



IWAS - International Water Research Alliance Saxony

Sustainable wastewater management in Long Bien district, Hanoi



Motivation

Water is an indispensable resource for human race and natural ecosystems. However, the access to clean drinking water and safe, environmentally sound disposal of wastewater is still not a matter of course in many regions of the world. A sustainable approach to water as resource, as well as optimal distribution and use, implies implementation of adequate strategies, measures and site specific technologies. The demographic growth, the economic development and the climate change associated with extreme weather conditions like aridity and flooding play a crucial role in this global change. These are challenges that also concern the partner institutions at **International Water Research Alliance Saxony (IWAS)**.

Project purpose

The central point of interest in the project is represented by Long Bien district, a rapidly growing quarter belonging to Vietnamese capital city. A master plan for a well-regulated urban development has recently been initiated and approved by People's Committee. This plan will be further developed within the frame of IWAS project in regard to possibilities of practical realization.

Specific project objectives

- Proposing a suitable drainage and waste water treatment concept adapted to local requirements and circumstances;
- Development of a suitable drainage and waste water treatment system consisting of network, pumping stations and treatment facilities and conceptual design for pre-treatment of industrial wastewater;

- Draft estimation of overall investment and maintenance costs;
- Methods for artificial groundwater replenishment;
- Methods for an environmentally sound sludge treatment and reuse;
- Knowledge transfer regarding management and maintenance of sewage systems;
- Development of guidelines for urban wastewater management.

Working packages

1. Data gathering and evaluation of existing situation

- Description of actual wastewater and surface water management situation
- Contact to local authorities and institutions
- Data evaluation and interpretation (translation, comparison between field and map data etc).

2. Development of draft drainage concept

- Definition of research scale;
- Evaluation of suitable scenarios and choice of optimum drainage system;
- Interactions between rain water drainage and surface and groundwater – further development of water bodies;
- Preliminary design of main sewers, pumping stations and treatment plants and draft estimation of costs;
- Determining the order of priorities for investment works;
- Discussion and presentation of results submitting to appropriate agencies;

3. Development of final drainage concept

- Set-up of a sewer model;
- Detailed design of main sewers, pumping stations and treatment plants in accordance with the approved order of priorities;
- Set – up of maps and related documentation.

4. Scientific investigations on wastewater specific topics

- Artificial groundwater replenishment;
- Sludge handling and reuse;
- Socio-economic aspects;

5. Capacity building and training, development of guidelines

- Organisation of training courses regarding management and maintenance of sewage systems, groundwater replenishment;
- Organisation of workshops and conferences;
- Proposal of the project execution time schedule, seeking investment sources and possibility of applying the models to other locations;
- Development of guidelines.



Project partners

The project is financed by **German Federal Ministry of Education and Research**.

Hanoi Sewerage and Drainage Co., Ltd. is responsible for the operation and maintenance of the sewerage and drainage system in Hanoi, with about 750 km of sewers, drains and canals, and 3 wastewater treatment plants among its assets.

Hanoi University of Science is a leading university in Vietnam with over 10,000 students and 700 staff



members, being a vital centre for training and research in basic sciences and applied technology.

Hanoi University of Civil Engineering is a scientific and technological research centre to bridge the gap of practical production with advanced outcomes of science and technology in the field of civil engineering.

Duc Minh Co., Ltd. is a consulting company providing expertise in the field of environmental protection and sustainable development.

Dresden University of Technology is the biggest university in Saxony, with over 30,000 students. Natural sciences and engineering are the main focus for both teaching and research fields, whereas 15 professorships

deal with analysis, modelling and management of water resources.

Stadtentwässerung Dresden GmbH is a joint venture between municipality of Dresden and GELSENWASSER AG, founding since 2004 a successful strategic public private partnership in the field of waste water disposal. The company has over 300 employees and supports over 1,700 km of sewers, as well as one waste water treatment plant. The annual turnover is about 92.5 million Euro.

Berlin Water International offers products and services about effective and economical solutions for management of water resources. The company's main activity focuses on technical commercial expertise for efficient operation of drinking and waste water treatment plants.

ITWH is an engineering office with 45 employees founded in 1985 by staff members of University of Hanover. The company's area of activity consists of projects on urban hydrology in which new problem-solving technologies and methods can be applied. This is supported by development of subject-specific software in the field of urban drainage.

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