

Project No. SN-04/01

BALANCE 4P

Balancing decisions for urban brownfield regeneration – people, planet, profit and processes

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Executive summary of interim results for web-publication

Land take as a result of urbanization is one of the major soil threats in Europe. One of the key measures to prevent further urban sprawl and additional land take, is redevelopment of urban brownfields: underused urban areas with, in many cases, soil and groundwater pollution. The latter issue can be a bottleneck for redevelopment of brownfields instead of green fields. A difficulty for brownfield redevelopments is that in urban projects the responsibilities, tools and knowledge of subsurface engineering and urban planning and design are not integrated; they depend heavily on each other but work in sectors. The urban designer usually deals with opportunities for socio-economic benefits while the subsoil engineer deals with the technical challenges of the site. A general hypothesis is that the largest (sustainability) gains are achieved early in brownfield redevelopment projects where they are still flexible, which also is the background to the Balance 4P project: better cooperation between urban developers and sub-surface specialists in early phases of the redevelopment process can accelerate brownfield redevelopment and potentially identify more sustainable redevelopment strategies. The overall aim of the Balance 4P project has been to develop a holistic approach that supports redevelopment of brownfields by integrating technical, economic and social aspects, and provide means for clearly communicating challenges and opportunities of site-specific subsurface qualities. An important method for developing the holistic approach has been working with case studies.

The holistic approach according to Balance 4P is a conscious act/activity of integrating subsurface aspects in the redevelopment process for the purpose of more sustainable land management. The holistic approach is governed by law, regulation, policy, and institutions which set the planning conditions for urban (re)development. Four spatial planning subjects, in common in the three investigated national planning systems (Netherlands, Belgium - Flanders, Sweden) and possible to expand to subsurface are: heritage, environment, nature and water. The integration of above- and underground aspects can be enhanced in different ways in these four planning subjects: 1) by law and regulation, 2) by policy and vision, 3) by structured knowledge exchange, and 4) in the design/construct process. Focus of Balance 4P has been to investigate tools that may enhance knowledge exchange between sectors: a) instruments for designing redevelopment strategies taking the chances and challenges of the subsurface into consideration, and b) instruments that assess aspects of sustainability of alternative strategies. In the case studies (Rotterdam harbour in the Netherlands, Alvat in Buggenhout in Belgium, and Fixfabriken in Göteborg in Sweden) different tools have been applied.

The Merwevierhavens area is being redeveloped from harbour activities towards a more mixed use with clean tech medical & food, creative industry and housing. The 'organic' redevelopment of the area is being performed by the municipality and the port of Rotterdam together in the program bureau Merwevierhavens. At the moment, a vision for the area is being made. The land is owned by municipality and several private companies. There is a high potential for the subsurface; a lot of data

is available, but the focus lies mainly on problems and chances are not yet being explored. The main questions for the program bureau within the Balance 4P project for the redevelopment are: What are innovative possibilities for the subsurface in relation with the aboveground redevelopment? How can we use subsurface in the development strategy? To obtain answers onto these questions, several activities were carried out: (i) Stakeholder analysis (quick-scan & for workshops), (ii) Stakeholder workshop 1: SEES – System Exploration Environment & Subsurface: Chances and challenges for the whole area (iii) Stakeholder workshop 2: zoom in EON, gasworks, Ferro/Eneco strategies for different subsurface aspects (contamination, civil structures, energy), (iv) An investigation to entering subsurface in “products” for the redevelopment of Merwevierhavens, (v) Student workshops and projects (SEES workshop, Aqua-Terra Urban Design projects, Tool inventory and application (Brownfield Remit/Response (BR2) tool and Brownfield Opportunity Matrix)). The results of these activities were to appoint the specific points of attention and opportunities for the area that can be obtained from subsurface. Tools such as the SEES method can help because they bring experts from aboveground and subsurface together and structure their conversation. Another learning point is to translate the information from subsurface in such a way that is has meaning for the aboveground redevelopment (in terms of costs, or consequences). Also recommendations could be given on how to integrate the subsurface in the process of the redevelopment. Learning by doing is one of the gains of the projects. Just after the first workshop, the aboveground people started asking questions on “what lies beneath”. Asking the question is what gives you the answers. By integrating subsurface chances and challenges in the “products” needed for redevelopment (vision, tender documents), the developer will take this aspect into account.

The Alvat site in Buggenhout, Belgium, is a small site (4,6 ha) which is heavily polluted due to former container reconditioning services and production of containers on the site. It is considered as a black field which means that market-based redevelopment very difficult without significant intervention of public authorities. Important discussions for this site relate to the future destination (industry vs. residential) and the ownership situation (finding a potential buyer who is willing to redevelop the site). Within the Balance 4P project, a number of activities was carried out i) a stakeholder analysis (quick-scan) for identifying and individual interviews with key stakeholders; (ii) a risk assessment on the potential health risks caused by the pollution providing insights on the necessity on remediation and how this is influenced by differences in destination; (iii) a student internship which lead to alternative designs for different destinations of the site, the SEES method was also applied; (iv) an economic analysis comparing the potential costs and benefits for the alternative redevelopment scenarios and (v) sustainability assessment of identified redevelopment strategies using different instruments: OVAM MCA (Sustainable Choice of Remediation), ecosystem services (www.natuurwaardeverkenner.be), biodiversity assessment (www.biodiversiteitstoets.be) and a social impact assessment. Important lessons learned from the case study work are: tools can be useful but need to be considered in combination with legal frameworks and existing procedures (zoning plans, environmental impact assessments, location nature protected areas, maps on water sensitive areas, etc.) that according to the stakeholders already capture a lot of the sustainability aspects. A stakeholder analysis is however considered as crucial. Stakeholders not directly involved in the case indicate a need to perform more integrated planning of surface and sub-surface and across policy domains. Sustainability assessments can play an important role. An important challenge still to be considered is how different types of sustainability assessments can fit into the entire planning process and how this can be better integrated in rules and regulation.

The Fixfabriken site in Göteborg, Sweden, will be redeveloped from mainly being an industrial area incorporated into attractive parts of Göteborg, into an area with mixed use, including residential use. The driver for redeveloping the site is a foreseen land-use change, a private developer wants to turn a former industry (the Fixfabriken factory) into a residential area and the municipality in Göteborg decided to consider a larger area in the development of a new detailed plan. The land in the area is owned by the municipality, the large private developer as well as a number of smaller land owners. Within the Balance 4P project, a number of activities was carried out: (i) a student workshop on subsurface issues in urban design and student project works; (ii) a stakeholder analysis (quick-scan) for identifying participants for the first workshop; (iii) a stakeholder workshop 1: SEES – System Exploration Environment & Subsurface; (iv) identification of alternative conceptual redevelopment strategies based on subsurface conditions and stakeholders' views; (v) sustainability assessment of identified redevelopment strategies using three different instruments: SCORE (Sustainable Choice of Remediation), mapping of ecosystem services (ESS) and Social Impact Analysis (SIA); and a second stakeholder workshop where the results of the sustainability assessments were presented and discussed. Important lessons learned from the case study work are: (a) there are some challenges with quantitative analyses in early phases where data availability is low, but semi-quantitative analyses and qualitative analyses seem to be applicable and useful; (b) a structured comparison may reveal important information to planners to include in the development of a plan; (c) early planning stages of urban redevelopment need to ensure that the path forward is not fixed towards unsustainable solutions by considering the implementation phase of the plan as well.

There is a multitude of instruments to guide sustainable development both in urban planning as well as in remediation projects. The tools have been developed in different regulatory contexts and with different concepts/ideas of sustainability and for different tasks in the phases of redevelopment and may focus on one or multiple aspects of sustainability and on different phases of redevelopment. For application of any tool the user needs to: be allowed to (managerial approval, e.g. for the time to spent), be able to (necessary resources: data, information, knowledge, stakeholders, organisational power), and want to (to add something extra or special to a project, the right questions need to be asked and the people need to be enthusiastic about it). The Balance 4P project aims to integrate perspectives on brownfield redevelopment, urban design and planning, and remediation by engaging in an interdisciplinary project. We show that the sustainable remediation perspective can bring some important instruments into the planning and design sector, and vice versa: the planning and design sector brings with it the complexity of urban planning to include in the redevelopment process. To reach sustainable redevelopment strategies, the triple bottom line (PPP) should be in focus, but the uniqueness of the project itself (the project-specific conditions) and the process (WHO and HOW) becomes important additions. Reaching the holistic approach, where the subsurface is explicitly accounted for in law & regulation, policy & vision, knowledge exchange and design/construct calls for changes on all levels in the planning system.