

Urban Planning and Stormwater Management - Scientific Achievements -

5th SWITCH Scientific Conference
Lodz, Poland, October 2010

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Introduction

- Key deliverables of WP2 & WP5.1
 - Several tools: e.g. LCCA, COFAS, STORM, SudsLoc
 - Manuals: e.g. SUDS Design, Water Sensitive Urban Design
 - Training material: e.g. Online course SWM
- Why do we need this?

Traditional Urban Drainage

- Urbanization is proceeding
- Conversion rural \Rightarrow urban area in Germany: 100 hectares/day!
 - Share of impervious areas in Germany: $\sim 7\%$
 - Increase of 20% since 1990
- Draining „as quickly as possible“ is the traditional way of dealing with stormwater runoff
- Disadvantages are well known
 - Disturbance of water balance:
 - Increase of flooding (drainage systems & rivers)
 - Loss of groundwater renewal \Rightarrow decrease of base flow in rivers
 - Loss of evapotranspiration \Rightarrow “Heat island effect”
 - Pollution of receiving waters (heavy metals, hydrocarbons, germs)

Alternative: SUDS



Northampton

Example: Hoppegarten

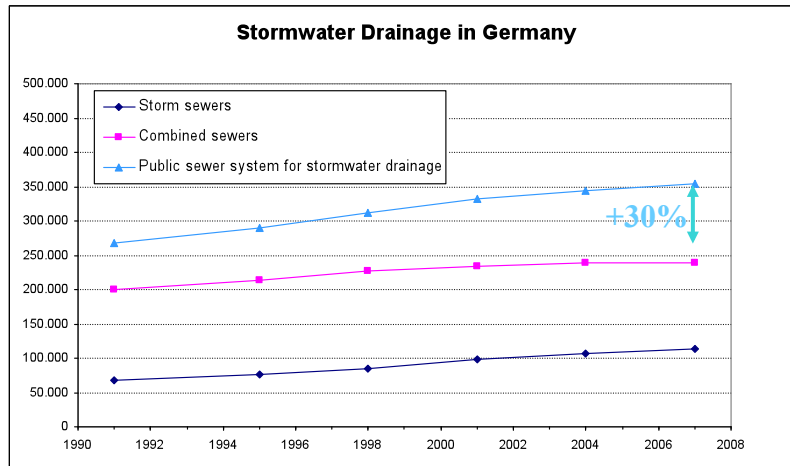


Example: Hoppegarten



Outlet of a drainage system for a commercial development of 100 hectares!

Actual situation



Barriers

- Technologies are available
 - Benefits have been proven in countless projects
 - SUDS are “Best Available Technology BAT”
 - However: still resistance in practice
- Barriers for implementing SUDS are various:
 - Missing knowledge among decision makers at all levels
 - Lack of practical tools
 - Administrative processes (e.g. issuing of permits) are adapted to conventional drainage

SWITCH Achievements

Tool	Purpose
SudsLoc	GIS-Tool for identifying SUDS potentials
STORM	SUDS Simulation Software
Rainfalldata-Generator	Create longterm-rainfall data including climate change
Eco.SWM	Life-Cycle-Cost-Assessment
COFAS	Multi-Criteria/Flexibility Assessment
Institutional mapping	Identifying processes/barriers for SUDS implementation



SWITCH Achievements

- Dissemination of knowledge about SUDS
 - By providing manuals and Guidelines
 - Training material and training events in e.g. Belo Horizonte, Johannesburg, Lodz, Birmingham, Essen, Nottingham ...



SWITCH Achievements

- Providing new arguments for SUDS

- Potentials for improved urban drainage
- SUDS are more effective than End-of-pipe systems
- SUDS are cost-effective
- SUDS can be used to reduce rainfall-runoff



Press release, Hamburg Sept. 2009



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WP 5.1: Water Sensitive Urban Design

- Review of the strategies and solutions of WSUD;
- Evaluation of components in urban small-scale planning systems;
- Integration in urban systems and spatial contexts of town districts, housing areas and urban landscapes (large-scale planning systems);
- Implementation of WSUD-solutions in urban transformation processes;
- Elaboration of planning principles and developing a framework, which completes conventional strategies of urban planning and leads to new opportunities of WSUD;



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Scientific activities for WSUD

2 Workshops with Learning Alliance Hamburg

03 June 2010: Water level control in Hamburg-Wilhelmsburg

07 October 2010: Recreation and nature conservation purposes of open water bodies in Hamburg-Wilhelmsburg

Several meetings with city representatives for negotiation of Learning Alliance topics

Project visits: Portland (Oregon, USA), Stuttgart (D), Berlin (D), Nürnberg (D)

Conferences

SWITCH Symposium Tel Aviv in January 2010

Low Impact Development Conference 2010 (Poster presentation of WSUD Manual and SWITCH)

Forward: IPWE 2011 (International Perspective on Water Resources and the Environment Conference 2011) – Papers accepted

Presentation of Learning Alliance Results in Hamburg

Presentation of WSUD Manual to international audience



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D 5.1.3. Integration of WSUD solutions in urban systems (Delivered February 2009)

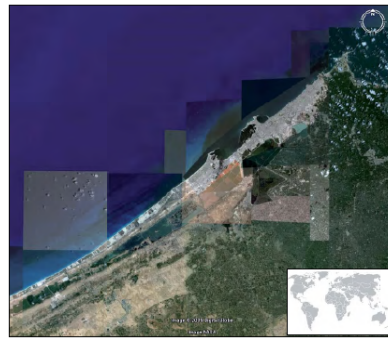
Reports on integration of WSUD BMPs into urban systems in different spatial levels in case studies:

- detailed reports:

- Hamburg,
- Emscher Region,
- Hamburg Wilhelmsburg,
- Leidsche Rijn.

- general analysis of all SWITCH Cities

Comparative analysis of the SWITCH demonstration cities shows, that these cities are rarely limited to issues of water management alone. More often the goal is to pursue general urban planning targets with the help of water management.



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D 5.1.5. Manual on WSUD

1. Introduction

2. WSUD

3. Principles

4. Case Studies

5. Conclusion

The Manual provides guidelines for the implementation of 'Water Sensitive Urban Design' in the every day practice for interdisciplinary set of professionals, including urban and landscape planners, water management engineers in private office and administration

Valuable material for Demonstration Cities in SWITCH, to support decisions by their Learning Alliances.



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Case Studies

LARGE SCALE

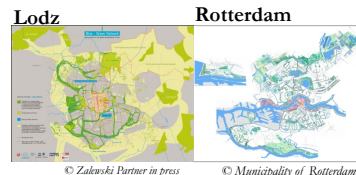
- Portland, Oregon, USA: From Grey to Green
- Rotterdam, Netherlands: Waterplan 2
- Lodz, Poland: Blue-Green Network

MEDIUM SCALE

- Tanner Springs Park, Portland, Oregon, USA
- Trabrennbahn Farmsen, Hamburg, Germany
- Hohlgrabenäcker, Stuttgart, Germany

SMALL SCALE

- Potsdamer Platz, Berlin, Germany
- 10th@Hoyt Apartments, Portland, Oregon, USA
- Prisma Nürnberg, Nürnberg, Germany



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