Vision 2050: Sustainable water use in the European chemical industry

J MacAdam

Presentation outline

- ChemWater - objectives
- Introducing Vision 2050
  - Sustainable water use
  - Drivers for change
  - Realistic picture of the future chemical industry
  - Challenges
- What are we missing?

ChemWater's Objectives

- **Establish** the interdisciplinary and cross-sectoral synergies
- **Create** the necessary elements and mechanisms to facilitate the rapid uptake and commercialisation
- **Develop** a common long term vision and strategy
- **Implement** an effective dissemination strategy

Introducing Vision 2050 – where we are so far

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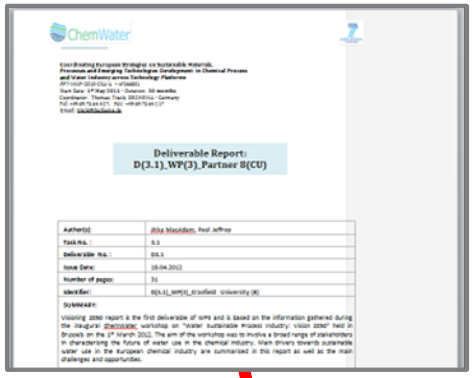
WORKSHOP 1

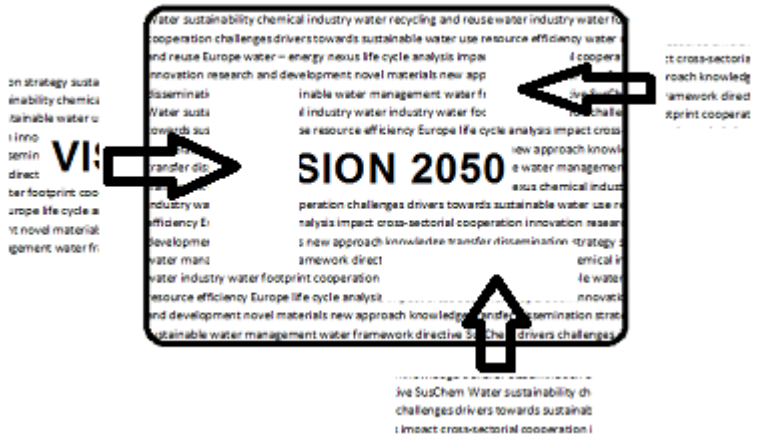
Water Sustainable Process Industry: Vision 2050"; Brussels; 1st March 2012; > 50 participants

DRAFT REPORT


ChemWater

Deliverable Report: D(3.1)_WP(3)_Partner 8(CU)

What is missing?



Sustainable water use

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No impact on water availability and quality

Zero contribution to water scarcity

No net addition to pollution

Sustainable water use

Common understanding

Realistic target

In context of sustainability as a whole

Need to decouple economic growth from environmental impacts

Cross-sectorial cooperation

Sustainability metrics

Main drivers for sustainable water use

- Increased shortages of readily treatable water
- Increased salinity in coastal areas
- Leadership opportunity
- Reducing dependency on water
- Higher energy prices
- Pressure for production cost reduction
- Legislation
- Negative public perception of chemical industry
- More integrated water resources management arrangements imposed
- More output / m^3 of water used required

Piecing together a picture of the future chemical industry

- Water pricing
- Greater emphasis on efficient management through supply and value chain
- Enhanced integration
- Industrial symbiosis
- Sustainable management and resource efficiency key for retaining global position and competitiveness

R&D priorities of the future chemical industry

- Key roles for technology transfer and public / private partnership
- Key areas for R&D and investment?
  - Biochemistry
  - Separation technologies
  - Materials technology
  - Industrial process design
  - New catalysis and low temperature processes
  - Nanotechnology
  - Reducing pollution at source
  - Recovery of materials from process streams

Main challenges

Uncertainty about relative strength of different industrial sectors in Europe by 2050

Availability of water, governance and allocation

The water-energy nexus will be a decisive influence on process viability

New product/ process designs with minimal environmental impact

Innovation needed to improve re-use and valorization of materials and water streams

- See the handout

Addressing the challenges

- **Cross-sector collaboration** to develop innovative integrated solutions (collaborate across the value chain)
- **More water efficient processes** (minimize freshwater consumption)

- Secure **wider access to independent water sources**
- **Increase levels of water reuse** (cascading quality both internally and over the fence)
- **Greater investment in R&D** to address core challenges

Recap and summary

VISION 2050

DRIVERS

Sustainable water use

CHALLENGES

Where do we go from now?

Need to build a solid base & fill in all the missing pieces

Discussion

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What is missing from the Vision 2050?

- Challenges for water technology development in the next 10 years?
- Trends in the European chemical industry?
- R&D priorities?
- Does the ChemWater Vision match other visioning activities within your company?
- What is feasible for 2020 and 2050?