

BoHei

– A neighborhood reinvents itself –

Integrated resource-efficient urban development

Project website

www.bohei-stadtsiedlung.de

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Project partners

Stadtsiedlung Heilbronn, Architekturagentur Stuttgart, Netzwerk für Planung und Kommunikation, ifeu – Institute for Energy and Environmental Research Heidelberg GmbH, ISWA – Institute for Sanitary Engineering, Water Quality and Solid Waste Management (University of Stuttgart)

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Brief project description

The Bolzstraße district in the south of Heilbronn is a typical pre- and immediate post-war development. In the necessary redevelopment in the sense of subsequent densification, the city attaches particular importance to the appropriate participation of those affected, in particular the residents. On the basis of this selected urban district and in close exchange with the relevant stakeholder groups, the most balanced and livable building density possible will be worked out. In the transformation concept, solution proposals for increasing resource efficiency in the areas of land management, urban material flows and urban water management are worked out and integrated into the planning processes of the urban development.

The significant increase in the number of residential units in the urban district will result in significant changes in the requirements on the urban water management infrastructure. This leads to a considerable need for adaptation in the neighborhood itself and possibly also in the higher-level drinking water supply and drainage area. In the sub-project worked on by ISWA, it is examined how these effects on the higher-level systems can be minimized by decentralized measures and how new construction or considerable expansion of higher-level drinking water supply, sewage disposal and rainwater management systems can be avoided. For this purpose, the existing water supply and wastewater disposal infrastructure on different planning levels as well as potentially usable alternative water resources have to be identified.

The use of decentralized measures such as water-saving technology and rainwater/gray water utilization can minimize the effects of the densification on the urban water management infrastructure. Within this framework, practical investigations of the water-saving "Bluedrain" technology with regard to the quantity and quality of the intercepted and still usable process water portion are to be carried out.

A central role in the resource-efficient use of water is played by intelligently managed reservoirs for the coupling of rainwater use, heavy rainfall flooding prevention (capping of discharge peaks) and the provision of service water. So far, the complex urban water management tasks can only be modeled and evaluated insufficiently integrally at the building/estate level, neighborhood level, drinking water supply area level and drainage area level. In particular, the element of decentralized, intelligently managed storage facilities for coupling various settlement water management tasks is currently missing in the relevant software. Therefore, the central task is the development of a calculation model for the integrated overall view of the urban water management of a neighborhood or a supply and drainage area with the essential element of intelligently managed storages on the basis of the software ++SYSTEMS by the company tandler.com.

The aim is to test this model under consideration of urban development and urban water management issues as well as the desires of the residents. Various urban water management scenarios are to be evaluated with regard to their resource efficiency and compared with the current situation. Furthermore, optimization strategies for the urban planning process are to be derived and the integration of the model into the urban planning process is to be evaluated.

At the end of the project, there will be an urban development framework plan for the model district Bolzstraße in Heilbronn, which can subsequently be implemented in practice. The results will be summarized in a guideline and made available to other municipalities throughout Germany.