

Objective: to improve the competitiveness of the UK environmental industries

1. Catalysing innovation

Identifying market needs; facilitating R&D and demonstration projects; enabling funding to drive innovation

2. Enhancing the uptake of technologies

Building confidence in innovative technologies; tackling barriers and hurdles to uptake; enabling access to finance

3. Improving knowledge transfer

Highlighting market needs and business drivers; raising awareness of innovations; creating opportunities and partnerships

4. Informing Government policy

Communicating issues affecting technology development and uptake; providing evidence base to support policy development; assisting government to deliver policy objectives

NETWORKING



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A Way Forward – Environmental Sustainability Knowledge Transfer Network

ES – KTN

- Major Output Business Cases
 - Stakeholder meetings
 - Identify issues, barriers
 - Technology Road Maps

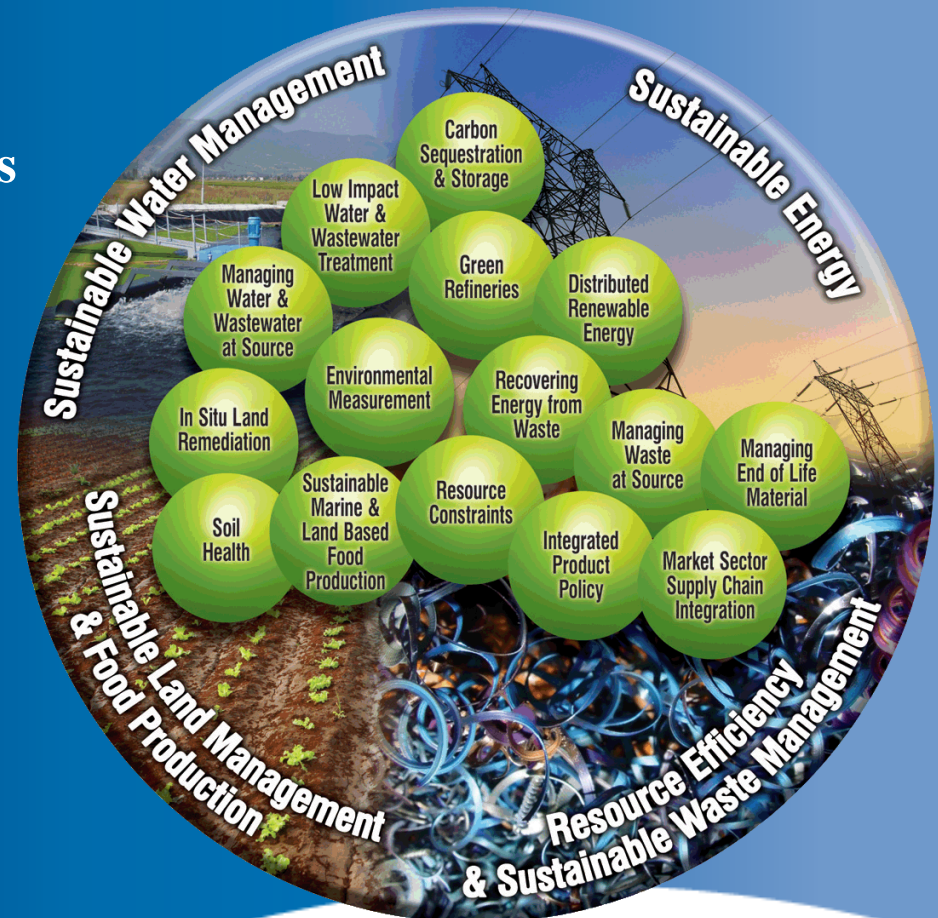
Contacts:

Kerry Thomas or Jonathan Abra

Begbroke Science Park

Oxford University

www.esktn.org.uk



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A Way Forward – British Water (SIN and EEN)

Technology Transfer, Partnering and Brokerage Events

Science & Innovation Network (SIN)

- a. Personnel at UK Embassies with Budgets!
- b. Assist with inward and outward missions
(e.g. Israel, Netherlands, India)

Enterprise Europe Network (EEN)

- a. Partnering & Brokerage Events
- b. Database Technology requests and offers



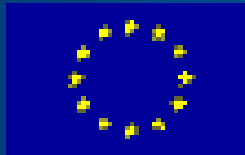
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A Way Forward – Technology Strategy Board

OVERVIEW

EUROPEAN FUNDING

- Eurostars*
- EUREKA*
- Framework Programme FP7
- Specific Calls, Typically 315 days wait



NATIONAL FUNDING

- Grants for R&D
- SBRI
- Collaborative R&D*
- KTP's & CASE Awards
- KTN's or TSB

A Way Forward – Technology Strategy Board

EUREKA Cluster - ACQUEAU

- European Water Collaborative R&D Network
- UK Initiative
- Eureka **Cluster Driven by Business (WssTP)**
- **10 years duration**
- **£30 million per year call**
- **UK partner – no TSB funding.**

EUROSTARS

- **Set up 1989 Outside of FP& Programme**
- **Collaborative R&D, 2 calls per year, 60 days**
- **Watch this space! TSB**



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A Way Forward - R&D Call

TSB R&D Call Planned

- £3 million call in March 2012
- Aimed at SME's with Export market as a target
- Two Phases
 - 1. Proof of Concept
 - 40 companies £10k
 - 2. Demonstration
 - 10 companies £250k
 - VC involved ?



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Supply Chain - Actions

1. Balance technical pull and market push
2. Develop creative culture for problem solving
3. Identify entrepreneurs and innovators
4. Network and Partner
5. Introduce new sustainable Products and Services
6. Improve efficiencies, reduce costs
7. Enhance niche skills
8. Protect IPR
9. Find Funding
10. Develop Market or Business Plans (Europe and further afield)
11. Demonstrate Technologies
12. Commercialise



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Supply Chain - Benefits

Contractors

- Financial reward for the successful implementation of new ideas & improving efficiency
- Enhancement of reputation & competitive strength

Consultant

- Find solutions for issues faced by clients

Equipment or Service Provider

- 'Better product' – increase market share
- 'Niche product' – capture market, exclude competitors

Innovators

- Royalty income
- Growth in value of Intellectual Property



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Water Markets

- **Multiple Users of Water**
- **Water Industry is Fragmented - Many Markets**

- **Main Market Sectors**

1. **Water Supply and Wastewater**

1. Privatised and Public
2. Municipal & Small package



£22.1 bn – AMP5

2. **Industrial**

1. Energy Production
2. Food
3. Waste Management

3. **Agriculture**

4. **Amenity & Environmental**

- **Geographic Markets**

1. **UK**

2. **Europe** – Common standards

3. **Rest of the World**

1. UKTI – Priority Areas
2. BW – Priority Areas



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UK Water Markets

UK Water Market
about £10 billion
per year

Scope for
Innovation 5- 10%
= £500 million



Courtesy of TSB - Unvalidated



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Summary

1. *The Business Chain or Value Chain*
2. *Technology Board and Funding*
3. *Need For Innovation*
4. *Ways Forward*
5. *Water Markets*
6. *Actions and Benefits for the Supply Chain*

SFATA!

Thank you for listening

Contact Details:

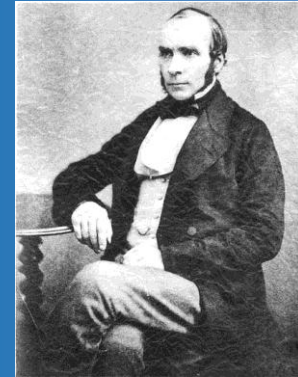
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