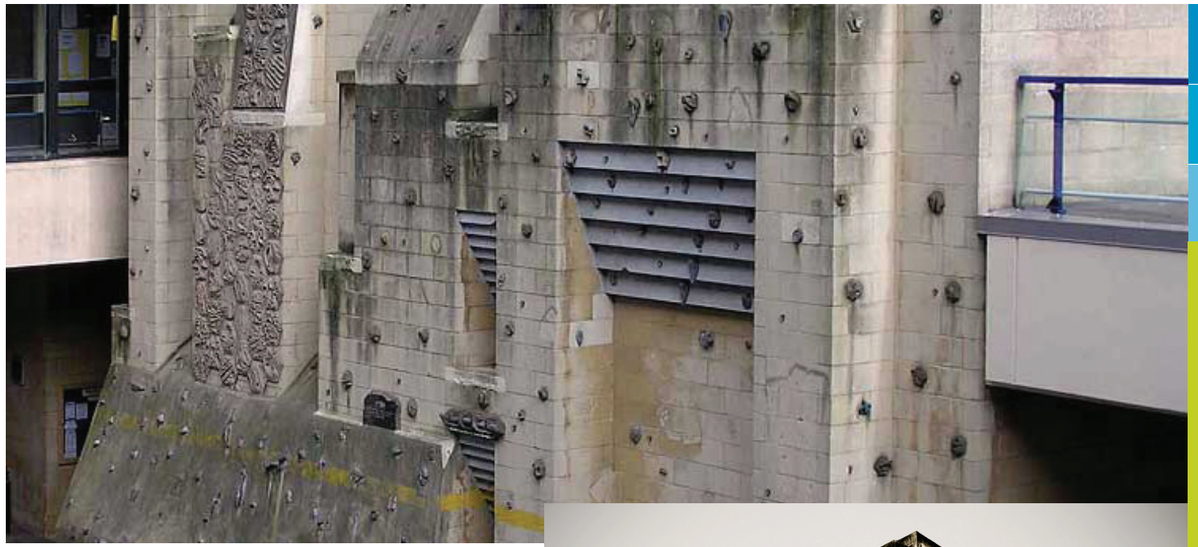

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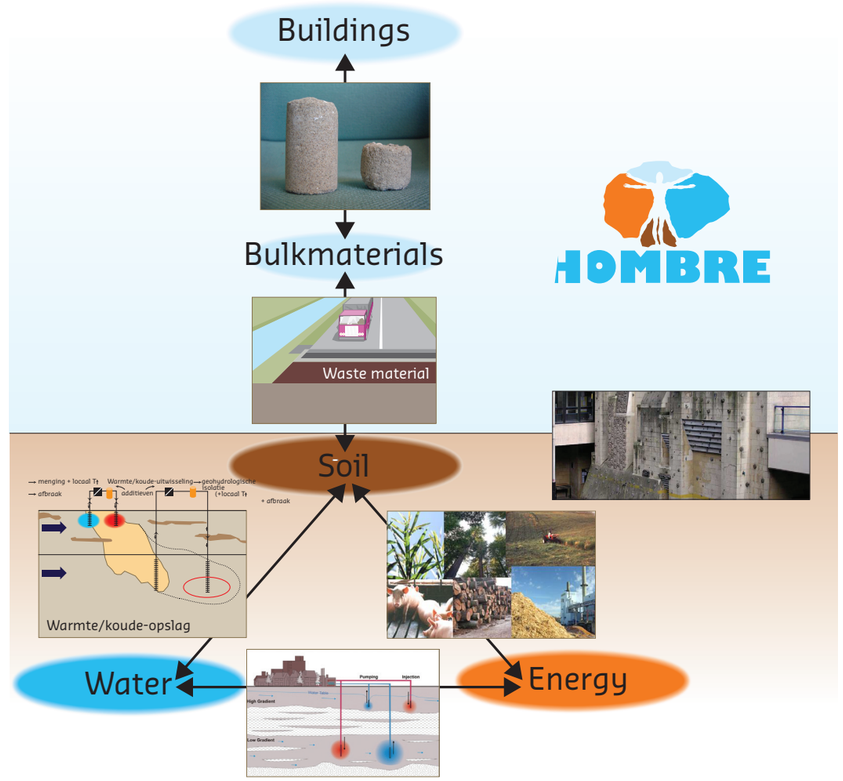
Deltares
Enabling Delta Life

Urban redevelopment – Brownfield regeneration



Assignment

The first of December 2010 the European Commission awarded the contract for the HOMBRE project to Deltares as coordinator and the 13 European partners under the SEVENTH FRAMEWORK PROGRAMME, THEME FP7 ENV.2010.3.1.5-2:
Environmental technologies for Brownfield regeneration; The HOlistic Management of Brownfield REgeneration (HOMBRE).

Client

The European Commission Directorate General Research co-finances the project. The partners contribute to this project.

Keywords: *Redevelopment of urban areas, harbour areas, industrial areas, mining areas. Remediation of soil and groundwater contamination, Brownfields, Urban life cycle*

Period
The 4 year project will be implemented from Dec. 2010 untill Dec. 2013.

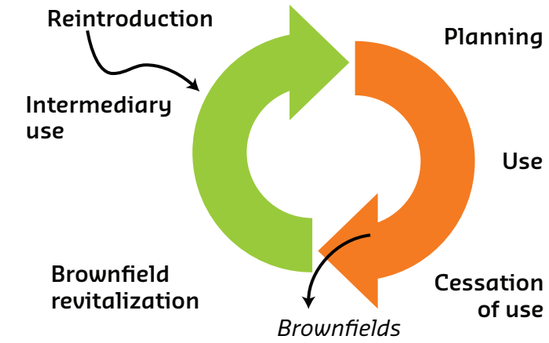
Introduction
Today most of us perceive Brownfields as a legacy of the past. Our urban landscape expands at an ever increasing rate and we travel ever increasing distances across this landscape. Perhaps in our urban sprawl we are also already busy creating the Brownfields of tomorrow. These might be different from the post-industrial Brownfields of today but will nonetheless be exploited and abandoned land. The concept of 'zero waste' has ushered in a paradigm shift in attitudes to resource use. The same paradigm shift is long overdue in attitudes to land use. HOMBRE seeks to bring about and enable this paradigm shift: 'zero Brownfields'.

HOMBRE

Zero Brownfields
HOMBRE is based on providing the scientific and technical backbone to support four very simple 'zero-Brownfield' concepts:

- Land-use life cycle: Land is the ultimate finite resource. It is also a resource that is in a cycle of use. Brownfield land can be a stage in this cycle, but for many economic, environmental and social reasons it is important that future Brownfield generation is prevented, and where land is already Brownfield
- Intermediary land use: The best management solution is prevention, following that is remediation where some processes are needed to bring land back into suitable re-use. It is on us to find some form of intermediary land use for such abandoned land where its values and unearthed can be capitalized on. The land can be gradually restored until it can be fully re-integrated into the land use cycle.
- Added value by combining technologies: Integrated solutions offer a great opportunity to surmount the costs barrier by sharing the land management costs with other services and opportunities for society such as renewable energy and urban green space and climate control. The potential for revenue from diverse renewable energy / climate control technologies from ground source heating and cooling to bio-energy not only provide revenue opportunities to enable remediation.
- 'Zero Brownfields': With this stake come benefits and responsibilities for many stakeholders. A more intelligent design for Brownfield management potentially brings important sustainability benefits. For the planet there may be benefits of better resource optimization and lower impacts from land management; for people there may be societal benefits from a better urban landscape and for profits there may be economic benefits from avoiding the 'over-design' of stand alone remediation solutions.

Mobilization of brownfield potential



Products
Strategic management products: the Brownfield Roadmap and Framework for Zero Brownfields. HOMBRE will develop practical, science based guidance to deliver the concept of a land cycle as a working system for planners and land managers. The strategy will be based on indicators for early recognition of why, how, and when Brownfields come into existence, as well as on indicators that signal potential for sustainable, cost-effective and timely site renewal. By monitoring these indicators, timely intervention may avoid Brownfield formation or at least mitigate the negative effects. It will ensure that scarce resources are focused on solving genuine problems, e.g. by avoiding unnecessary remediation, and on creating long lasting opportunities. The final Framework will incorporate the experiences obtained from the HOMBRE case studies, market and stakeholder guidance on all methodologies and technologies developed, and a policy brief on Brownfield regeneration.

A practical and hierarchical decision making approach: Brownfield Navigator. HOMBRE will develop integrated stakeholder communication and decision support technology for the optimal selection of Brownfield regeneration options, approaches and technologies of decision making. This will apply a set of common principles but support their use at different geographical scales and different stages in land management decision-making. For example, during the planning phase there is a need for more elaborate and integrated decision making tools and processes that help stakeholders to 'navigate' holistically towards a successful Brownfield regeneration across an area. The Brownfield Navigator will enable to assess the key environmental, economic and social aspects of Brownfield

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regeneration scenarios in both local and regional contexts. It will integrate a set of rules and principles from HOMBRE's strategic guidance; modeling and GIS technologies; and the 'design table' visualization approach to support an interactive and cross sectoral decision-making environment Integration of technologies:
treatment trains and operating windows. A 'treatment train' is a term to describe how different technical approaches can be combined to offer an enhanced benefit. HOMBRE will explore treatment trains in two contexts: a 'hard' built environment context, and a 'soft' re-use context linked to urban greening and/ or bio-energy production. Across the portfolio of treatment trains there will be a technology development of interest on a broad European basis:

- Train1 Energy and water, where energy re-use and contaminated water restoration are combined
- Train 2 Building materials and soil, where resource efficiency and contaminated soil management are combined.
- Train 3 Soil and water where remediation and sustainable urban drainage and soil capacity building are combined.
- Train 4 Urban greening and restoration where the benefits of remediation and urban green space are combined
- Train 5 Bio-energy and remediation where combining organic matter recycling and bio-energy production provides a solution and a revenue for abandoned land

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