



Economically and Ecologically Efficient Water Management  
in the European Chemical Industry

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Thomas Track

# The E4Water Project: Eco-efficient water management in European Chemical Industry



Chemical Industry provides the highest potential for increasing eco-efficiency in industrial water management.

**Chemical process industry is water user and solution provider** for key strategic European process industry sectors such as mining, industrial biotechnology, health, food, electronic, pulp and paper, and energy.

E4Water addresses **crucial process industry needs**, to overcome bottle necks and barriers for **an integrated, cost and energy efficient water management**.

→ **A key element in a circular economy**

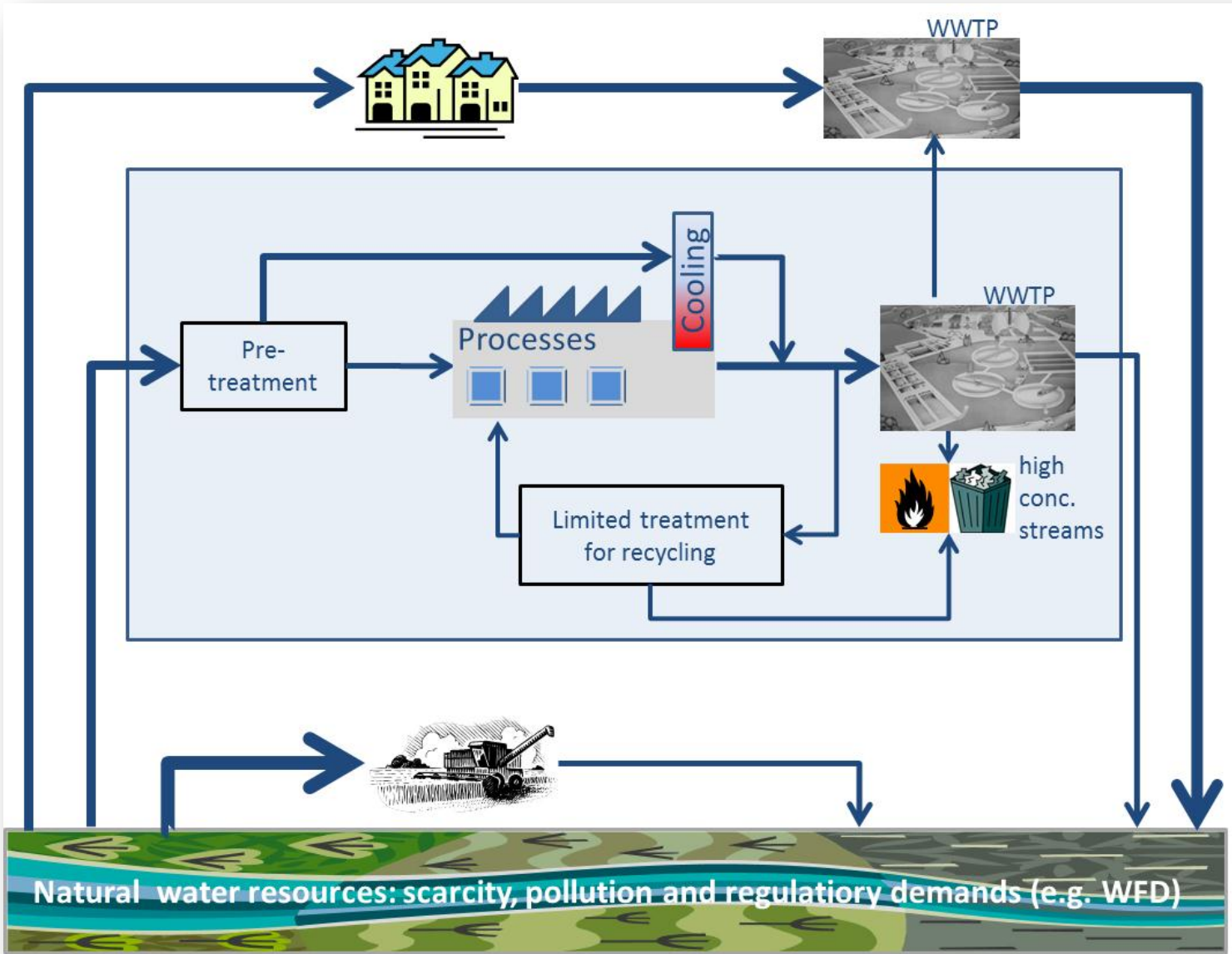
## E4 Water

### **Economically and Ecologically Efficient Water Management in the European Chemical Industry**

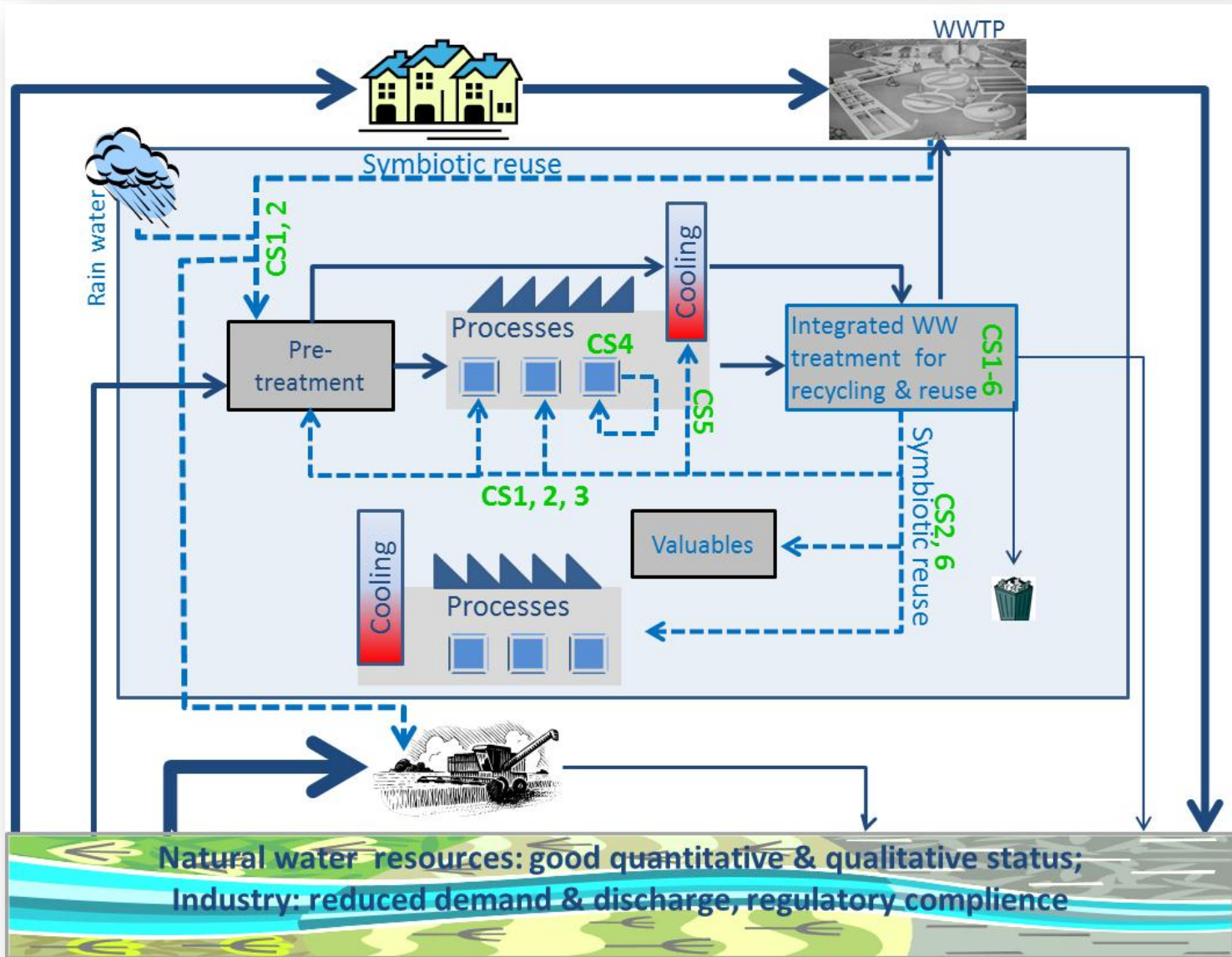
Partner:	19, > 40% industry
Countries:	9
Industrial case study & demonstration sites:	6
Project volume:	> 17 mio €
EC Funding volume:	11 mio €
Duration:	05/2012 – 04/2016

1. DECHEMA e.V. - Germany
2. TNO - Netherlands
3. Complutense University Madrid - Spain
4. VITO – Belgium
5. CEFIC - Belgium
6. Solvic NV - Belgium
7. Solvin Spain SL - Spain
8. DOW - Dow Benelux B.V. - Netherlands
9. Procter & Gamble Eurocor N.V. – Belgium
10. Total Petrochemicals SA - France
11. Ondeo Industrial Solutions SA - France
12. Cluster Biofuels Denmark - Denmark
13. Technical University of Denmark
14. Fachhochschule Nordwestschweiz - Switzerland
15. Technical University Berlin - Germany
16. IVL AB - Sweden
17. Evides Industriewater BV - Netherlands
18. Campden BRI - United Kingdom
19. Technische Universiteit Delft - Netherlands





- Overcome the bottleneck in recycling and reuse:  
Treating concentrates/complex wastewaters
- Linking water- and production processes for process efficiency optimization
- Creating water loop interfaces and synergies:  
(I) in industry  
(II) with urban & agricultural water management
- Combining on site – local – regional approaches for win – win solutions



**CS1: Netherlands:**  
Mild desalination,  
alternative water  
sources



**CS6: Denmark:** Industrial  
Symbiosis, new  
technologies for an  
integrated water  
management system



**Water use ↓**  
**Waste water production ↓**  
**Energy use ↓**  
**Economical efficiency ↑**



**CS4: Italy/ Czech  
Republic:** in-process  
water loop closure, new  
technology trains



**CS3: Spain:** water loop closure,  
ensure process continuation



**CS2: Belgium:** multi-  
company site,  
Identification of  
Synergies



**CS5: France:** Integrated  
water management at a  
petrochemical site



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**6 case studies** demonstrated:

- Reduction in water use ( $\geq 40\%$ )
- waste water production ( $\geq 20\%$ )
- energy use (up to 20%)
- Economic benefits (up to 30%)
- Policy compliance ensured
- Exploitation in practice at partners
- Applicable to other industry sectors

