
A STEP FORWARD IN INTEGRATED URBAN WATER MANAGEMENT SWITCH IN HAMBURG

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I. INTRODUCTION

City context

The development of the city of Hamburg followed a planning approach that in the 1920s was called the “axes concept” with development focused along several radial development axes starting at the centre of the city. In those days the space between the axes was not settled, so that the landscape could be preserved as farmland or forests. Nowadays 1.7 million people live in the municipality of Hamburg while the whole metropolitan region contains 4.3 million people. Hamburg is one of the fastest growing cities in Germany, with expected population growth of 60,000 more people by 2020. The expanding harbour has resulted in increasing demands on urban development due to increased population. Current urban planning objectives include coping with growth, densification, re-development of brownfield sites and inner city development.

The city has developed a model of sustainable urban growth, the key concept “Metropolis Hamburg - Expanding City” requiring Hamburg to grow within its defined boundaries and limiting suburbanisation. One important development project in this context is “The leap across the Elbe”, which involves inner city development, redevelopment of the waterfront and connecting Hafen City via the river island Wilhelmsburg to Harburg on the other side of the Elbe. New urban development will mainly take place in this southern part of the city, in particular on the river island of Wilhelmsburg, the largest river island in Europe. The island was earmarked as the site for the International Building Exhibition (IBA) and the International Horticultural Exhibition in 2013. With these challenges and opportunities in mind, SWITCH in Hamburg focused its activities on Wilhelmsburg in an effort to influence or intervene in the water-related aspects of these developments.

Wilhelmsburg is a quarter within the city district of Hamburg-Mitte. The Elbe Island is 13 kilometres in diameter and has an area of 35 square kilometres. It has

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the largest area of land of all the 104 quarters of Hamburg and accommodates the sixth largest population. At the end of 2009, Wilhelmsburg had approximately 50,000 inhabitants. Following a flood disaster in 1962, the economic and social situation of Wilhelmsburg declined. Today, Wilhelmsburg is a socially disadvantaged neighbourhood, with low income levels, high unemployment, a high ratio of social security benefit recipients and a large migrant population. But it is also highly valued by those who live there.

The River Elbe, which runs through Hamburg and surrounds Wilhelmsburg, is of great importance and interest to the inhabitants of the region. Water, and particularly the Elbe, is paramount to the city economy, making Hamburg a vital port city despite being 100 kilometres from the North Sea. Tidal changes in the Elbe result in significant sedimentation of the river and harbour, and sea flooding is a constant threat to their community. Hamburg, like almost all modern European cities, has a central water supply system and a sewerage system covering over 99% of households. The sewerage system is connected to a central sewage treatment plant located in the harbour area that ensures a progressive, modern, multi-stage treatment of waste water. Although Hamburg has a modern and efficient water supply and wastewater treatment network, the city does have a number of technical water issues.

An innovative approach to urban water science

The Sustainable Water Management Improves Tomorrow's Cities Health (SWITCH) project focused on integrated urban water management (IUWM). A key aim of SWITCH is to improve the uptake of research in practice and this had implications for the way in which SWITCH was structured. The project focused on integrated and inter-disciplinary research about urban water management. One of the SWITCH aims was to "do better" in terms of developing research interventions that are more integrated, putting research into practical use and to demonstrate that this can be sustained beyond the life of the current project. Also the project intended that learning and sharing of research/demonstration outcomes could be replicated by practitioners and to make an assessment of the issues related to governance, finance and administration in urban water management.

The project encouraged active participation of stakeholders (such as water managers, academics, government bodies, consumer groups etc.) brought together in Learning Alliances. Learning Alliances were established in each of the SWITCH demonstration cities, and were intended to provide a platform for stakeholders to discuss issues with regards to IUWM, examine possible solutions, and identify research needed and other help that is required. Through this forum, innovations could also be demonstrated and tested on a pilot scale to assess the impacts and benefits and potential for scaling up.

This paper

After a five year program, the SWITCH project came to an end in January 2011. A mid-term review was undertaken in 2008, and in the final year (2010), a review was undertaken of the experiences of SWITCH in Hamburg. This paper is an outcome of both these assessments. It presents the main results of the SWITCH project in the city of Hamburg, which was one of the demonstration cities, and identifies lessons learned and recommendations that are intended to support appropriate follow-up of the project in the city as well as offering insights for similar initiatives elsewhere. As well as describing key aspects of the SWITCH project methodology in Hamburg the paper outlines the project's theory of change in the city and the approach taken to develop the Learning Alliance.

This paper is based upon the experiences of the city co-ordinator and the facilitator in addition to the views and comments from a selection of Learning Alliance members. The review involved interviews with a selected sample of key stakeholders including researchers, representatives from municipality and different stakeholders of the Learning Alliance. Project documentation and documents in Hamburg were considered. The review was undertaken by representatives of the Birmingham and Hamburg Learning Alliances, Birmingham being another of the 12 SWITCH cities.

II. SWITCH APPROACH IN HAMBURG

Project origins and objectives

The overall goal of SWITCH was specified for Hamburg in 2006 by the two main parties Hafen-City University and the municipality of Hamburg. The specific objectives were to support sustainable and innovative solutions for urban water management in districts going through an urban transformation processes. There were a number of critical issues, which urgently needed solutions, regarding the environmental quality of the water system as well as progressive risks and water problems related to global environmental change. This was considered to require an innovative water management approach that was able to combine new water management techniques and modern urban planning and also at the same time improve cross linkages with other organisations in order to achieve financial savings and have more multi-use sites.

The island of Wilhelmsburg, as the main area of the future urban development, is characterised by the combination of “technical” water management problems (flood risks, storm water management etc.) and “urban planning” demands (water as an element to develop attractive locations etc.), as outlined in Box 1. Regarding these problems the Learning Alliance Hamburg decided, to focus the SWITCH activities on the river island of Wilhelmsburg.

Box 1 Technical problems and urban planning demands meet

Challenges regarding water management:

- Flood risks along the River Elbe and the North Sea.

- Flash flooding caused by storm water run-off.
- Diffuse pollution of surface waters by industries, agriculture and storm water.
- High/rising groundwater tables caused by a reduction in groundwater extraction.
- Limited capacity of the existing sewerage system.
- Making use of water to develop attractive locations that facilitate a high quality of housing, increase the quality of life and attract new inhabitants.
- Water management in districts experiencing development, and changing land use.

SWITCH consortium members in Hamburg

In Hamburg the SWITCH project was managed by two main partners the Hafen City University (HCU) and the State Ministry for Urban Development and Environment (BSU), a sub-division of Hamburg Municipality. As consequences the demonstration city Hamburg has two city coordinators; a representative for the municipality and a representative for Hafen City University. Links between these organisations already existed before SWITCH, which allowed for close cooperation from the time that the project began.

The Hafen City University undertook research activities as part of a research theme called Water Sensitive Urban Design (WSUD) and also facilitated and coordinated the Hamburg Learning Alliance. The objective of HCU was to analyse WSUD state of the art and best practice. Implementation of the principles in a demonstration project was also intended.

The second SWITCH partner was the Behörde für Stadtentwicklung und Umwelt Hamburg (State Ministry of Urban Development and Environment). BSU is spread over a number of departments with diverse responsibility for water management and urban planning. The SWITCH project was located in the “Department of Land Use and Landscape Planning”. The department is responsible for urban and landscape planning in Hamburg. The “Department of Environmental Protection”, which is responsible for the different fields of urban water management, was also involved.

Management change processes

During the five years, staff changes at the Hafen City University led to significant changes in project personnel. From 2006 until July 2009 the institute of “Landscape Architecture and Planning” coordinated and facilitated the SWITCH project in Hamburg. Prof Heike Langenbach (City Coordinator), supported by three research assistants (including Jochen Eckart, City Facilitator), undertook the management of the SWITCH project and the Learning Alliance. In addition to the University team changing around this time, the Municipality City Coordinator, Wolfgang Schulte also left the institution and SWITCH programme.

Following the departure of both City Coordinators and the Facilitator in August 2009, Prof. Wolfgang Dickhaut from HCU Environmental Planning, Water Management, River Basin Development and Technology Evaluation took over as City Coordinator, with Herr Kellner as SWITCH City Coordinator for the

Municipality. Bjoern Weber was appointed as the new City Facilitator, following a competitive interview process.

This was no change-over period between teams, and with much of the new team not previously involved in SWITCH there was a gap of almost 12 months before activities recommenced in January 2010. Some events planned for Hamburg had to be cut back.

Learning Alliance

During the course of the project, there was a steady change in the representation of organisations within the Learning Alliance with a steady number of participants. In 2007, the Learning Alliance consisted of a small core membership involving mainly SWITCH consortium members; the Hafen City University and various departments within the Municipality of Hamburg. Initial contact was made through a formal invitation to key stakeholders, many of whom were already contacts of Hafen City University. From the outset, high-level management of the various member organisations participated in the Learning Alliance, with the Ministry for Urban Development and Environment (BSU) becoming a member of the SWITCH consortium. Based on this core group the Learning Alliance expanded, joined by several other stakeholders in the field of urban water management, including those involved in citizen engagement, environmental protection, etc. Over time interest in the Learning Alliance and attendance at meetings increased. The Learning Alliance represented a number of different views; although there was a lack of representation from ethnic minorities within the city. The SWITCH team worked to engage with minority groups on the island of Wilhelmsburg, although organisations representing ethnic minority groups remained focused on education, employment, social welfare and housing, rather than on urban water issues.

The change in the facilitation team in late 2009 and early 2010 and the resulting lack of activity reduced the involvement of some stakeholders. Some members of the Learning Alliance had strong private connections to the first facilitation team, and left the alliance when the team changed and others were disappointed because of cancelled cooperation. The cancellation of the demonstration project with the IBA was not well communicated from SWITCH to the IBA. The Hamburg Port Authority and some other stakeholders no longer wanted to participate in the process after their demonstration project had been cancelled, while in other agencies the link with the Learning Alliance was broken when a key member of staff changed their role. In some cases, new members were brought into the process.

The stakeholders who were active in the Learning Alliance at some point, and their respective roles are detailed in Box 2.

Box 2 Some stakeholders in urban water management involved in the Hamburg SWITCH Learning Alliance

Administration

Behörde für Stadtentwicklung und Umwelt Hamburg (State Ministry of Urban Development and Environment Hamburg (BSU)) is concerned with water management

and urban planning; it is spread over a number of departments and has diverse responsibilities.

The BSU - LP as “Department of Land Use and Landscape Planning” has overall responsibility for urban and landscape planning in Hamburg. The department prepares the overall concepts for the city of Hamburg as well as plans for defined spatial areas.

The BSU - U as “Department of Environmental Protection” is responsible for ministerial and central municipal tasks concerning the soil protection, the waste management and the protection of water bodies. For the river island of Wilhelmsburg (as part of the planning site “Elbe/Hafen”) an extensive survey and valuation of the “European Water Framework Directive” was carried out. The surface waters on the island are not part of the water framework directive (because of their small catchments area) but nevertheless they were considered in the survey.

City district authorities Hamburg Mitte. The city district authorities are responsible for the work that should be dealt with locally. The departments of urban planning and civil engineering deal with the matters of water management on a local level. So far the city districts work under direction of the BSU meaning that they have restricted powers and independence.

Landesbetrieb Straßen, Brücken und Gewässer (Provider for Streets, Bridges and Waters). Due to the reorganisation of the municipality of Hamburg the “Landesbetrieb Straßen, Brücken und Gewässer” has taken over the functions of the former department “Betrieb” of the BSU. The Landesbetrieb is the public service provider for matters of infrastructure and realises the municipal projects concerning civil and hydraulic engineering [Finanzbehörde et al. 2006]. The “Landesbetrieb Straßen, Brücken und Gewässer” is responsible for the building and construction of water management measures. The “Landesbetrieb” is involved in all water related demands of the other planning departments (e.g. the urban planning activities of IBA and “Leap Across the Elbe”).

Hamburg Wasser (Hamburg Water). In January 2006 the “Hamburger Stadtentwässerung” (HSE) and the “Hamburger Wasser-Werke” (HWW) merged into “Hamburg Water”. This is the biggest municipal water supply and sewage disposal company in Germany [HSE n.d.]. The affiliated group is organised as a municipal utility meaning the operation is dealt with by the municipal administration as a separate estate with independent accountancy. “Hamburg Water” is responsible for the management of the sewer system as well as the water supply in the whole city of Hamburg including the Wilhelmsburg quarter.

Hamburg Port Authority (HPA) responsible for certain areas of the harbour of Hamburg, the national water ways and attached water bodies. The HPA has two functions on the river island of Wilhelmsburg; responsibility for the spatial planning in the harbour area (e.g. the area along the Reiherstieg) and developing an integrated concept for the sustainable development of the River Elbe.

Wasserverband Wilhelmsburger Osten is the water association responsible for the management and maintenance of the drainage and irrigation system east of the railway line and south of the oxbow lake “Dove Elbe”.

Wassergenossenschaft der Anlieger des Verringkanals is the association responsible for the canal “Verringkanal” and the adjacent areas.

Wassergenossenschaft des Schmidtkanals auf Wilhelmsburg is the association responsible for the canal “Schmidtkanal” and the adjacent areas.

Sielverband Moorwerder is the association responsible for the water management within the catchment of the tidal outlet “Moorwerder”.

Dachorganisation Wasserverbandstag Hamburg the lead body that facilitates and coordinates all associations working for water management and management for land-use in Hamburg.

Internationale Bauausstellung Hamburg GmbH und Internationale Gartenbauausstellung Hamburg GmbH (International Building Exhibition Hamburg Inc. - IBA and International Horticultural Exhibition Hamburg Inc.) founded in 2006. The IBA demonstrates strategies for the adaptation to global climate change is interested in “Water Sensitive Urban Design” and is one of the core members of the SWITCH Learning Alliance. The “International Horticultural Exhibition Hamburg Inc.” (IGS) is focused on the structural implementation of the exhibition. The companies are closely related an organisational level.

Non-governmental organisations and civil-society organisations

Handelskammer Hamburg (Chamber of Commerce Hamburg) represents the interests of the economy and has a wide influence on the municipality of Hamburg.

Siedlungs-Aktiengesellschaft Altona (SAGA) (Housing Corporation) is the public sector housing corporation of the municipality. The corporation has carried out redevelopment activities on Wilhelmsburg and supported the management in quarters with social conflicts.

Beirat Wilhelmsburg (District advisory Urban Development Committee Wilhelmsburg) was generated by the general social unrest in the area at the end of the 1980s and in the early 1990s. The committee is concerned with all questions relating to the urban redevelopment of Wilhelmsburg.

Verein Zukunft Elbinsel Wilhelmsburg e.V. (Society for the Future of the River Island of Wilhelmsburg) arose from the “Future Conference Wilhelmsburg” which took place in 2001/2. The objective is to facilitate the improvement of the river island of Wilhelmsburg. The association is focused on the effect of water management for urban planning and the coordination of water related projects.

BUND Landesverband Hamburg e.V. (Union for Environmental Protection and Conservation Hamburg), founded in 1981, is part of the nationwide “Union for Environmental Protection and Conservation” and involved in environmental protection and nature conservation in Hamburg.

GÖP Gesellschaft für Ökologische Planung e.V. (Society for ecological planning) focused on the maintenance of nature conservation areas and the development of biotopes.

Zukunftsrat Hamburg (Future Council Hamburg), a pooling of associations, institutions and companies, which contribute to the sustainable development of Hamburg.

Türkischer Elternverein (Turkish Parents Association) an organisation primarily interested the improvement of educational chances, finding of jobs, improvement of language skills and maintaining cultural identity.

Research

HafenCity University Hamburg - Landscape Architecture and Planning (and institute of Prof. Dickhaut) conducts research centred on “Water Sensitive Urban Design”. The WSUD approach corresponds with the requirement of the everyday work in Hamburg, a combination of “technical” water management problems (flood risks, storm water management etc.) and “urban planning” demands (water as an element to develop attractive locations, planning in urban transformation processes etc.). Hafen City University not only undertakes research but also facilitates and coordinates the management of the Learning Alliance.

Technical University Hamburg Harburg conducts research about eco-sanitation in SWITCH WP 4.2; and co-operated with Hamburg Wasser in the planned demonstration project “Haulander Weg”.

In Hamburg initiatives and in the field of urban water management existed before SWITCH started. Many projects practised stakeholder engagement comparable with the approach of the SWITCH Learning Alliance - part of the SWITCH process was to cooperate and engage with these initiatives. It was necessary for SWITCH to define its niche and complementary roles compared with the other projects, such as concentrating on recreation and conservation opportunities on Wilhelmsburg Island. Areas of cooperation include:

- RIMAX: (Risk Management for Extreme Flood Events) - there was close communication between researchers, with RIMAX researchers attending Learning Alliance meetings.
- Klimzug: (Adaptation of the metropolitan region Hamburg on the effects of the global climate change) - like SWITCH this project has a focus on Wilhelmsburg. There were organisational connections between the projects.
- UWC: (Urban Water Cycle) - SWITCH partner Ingeierugesellschaft Sieker was involved in UWC, and results have been exchanged.
- RISA: (Adaptation of Rainwater Infrastructure) - the City of Hamburg is cooperating with Prof. Dickhaut within that project.

III. INTERVENTION LOGIC IN HAMBURG

Introduction and benchmarks

The overall objective of SWITCH was to improve the integration and sustainability of urban water management in the city of the future, through a combination of demand led-research, demonstration activities for innovations, multi-stakeholder communication and associated learning and capacity building activities. In order to localise the overall objective; a city-specific intervention logic was developed along with a tailored set of activities. Important priorities for the Hamburg team were:

- Initiating change towards a more integrated urban water system
- Demand led research for integrated urban water management
- Scaling up of innovation
- Empowerment of citizens

SWITCH Hamburg wanted to support sustainable and innovative solutions for urban water management in districts going through urban transformation processes, such as the residential and commercial redevelopment of Wilhelmsburg. The research activities in Hamburg were focused on the topic of water sensitive urban design, with the specific objectives focused on the combination of urban water management and urban planning. To achieve scaling up of innovative solutions of water sensitive urban design two objectives were initially specified:

- The development of a strategic and integrated urban water management plan as a demonstration project on the river island of Wilhelmsburg.
- The implementation of a demonstration project for water sensitive urban design.

A number of factors, notably changes in the SWITCH city team, led to changes to the intervention logic and to cancellation of the demonstration projects. Here, the periods before and after the change of the SWITCH city team are considered independently.

IV. INTERVENTION LOGIC SWITCH 2006-2009

Development of a IUWM plan for Wilhelmsburg Island

The Learning Alliance was focused on the local demands of the river island of Wilhelmsburg, but aimed to produce work which could be scaled to the whole city of Hamburg. The key plan was to produce a water management strategy for Wilhelmsburg, which lies at the junction of the north and south Elbe River and relies on a network of dykes to protect inhabitants from flooding. Wilhelmsburg is characterised by several problems related to urban water management, which are characteristic for the whole municipality of Hamburg.

- The island has a high water table and has a network of ditches to drain land to the river systems via outfalls and pumping stations. The local drainage boards maintain some of these assets, whilst others are the responsibility of individual landowners.
- There is extensive urban agriculture on the island based on traditional farming practices. However with increasing housing demands it is important to be able to adequately manage changing land use and ensure that there is sufficient provision for future requirements.

The intervention logic for this period was grouped following four hypotheses:

- Focus on the local conditions of the island.
- Use the IUWM planning process as a tool of communication.
- A SWITCH demonstration through the IBA and 4) learning and sharing between research, authorities and citizens.

On the river island of Wilhelmsburg it was possible to identify relevant stakeholders willing to participate in the Learning Alliance process. It was planned to develop a strategic and integrated urban water management plan for the island

and to realise demonstration projects for Water Sensitive Urban Design on the island. In the period up to 2009, this scaling up of results was not be realised.

A key Learning Alliance activity was producing a strategic plan for “Integrated Urban Water Management” (IUWM) in Wilhelmsburg with affected stakeholders based upon a better understanding of existing assets and dialogue about future risks and needs. The intention was that such a plan would lead to more integrated implementation of solutions in water management for the island, taking into account various stakeholder interests to achieve a more balanced and self-sufficient water system. As part of this plan, assets would be mapped to provide clear data for planners, developers and water managers. The map would show where these assets are, their relationships with the land, how they are maintained (especially the drainage ditches which have both local drainage boards and riparian ownership) and would inform the inhabitants as to the importance of this network.

The Water Management Strategy was not just about mapping, but about developing a future strategy for the island, which has proved to be a successful method of improving the dialogue between research and industry. Attempting to create a Water Management Strategy for the whole island would allow planners and developers to plan more holistically rather than looking at individual developments in isolation. The plan would also allow people to see quickly what resources are available, the relationships between these features and their proposals, what was required, what could be improved and what could hinder their developments. Furthermore, it would show other cities that it is possible to undertake real change above and below ground, especially at a time of major regeneration. In addition, the planning process would highlight where innovative solutions to water management problems are required and how they could be achieved.

It was also recognised that these many small measures as solutions to particular problems did not amount to a step change. A scaling up the principle of the strategic and integrated urban water management plan from the river island of Wilhelmsburg to the whole municipality of Hamburg was aspired. The work on the island of Wilhelmsburg aims to support the establishment of a lasting “Water Sensitive Urban Design” as well as “Integrated Urban Water Management” in the municipality of Hamburg. The final aim was to integrate all aspects of SWITCH themes into the water management plan for water on Wilhelmsburg. Besides solving local problems it was also intended to use the strategic and integrated urban water management plan as a way to initiate and structure a discussion within the Learning Alliance about future requirements and innovative solutions for urban water management. The planning process served as a framework to activate a discussion about the problems of urban water management and to establish a forum to think about innovative solutions, which reach beyond everyday problems.

It was planned to develop the strategic and integrated urban water management plan in a series of five workshops. The first two workshops were completed with the themes “IUWM on the river island of Wilhelmsburg in the year 2030” and “Indicators and scenarios for IUWM”. The results were documented in the

brochures: “Vision IUWM Wilhelmsburg” (shown in Box 3) and “Indicators and scenarios IUWM”. The other three workshops were due to cover “Data collection, data analysis and development of Decision Support Systems”, “Detailed analysis of options for Urban Water Management” and “Agreement and adoption of the City Strategy for 2030”. These were abandoned following the change of the SWITCH city team.

Box 3 Vision Wilhelmsburg 2030: Make Water Visible

The “Make water visible” vision set out to describe a new image of the river island of Wilhelmsburg in the year 2030 where several water bodies which are visible, accessible and perceivable and serve as attractive locations for recreation, living and working, with and on the water. Beside high quality urban design, the new image of Wilhelmsburg requires an improvement in the quality of water, the ecological quality of the surface waters and a long-term flood protection strategy. The inhabitants of Wilhelmsburg are aware of the water demands, are informed about the sustainable water management and identify themselves with the river island. Water is integrated into urban and landscape design, and unpolluted watercourses provide habitats for flora and fauna. They are also used by inhabitants for recreation and to meet some non-potable needs (e.g. watering gardens) when levels in the ditches are sufficiently high. The network of dykes is adequately maintained to ensure adequate flood protection into the future. The outcomes can be summarised as:

- Water is an element of urban and landscape design.
- Water pollution is controlled.
- Surface waters are connected ecosystems.
- Sustainable flood protection is in place.
- Inhabitants are aware of the demand on water.

Visible demonstration projects planned to take innovations to a citywide and national audience

The scaling up results of the SWITCH project to a wider audience was planned around highly visible demonstration projects taking advantage of the major upcoming exhibitions. The initial demonstration project “Haulander Weg” was planned in cooperation with the International Building Exhibition IBA Hamburg 2013. The IBA had acquired a number of sites on the island to demonstrate sustainable development and best practice and SWITCH focused on trying to influence one of these projects.

Building exhibitions have a long history in Germany, especially to regenerate city areas. According to IBA “they generated ideas on shaping the future of urban life, survival even that had an impact far beyond their immediate location and remit”.

SWITCH was assisting the IBA in producing a competition tender for a water sensitive development with 700 apartments, proposed to be the largest ecological demonstration settlement in Hamburg, and it was planned that SWITCH would be on the panel of judges. The SWITCH team were involved in preparing the competition brief which states that the development “should encompass the most up to date standards in terms of energy saving and innovative stormwater management”. The developer must be able to guarantee that a sustainable and

decentralised stormwater management system can be provided, as infiltration is not an option on this site. The SWITCH input into this was been through a research theme on water sensitive design. Other stakeholders within the Learning Alliance were working on developments that incorporated ecological sanitation. The IBA development was intended to showcase how sustainable urban water design can be achieved without sacrificing “western technical and ethical” standards. Through careful design it is possible to reduce energy from the outset and by engineering in Eco Sanitation the load on conventional treatment systems can be lessened. Some technology may also be incorporated into existing homes on the island as an expansion of the concept. However, the IBA project “Haulander Weg” was delayed (due to planning and political difficulties) and it was impossible to realise the intended demonstration project within the timeframe of the SWITCH project. The SWITCH demonstration project was cancelled although the urban water management recommendations were kept as demands in the urban planning competition. This meant that WSUD principles were retained in the urban planning competition even though the project itself was no longer financially supported by SWITCH.

Box 4 Turning dreams into// bricks and mortar - IBA is a process, not a result

A building exhibition - it sounds like a site where you pay to get in and wander round looking at the architectural attractions, but that is far from the truth. Apart from the fact that most places are “entrance free”, IBA Hamburg is a process rather than a result, a discourse rather than showtime. Its seven-year duration indicates that the emergence and assessment of building ideas is equally as important as presenting them. It is a process that matures slowly, filtering the best and most practicable ideas from the many in the mixture. IBA Hamburg has three highlight years: 2007, 2010 and 2013 are presentation years. The years when results are shown and interim balances presented.

Otherwise the motto is: the path is the destination.

Extract from the IBA website: www.iba-hamburg.org

A second potential demonstration project, “Kreetsand”, was developed in cooperation with the Hamburg Port Authority (HPA) also a partner in the Learning Alliance. The HPA developed a concept for the sustainable development of the whole tidal part of the River Elbe. As part of this concept the relocation of dikes and the development of additional flooding space are planned, to give the River more space for its natural processes. Objectives are to reduce the sedimentation processes in the harbour and to improve the flood protection for the River Elbe. The HPA planned a pilot project for the dike relocation and the development of flooding space on the river island of Wilhelmsburg, the area known as Kreetsand. The SWITCH demonstration project planned to supplement the original plan with WSUD strategies. Broadly speaking this would sacrifice land to allow more regular flooding from the River Elbe. However, this was rejected by the SWITCH international central management. The project continues and HPA will consider the WSUD principles, but it continued without SWITCH and led to the HPA leaving the Learning Alliance.

Despite these cancellations the basic principles of WSUD continued after the official end of cooperation. However, the cancellations damaged efforts by

SWITCH to gain new insights into WSUD strategies, to scale up innovative solutions from a local to a wider audience, and to deepen cooperation with core members of the Learning Alliance.

V. INTERVENTION LOGIC POST JANUARY 2010

In the summer 2009 there was a complete change of the SWITCH team leadership in Hamburg although the new team did not start work until January 2010. This was a major disruption, leaving only a short amount of time for the project, but both SWITCH-partners Hafen City University and the Municipality thought it was important that SWITCH Hamburg continued. It was felt that the core ideas of SWITCH to improve water management and to facilitate the discussion on water management issues was still valuable for Hamburg, and Wilhelmsburg in particular, as the area of future urban development.

Based on a critical evaluation of the progress of SWITCH in Hamburg, the core Learning Alliance (Hafen City University and the Municipality) devised a new approach reflecting local demands.

The new Hamburg Learning Alliance team chose to focus on a scaled-down version of the IUWM Plan for Wilhelmsburg. The Learning Alliance team did not feel that there was sufficient time to complete the plan as previously envisaged, but there was time to build on the established vision. It was agreed to keep the vision “Make Water Visible and Useful” but the process of scenario building to actually developing an IUWM plan was dropped. The new, more modest, intervention logic was to concentrate on discussion of how to enhance a sustainable urban water management for two specific water related issues that are of high relevance for Wilhelmsburg, the water regulation system on the island of Wilhelmsburg and recreation and conservation on the island.

This was not a radical shift in the intervention logic, but a scaling back of the interventions and therefore the scale of the outcomes. It did, however, mean that the work SWITCH accomplished could not so easily be considered appropriate for the whole of Hamburg. Other research projects also played a role in the intervention logic, including, for example, activities designed to promote a change from conventional sewer systems to Eco Sanitation.

Water Regulation System on the island of Wilhelmsburg

To preserve the natural environment and to ensure that urban development and agriculture can go ahead depends on a well-functioning drainage and irrigation system on the island.

The complex regulation system comprises ten tidal gates and nine pumping stations, which are designed to overcome differences in water levels within the island and the River Elbe. A large number of small weirs regulate water levels in ditches and trenches.

Two workshops were held in June and October 2010. The initial workshop focused on the agreed vision for Hamburg “Make Water Visible and Useful” and how the water regulation system within the island can be adapted to allow for the vision to be realised. The management of water resources on the island is technically and administratively complex. A number of “Wassergenossenschaften”, or drainage boards, are active on the island and hold responsibility for maintenance of ditches and the operation of pumping stations.

The Learning Alliance as a whole was positive about this plan of discussing the way to achieve the vision by focusing on specific water related topics, although this was somewhat a shift from the original plan in 2006 to develop an IUWM plan. However, it was felt that there may be a lack of technical expertise within the alliance, because only a few stakeholders of water management in Wilhelmsburg have an overall understanding of the system. A staff member from the City Department of Urban Development and Environment, who replaced a colleague on the SWITCH Learning Alliance in 2010, felt that this was substantial drawback in moving from the principles of a vision to the specifics of a practical plan.

“It is difficult to cover the subject of water level regulation as it is too complex a topic for a short period of time. It took me years to understand the system and SWITCH didn’t understand the complexity. The difficulty with water management in 2030 is to keep it down to earth. The relevancy of visioning and indicators is questionable; the LA discussions are too broad. It would be better to look at a single trench and assess the effect on it in 2030”.

“The problem with this and other projects is that the people working are not specialists in this area. It would have been good to explore the water conflicts on the island and how to manage these. There is a lot going on the island, and it will be difficult to assess the sole impact of SWITCH.”

Interview with a staff member from the City Department of Urban Development and Environment

This stakeholder felt that some of the SWITCH work would have been more relevant had it been started earlier. For example, if the data on recreation (see below) had been available pre-IBA, more informed decisions could have been made. He was sceptical about the impact of SWITCH given that Wilhelmsburg was also the subject of interventions by IBA and IGS, and noted that water management topics were emotive topics due to a fractured relationship between outside organisations residents of the island.

In this context, one of the island residents, a citizen representative, who was interviewed felt that there was a communications gap between the “outsiders” who brought their project to the island and the local people, and that they needed to find a way to talk to local people. “The problem is communication - those working here [in the Wilhelmsburg project] are highly educated and cannot relate to the people.”

Box 5 Assessment of the water regulation system on Wilhelmsburg

Wilhelmsburg has a number of water management issues, including a rising water table, multiple demands and a complex network of ditches and pumps to control water levels.

The Learning Alliance set out to produce a critique of the regulatory system on Wilhelmsburg Island to determine if there is an alternative to the “business as usual” approach.

They planned also to include as a “project”, a review of a specific ditch network and an assessment of how the competing aims of environmental conservation and recreational activities can be managed.

Bjoern Weber, the City Facilitator, outlined the aim as “trying to make this interesting and worthwhile so that the municipality will have a foundation to build on”.

Results and findings from deliberations

- There are conflicting demands on water levels and regulations between conservation, agriculture and the commercial sector.
- The system of water regulation is so sensitive that an alteration is not feasible, because it would lead to instability of the system as such.
- Lack of consistency regarding water management should be addressed. There are many different projects but little interconnection of effort. The management of this work and exchange of information need to be improved.
- New communication paths need to be identified and used to improve education and information sharing. Existing networks should be used to improve information exchanges regarding water related issues.
- Further investigation needs to be undertaken to clarify the influence of water problems in developed areas. Small scales analysis should be undertaken to investigate impacts resulting from changes in management.

Recreation and Conservation on the Island of Wilhelmsburg

The focus of the work was an analysis of environmental conditions of the surface water bodies and the surrounding areas and of the recreational demands by residents and others.

To assess the existing environmental conditions a consulting company was assigned to map the relevant parameters.

To assess the recreational demands a questionnaire was produced so that people could interactively map the recreational facilities they use, how they access them, the condition of the access points, and their ideas for recreational use in the future. The questionnaire was conducted on line and through face-to-face interviews in public areas.

An environmental consulting company mapped the accessibility of water, taking into account the density of vegetation, recreational facilities and public/private properties along the embankments. The analysis revealed high recreational demand and a high ecologic value of the water bodies themselves and the adjacent areas by people who use the space for boating, walking, fishing, swimming or having a barbecue

Discussion and Findings

In October 2010 a workshop was arranged to discuss the possibilities to reconcile demands for recreation and conservation. The aim was to improve the current management of conflicting demands with respect to changing demographic and other conditions. The importance of an integrated approach and a well-balanced management was identified during the discussion.

- Regulations to restrict recreation activities were not seen as a way forward, especially as they would be difficult to implement and enforce. It was felt that measurements to design; shape and develop water bodies for specific recreational activities would be more effective. The aim would be to create “water sites” to promote recreational activities in some parts, which would allow other conservation areas to develop.
- It was also felt that deploying caretakers would be an ineffective way of reducing levels of pollution and it would be better to implement training and information campaigns in schools so that children learnt about the importance of protecting water bodies in Wilhelmsburg, and took those messages home.
- It was decided that recreational uses should be determined explicitly for each water body as should the extent of conservation. Ecologic values should be determined explicitly.
- It was agreed that the process of draining and irrigating the island needs to be well maintained and recognised as being of great importance. This is of major concern especially regarding climate changes including possible increases in the number and intensity of storms.

Transferring findings into future actions and follow-up

It was proposed to convert these discussions into project ideas to reflect the idea of integrating and separating recreation and conservation. Ideas should be presented to discuss the possibilities of funding and be discussed with politicians and other representatives of the municipality.

Initiatives:

- HCU, the company WasserLand and other key stakeholders are working on raising funds to realise the concept “Wasserkulturförderung” (promoting water culture).
- HCU, SAGA and other organisations are meeting representatives of IGS (the International Horticultural Exhibition) to discuss the possibilities of funding and activating some of the projects ideas.
- HCU is collaborating with the municipality on a project called RISA, focusing on the possibilities and challenges of a decentralised storm water management in urban planning. This project can be seen as a direct follow-up initiative of the SWITCH-work in Hamburg.
- February 16 is a suitable date to present ideas on integrated urban water management, since it is the date in 1962 where many people in Wilhelmsburg died in a storm and flood.

Perceptions of changes in the project

A range of Learning Alliance members were interviewed for this assessment, including those who had and had not been involved in SWITCH prior to 2010. The views of those who were involved in SWITCH prior to 2010 were polarised depending on their role. Those who were at the centre of the project, such as the municipality and some others in the alliance were aware of the change and although there was need for additional support from SWITCH as a whole, thought the process reasonably well managed.

“It didn’t matter that there was a gap, the same people participated and there was continuity in the themes.”

Interview with a Learning Alliance member from BUND Landesverband Hamburg e.V.

However, particularly those who had been involved in plans for demonstration projects, to some extent felt let down.

“We (BSU) were disappointed to find that the demonstration money was withdrawn. Although the planned demonstration project was not possible, the funds could have been used to fund another project (Kreetsand). This project will go ahead without SWITCH, but the lack of SWITCH funds will result in it taking longer”.

Interview with A Learning Alliance Member from the Ministry of Urban Development and Environment

Others, such as the Port Authority, were not keen to re-connect with SWITCH due to the removal of SWITCH funds for the demonstration.

Box 6 Prof. Wolfgang Dickhaut

Prof. Dickhaut, who was already a Learning Alliance member, took over from Prof. Langenbach as City Coordinator, after being requested to do so by the chair of HCU. It was a challenging time to move into Prof. Langenbach’s place and it was difficult to find opportunities to work with other consortium members or to engage fully with the SWITCH team globally.

Prof. Dickhaut would have liked to have worked more intensively on realisation of demonstration projects, but time was against the Hamburg. The work has therefore been too theoretical with too little time spent influencing concrete projects. An effective demonstration project in Hamburg would have enhanced the approach of activating processes of water management in an innovative way to create new approaches rather than “business as usual”.

VI. RESEARCH UNDER HAMBURG SWITCH

Water Sensitive Urban Design research for improvements in the application of decentralised stormwater management

During the last 20 years, decentralised solutions for sustainable stormwater management have been developed all over the world and legislation has been

advanced. However these systems are underutilised and public as well as professional recognition of their merits is still quite low. One reason is that stormwater facilities have often been engineered without considering the ecological, social, or aesthetic qualities, which influence public perception and acceptance.

Water Sensitive Urban Design (WSUD) supports the idea that stormwater management needs to be integrated with urban design and seeks to harmonise the urban built environment and the urban water cycle, combining the functionality of water management with principles of urban design. The approach embraces an interdisciplinary cooperation of water management, urban design, and landscape planning.

Box 7 Water Sensitive Urban Design Research in SWITCH

Main research questions

- What is Water Sensitive Urban Design?
- What principles need to be considered when applying WSUD?
- What does WSUD look like (case studies)?

Case studies

- Large scale - "From Grey to Green" (Portland, Oregon, USA), Waterplan 2 (Rotterdam, Netherlands), Blue-Green Network (Lodz, Poland)
- 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)

The research resulted in a manual on WSUD. This publication will give inspiration and guidelines for all stakeholders involved in the planning, design, and maintenance of stormwater management in urban areas (such as civil engineers, planners, landscape designers, project managers, architects, administrative officers, and policymakers). By showing interesting and pleasing case studies this manual will motivate those people to bring more decentralised stormwater management measures into practice and integrate stormwater management planning with urban design demands.

Due to the changes in the project team, the work on the manual started very late within SWITCH and it was not possible to test research results within SWITCH or to be able to have an impact on the work of the Learning Alliance. However, the manual was completed during 2010 and published in January 2011⁵.

The manual:

- provides an overview of what Water Sensitive Urban Design is about
- creates guidelines by setting principles for WSUD
- presents case studies to support WSUD principles and discusses strategies and techniques

⁵ Hoyer, J., Dickhaut, W., Kronawitter, L. & Weber, B., 2011. Water Sensitive Urban Design - Principles and Inspiration for Sustainable Stormwater Management in the City of the Future. SWITCH. Available as publication by: Jovis Verlag GmbH, Kurfürstenstraße 15/16, D-10785 Berlin. ISBN 978-3-86859-106-4

Eco Sanitation

Two activities aimed to promote the change from conventional sewer systems to Eco Sanitation solutions. The Technical University Hamburg-Harburg Institut für Abwasserwirtschaft und Gewässerschutz AWW undertook research on eco-sanitation, low tech and high tech. They built on the concept that the ideal drainage system is to have source separation as soon as possible within the system. AWW have been investigating nutrient recovery, fertilisers from urine and waterless toilets for application both to the developed and developing world. They have also been investigating, outside SWITCH, closed loop systems including treatment of wastewater (black water) within the home and using recycled water to flush toilets.

In a second activity three members of the Learning Alliance AWW, Hamburg Wasser and the International Building Exhibition IBA, have been planning a demonstration project for eco-sanitation in combination with the IBA project Haulander Weg. It had been hoped that this could have been included in the SWITCH Wilhelmsburg case study, which was subsequently cancelled. They have also been working alongside Hamburg Water on a separate project, which is investigating “closed loop” systems whereby black water is extracted via vacuum toilets and is used for nutrient recovery and Combined Heating and Power (CHP). Although the demonstration project for eco-sanitation was not formally integrated into Learning Alliance activities, it was done by members of the Learning Alliance and results from SWITCH research have been used to promote the change.

Connections with other SWITCH initiatives

Several other SWITCH partners were active in the demonstration city of Hamburg:

- WP 4.2 Eco sanitation - Prof. Ralf Otterpohl, Felix Tettenborn and Martina Winker Technical University Hamburg-Harburg.
- WP 1.1 Urban Water Paradigm Shift and Integrated Urban Water Management Plan - Peter van der Steen UNESCO-IHE.
- WP 2.1 Stormwater Management - Heiko Sieker IGS.
- WP 5.2 Urban Agriculture - Rene Vanvenheusen.
- WP 6 Social Inclusion - Peter Bury, Alistair Sutherland.
- Subject Group Water Sensitive Urban Design - Iwona Wagner.

SWITCH outputs

In terms of outputs, the Hamburg SWITCH project was disrupted by the changes in the team leadership, the break in activity and the failure of demonstration projects to be completed. However, as seen above, some of the work that the SWITCH project undertook has found its way into the thinking and plans of other organisations and will have an impact on their outcomes, albeit not under the SWITCH banner.

The manual on Water Sensitive Urban Design was published in the final days of the project and has the potential to influence practice around the world.

In Hamburg, most projects involve stakeholder engagement. Many people did not see how SWITCH would make a visible impact within the city, mainly because SWITCH was one of many projects and its impact was perhaps diluted and hard to measure as a single entity. Learning Alliance members were largely in agreement that the demonstration was a loss to the project. However, it may be that the water management recommendations can contribute to an alternative form of urban water management in the future. It is expected that it will be included in the planning process by the Municipality when reviewing water management within the Island.

One success (cited by many Learning Alliance members) was a speaker from the Netherlands who provided an inspirational talk on integration of water management into new developments. In fact, IBA invited the speaker to become an advisor on one of their projects. The Hamburg LA had mixed views about the benefits of SWITCH being an international project.

VII. LESSONS LEARNED

There are a number of potentially transferable lessons from the SWITCH project in Hamburg with relevance to other SWITCH cities and the wider community who are thinking about water management interventions.

These include:

- Realistic targets: SWITCH promised demand-led research, however, much of the project was determined before start up and establishment of the Learning Alliances with little chance of a change of direction. A key example would be demonstration funds being unavailable to complete an alternative project following the cancellation of the demonstration project.
- Change management: It is important to inform people of changes in personnel and project development. The SWITCH Hamburg team seized the opportunity in inviting Learning Alliance members to come together in late 2009/2010 to review the direction of SWITCH which ensured that the project would be viable and of continued interest to alliance members. The transition was not as smooth as it may have been. There was a long period with no activity, during which time many Learning Alliance members remained unaware of the change of facilitation. The new facilitation team were also torn between trying to re-establish the Learning Alliance and attending meetings with other cities, a balance that perhaps swayed towards re-establishment. In hindsight, attendance at another city's Learning Alliance or another city facilitator sitting in during a Hamburg meeting would perhaps have been beneficial.
- Exemplar city: It was thought that the SWITCH community had missed a trick and Hamburg could have been used as an exemplar city for stakeholder engagement and water management interventions. Learning Alliance members did not feel that, on the whole, they had increased their technical knowledge, but felt that they had much to share with other cities.
- Knowledge transfer: Any global project is a challenge to facilitate, but opportunities for sharing knowledge must be realised. Many thought that the international meetings were inaccessible (not invited, no funds and no time) and that the website was confusing. However, some expressed interest in receiving details about each of the cities final outputs to evaluate.

- The proposed international SWITCH Learning Alliance was only realised for the researchers involved, but not for stakeholders in a single local alliance. The Hamburg Learning Alliance were very proud of their stakeholder engagement programmes for new development and during research projects and found that much of “innovative” Learning Alliances of SWITCH were “old hat” for Hamburg. Other cities could have benefited from more of the Learning Alliance attending international meetings. Another opportunity would have been for members of the Hamburg Learning Alliance to visit cities which were undertaking complementary research.
- Time management: Members of the Learning Alliance in Hamburg found that job commitments limited their involvement in SWITCH. Information needs to be presented clearly, concisely and timely to allow people to action it.
- Strong facilitation: A full time facilitator was sought for the last year of the project. This was critical in the success of Hamburg to continue within SWITCH and produce valuable outcomes.

VIII. CONCLUSIONS

A critical question is whether the SWITCH city team offered the right innovations for Hamburg and its Learning Alliances, ones which really met the present and future challenges of urban water management in Hamburg. Because the SWITCH research programme was largely fixed at the beginning of the project no real demand-led research could be realised. Most researchers in the original SWITCH team already had fixed research agendas (urban agriculture etc.) which could not be changed. Other topics relevant for Hamburg such as improving the ageing conventional water supply and waste water infrastructure or improvement of flood protection were not addressed by the SWITCH research agenda, and there was no partner that could have done this.

Researchers and the Hamburg Learning Alliance mainly focused on IUWM and WSUD, topics identified by the Hamburg based researchers at the start. Some Learning Alliance members were interested in these topics, but others judged these approaches to be too theoretical, irrelevant to practical problems or more positively perhaps, too visionary. Other topics, which were of interest for some members of the Learning Alliance, were not introduced in the process. For example, Eco Sanitation was only addressed by Learning Alliance members outside the Learning Alliance. In the first period of the Hamburg Learning Alliance, there was a mismatch between the expectation of the Learning Alliance members and the topics addressed by the SWITCH city team. There was a focus on the urban design issues of water management. Most members of the alliance were engineers, which were not so much interested in the design question, but more interested in technical solutions. SWITCH was proposing a paradigm change in urban water management (e.g. introduction of new decentralised technologies etc.) but several members of the alliance were more interested in solving current problems than in paradigm shifts. There was a mismatch between the high level ideas promoted in SWITCH and the day to day problems of the stakeholders.

In response, the SWITCH city team in the second period tried to focus on specific topics and problems that were relevant for the Learning Alliance members, rather

than superior and theoretical concepts and approaches. They were trying to identify the next relevant step in promoting changes to the paradigm of urban water management in everyday practice. Learning Alliance members thought that, although it would be difficult task to determine a single focus, it would have been beneficial to have a demonstration of sorts where the project and LA could come together. Many in the Learning Alliance, including the Municipality and IBA thought that there were opportunities for SWITCH to become involved in other projects, but funds were no longer available.

In the city of Hamburg, SWITCH could only offer only a small contribution to trying to enhance the sustainability of the present system and an integrated approach to managing it. At the beginning, the SWITCH project promised to promote a perceivable change in the urban water management in the city. In this respect, and with hindsight, the SWITCH team in Hamburg promised too much, because only minor changes were achieved and several impacts were not achieved. There remains the question of what change could be achieved by a single research project with the small local team in a metropolis like Hamburg? This is a question that polarised opinion in the Learning Alliance.

There are also several comparable research projects beside SWITCH, which also try to promote a more sustainable urban drainage system. A relevant change of the current approach of urban water management could perhaps have been achieved together with the other research projects. Coordination and cooperation with other research projects is a critical issue for success.

IX. ACKNOWLEDGEMENTS

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SWITCH is an action research programme co-funded by the European Commission and implemented by a consortium of 33 partners from 15 countries (www.switchurbanwater.eu).

Appendix A

Year	Months	Demonstration	Learning activities in the city	Creating wider awareness	Behind the scenes facilitation and other activities
2006	1-6	Concretisation of the demonstration project Hamburg (Water Management Plan Wilhelmsburg; small scale demonstration project on the river island of Wilhelmsburg).	<p>Identification and establishment of the core members of the Hamburg Learning Alliance (“Water Expert Council”)</p> <p>Nomination of the city coordinators and the Learning Alliance facilitator</p> <p>Dissemination activities (press release, content home page etc.).</p> <p>Linkages with other demonstration cities (excursion to Zaragoza).</p> <p>Support the organisation of the SWITCH coordination workshop in Hamburg.</p>	<p>Section on LA activities lists additional projects SWITCH Hamburg has linkages with.</p>	
	7-12				<p>Discussion about resources of the LA:</p> <ul style="list-style-type: none"> • Identification of need of manpower • Identification of need of budget for meetings, etc. <p>Scientific meeting Birmingham (January 2007)</p>
2007	13-18	<ul style="list-style-type: none"> • Preparation of thematic briefing notes as starting point of the Water Management Plan Wilhelmsburg as part of the demonstration project Hamburg as linkage to the problems of every day work (month 13-18). • Discussion of options in terms of the small scale demonstration project on the river island of Wilhelmsburg. Support of research activities: <ul style="list-style-type: none"> • Several meetings with single partners of the Learning Alliance • Identification of the focus of research related to WP 5.1 – Water Sensitive Urban Design (Design Manual WSUD) 	<p>Establishment and expansion of the “Water Expert Council”:</p> <ul style="list-style-type: none"> • Identification of a wider circle of stakeholders with main interest in water management on the river island of Wilhelmsburg (decision level, expert level, local stakeholders). • Several meetings with single partners of importance for sustainable water management in Hamburg/ Wilhelmsburg. <p>Documentation of activities related to the Water Expert Council in Hamburg and the global Learning Alliance (e.g. workshop reader scoping visit; training college WSUD I).</p> <p>Preparation of the Google group.</p> <p>Preparation of conferences and workshops.</p>	<p>Preparation of the international conference on WSUD together with the IBA (the conference was postponed).</p> <p>Carrying out three training courses related to the topic of WSUD by request and cooperation of single members of the LA.</p>	<p>Preparation of the International Conference IBA Labour “Water Sensitive Urban Design”</p> <ul style="list-style-type: none"> • Close collaboration with the IBA GmbH and partners of the BSU. • Preparation and draft of the program. <p>Training college WSUD I “Zaragoza EXPO 2008” in close collaboration with Mr. Javier Monclús of the consorcio EXPO Zaragoza 2008 and Mr. Javier Celma and Mr. Victor Bueno of the Ayuntamiento de Zaragoza (29.10. – 01.11.2006).</p> <p>Meeting of the SWITCH Learning Alliance Hamburg - Zaragoza (30.10. – 31.10.2007).</p> <p>Presentation of the results of the WSUD I “Zaragoza EXPO 2008” in Hamburg (14.02.2007).</p> <p>Meeting of Prof. Heike Langenbach (HCU), Jochen Eckart (HCU), Wiebke Holste (HCU), Mr. Javier Monclús (EXPO Zaragoza 2008), Mr. Uli Hellweg (IBA GmbH), Mr. Wilhelm Schulte (BSU), partners of the SWITCH Learning Alliance in Hamburg (14.02.2007).</p> <p>Documentation of training college WSUD.</p> <p>Close collaboration with WP 1 in terms of the Water Management Plan Wilhelmsburg (e.g. meetings 29.03. - 30.03.2007).</p>

					Knowledge sharing and cooperation with partners of other demonstration cities and work packages (e.g. Lodz, University of Abertay).
2007	19-24	Appointments for the selection and preparation of the SWITCH demonstration project with core members of the LA.	Expansion of the Learning Alliance with 15 new members related to water management on the river island of Wilhelmsburg. 26 interviews with the members of the LA.		Two training courses related to "Water Sensitive Urban Design" by request and in cooperation with members of the LA. (25-42M). Conference and workshop "Urban water management on the river island of Wilhelmsburg in the year 2030" in cooperation with WP 1 (31.08.2007). Preparation of the International Conference IBA Labour 'WSUD'. The conference was postponed at the request of the IBA GmbH.
2008	25-29	Workshop "Scenario Planning for IUWM" in cooperation with Theme 1 Theme 2 and WP 5.1 was carried out. The results of the workshop are documented in a brochure (month 27). Preparation of a first draft of the IUWM plan containing the results of the workshops (month 30). Preparation of the small scale demonstration project in Hamburg (compare demonstration plan). Several meetings with the International Building Exhibition Hamburg. The content of the demonstration project will be introduced in the urban design competition for an ecological demonstration settlement on the river island of Wilhelmsburg (month 25-30).	Finalisation of the stakeholder analysis. Further enlargement of the LA (stakeholders which are interested on the IUWM plan on the river island of Wilhelmsburg). Further interviews with stakeholders on the river island of Wilhelmsburg (month 25-30). Interview with a member of an immigrant organization to discuss the possibilities of social inclusion on the river island of Wilhelmsburg (month 25-30). Attendance on several meeting and events of members of the SWITCH LA to represent (month 25-30).		Social inclusion case study on the river island of Wilhelmsburg in cooperation with Theme 6 (month 29). Cooperation with other water related research projects on the river island of Wilhelmsburg (month 25-30). Supervision of several bachelor and master thesis in cooperation with theme 1, theme 4 and other water related research projects in Hamburg (month 25-30). Attendance at the theme 2 meeting in Essen in July 2008. Agreements about further cooperation between the demonstration city Hamburg and theme 2 (month 30).
2008	30-36	Demonstration project "Haulander Weg": attendance several meetings IBA project "Haulander Weg", development specifications "WSUD" for urban design competition, two field trips to case studies in Hamburg, updating demonstration project template, etc.	Further enlargement of the LA. Further interviews with stakeholders on the river island of Wilhelmsburg. Attendance at several workshops and conferences and presentation of LA Hamburg: <ul style="list-style-type: none"> • Presentation of the municipality of Hamburg on the Symposium "Cities of the Future - Strategic Planning for Water Sustainability". • Presentation of the demonstration project 	Several Dissemination activities: brochure "SWITCH Hamburg", updating homepage, SWITCH Hamburg, development and updating SWITCH City Posters Hamburg, attendance exhibition HafenCity University.	

		Documentation present results IUWM plan Wilhelmsburg (1 st rough draft IUWM plan). Development ArcGis database water management on the river island of Wilhelmsburg as basic for the development of a decision support system. Documentation in brochures: "Vision IUWM Wilhelmsburg" and "Indicators and scenarios IUWM".	<p>"Haulander We" on the Theme 2 meeting in Essen.</p> <ul style="list-style-type: none"> • IBA Labor "Energie und Klima" and IBA Forum "Energie und Klimawandel". • HPA Tideelbesymposium 2008. • Scientific meeting Belo Horizonte, LA meeting Ouro Preto. <p>Build contacts international LA.</p>		
2009	37-42	Demonstration project Kreetsand: development concept demonstration project, compose new demonstration project template, demonstration project, timetable, attendance meetings HPA, etc.	<p>Further enlargement of the Learning Alliance (stakeholders interested in the Kreetsand project). Attendance and presentation of SWITCH at the IBA meeting "consequences of climate change - challenge water" 19th - 21st February 2009.</p> <ul style="list-style-type: none"> • Key note session Kala Vairavamoorthy (scientific director of SWITCH). • Presentation Heike Langenbach. • Facilitation session (decentralised management of stormwater, technics and design). 	Several Dissemination activities. Flyer SWITCH Hamburg, updating SWITCH Hamburg homepage.	
2009	43-46				
2009/ 2010	47	New Team of SWITCH Partner HCU assembled.	Catching up with the work that has been done so far.		
2009/ 2010	47-50	Reorganising the SWITCH-work for Hamburg.	<p>Build contacts to international project partners.</p> <p>Attendance at the City Water Indicators for the Strategic Planning of Tel Aviv - Yafo, International Symposium and Workshop.</p> <p>Restart of the LA-process: Meetings with BSU and IBA to develop ideas what can be done within the LA in the remaining time. Reactivation of contacts and further enlargement of the LA (stakeholders which are interested on IUWM on the river island of Wilhelmsburg).</p>	Flyer SWITCH Hamburg.	Meeting with the management team, the team leader and the subject group members to coordinate the work within the remaining time.
2010	50-55	Workshop "Strategic Planning for IUWM – the water regulation system in Wilhelmsburg". The results of the workshop are documented in a brochure (month 55).	<p>Interview with many members of LA.</p> <p>Attendance on scientific conference: Low Impact Development.</p> <p>Preparation of conferences and workshop.</p>	Poster SWITCH Hamburg.	Supervision of several master theses.
2010	56-60	Workshop "Strategic Planning for IUWM - conservation and recreation in Wilhelmsburg".	<p>Interview with LA members and further enlargement of the LA.</p> <p>It is planned to attend several workshops and conferences to present the Hamburg-work.</p>		Supervision of several master theses.

APPENDIX A: CITY INDICATORS

Monitoring Learning Alliance outcomes

Five objectives (four are shared with other SWITCH cities, while two were added to specifically monitor issues related to social inclusion and integrated urban water management in Hamburg) each with related indicators were used in Hamburg to monitor Learning Alliance progress:

- We know who Learning Alliance members are, and how to communicate with them effectively.
- Regular, effective and innovative events capture interest of Learning Alliance members.
- Demonstration activities are undertaken within a framework for scaling-up.
- We understand why change is occurring in relation to integrated urban water management, not just what happens.
- Residents, consumers and socially marginalised groups are introduced to the Learning Alliance and are able to partake in the process.
- An IUWM plan based on the demonstration project is developed and adopted by the Learning Alliance members.

For the third objective, demonstration activities are undertaken within a framework for scaling-up, indicators are the availability of demonstration plans, the level of ownership of these plans, and commitments made to scaling-up implementation. An example of how scenarios are developed based on the indicators and how these are used to assess progress is given below:

Scenarios for objective 3	Score
Demonstration activities are initiated without significant discussion in the Learning Alliance.	0
Demonstration activities are decided after limited consultation with some members of the Learning Alliance.	25
Demonstration activity plans are consistent and integrated within LA plans (city storylines) and are supported but without clear commitments to scaling-up .	50 benchmark
Learning Alliance members with potential to scale up demonstration activities pro-actively made suggestions and proposals that were addressed in demonstration plans.	75
Learning Alliance members maintain a keen interest in demonstration activities at all stages and report back against their initial commitments to scale-up interventions.	100
Justification of score (January 2008)	Score awarded
A demonstration project is planned on the river island of Wilhelmsburg. The demonstration activities are prepared and discussed with some key members	50

of the Learning Alliance. Furthermore the demonstration project is developed according to the vision for an IUWM on the river island of Wilhelmsburg. Hence the expectations of the whole LA are introduced into the project. The demonstration project is also introduced in the city storylines. The demonstration project could serve as example for a sustainable IUWM for the whole island of Wilhelmsburg. Plans for the scaling up of the results are in preparation.	
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Objective 1: We know who Learning Alliance members are, and facilitate communication between them effectively

Indicators are the *availability of a record of Learning Alliance members* and their participation in learning alliance events and activities and the use of *effective communication tools* to share information between Learning Alliance members

Scenarios for objective 1	Score
This is no accessible record of Learning Alliance members, and their involvement in various events and activities	0
There is an out-of-date record of Learning Alliance members and their involvement in events and activities	25
There is an up-to-date record of LA members and their involvement, and some basic communication tools are systematically used (e.g. email, phone) between events	50 benchmark
There is an up-to-date record of LA members and their involvement, and archives are maintained through systematic use of advanced communication tools (e.g. a Google group).	75
Member information is accessible to all (e.g. online database), participation in all events and activities is systematically recorded and a combination of methods is used effectively (based on feedback received) to communicate between events.	100
Justification of score (with date)	Score awarded
There is a record of LA members and their involvement, but the record is not every time up to date. A Google group is prepared, but the Google group is not used for the whole communication.	30 January 2008
There is a record of LA members and their involvement, but the record is not every time up to date. A Google group is prepared, but the Google group is not used for the whole communication.	40 August 2008
There is a record of LA members and their involvement, but the record is not every time up to date. Email and postal address distributions lists have been generated.	50 September 2010

Objective 2: Regular, effective and innovative events capture and sustain interest of Learning Alliance members

Indicators are the *regularity and quality of events* organized or supported by SWITCH Learning Alliances. These aspects may be assessed with reference to reports of activities, evaluation sessions and the follow-up generated by events.

Scenarios for objective 2	Score
Events (e.g. workshops, site visits, seminars) are not regular and only announced at the last minute.	0
Regular events are held at least every six months, but have limited impact in capturing the interest of Learning Alliance members.	25
Appropriate events are announced well in advance and use a mix of mainly standard methods to effectively engage interest of city stakeholders at least once every 3 months.	50 benchmark
Quarterly (or more frequent) events use effective and innovative facilitation methods (not just presentations and discussion).	75
Quarterly (or more frequent) innovative events result in high-quality reports (or other outputs) that capture content and ideas and are rapidly made available.	100
Justification of score (with date)	Score awarded
Events which kept the interest of the LA are held every 6 months. The events are announced and prepared appropriate. Between the events the contact is held by several meetings with single members of the LA (interviews, personal talks, attendance at events of the LA members etc.).	40 January 2008
Events which kept the interest of the LA are held every 6 months. The events are announced and prepared appropriate. Between the events the contact is held by several meetings with single members of the LA (interviews, personal talks, attendance at events of the LA members etc.).	40 August 2008
A workshop was held in May 2010 and a second workshop will take place in October 2010. Between these dates, an online questionnaire was issued and will feed into the development of a plan for water regulation on Wilhelmsburg island.	60 September 2010

Objective 3: Demonstration activities are undertaken within a framework for scaling-up

Indicators are the availability of demonstration plans, the level of ownership of these plans, and commitments made to scaling-up implementation.

Scenarios for objective 3	Score
Demonstration activities are initiated without significant discussion in the Learning Alliance.	0
Demonstration activities are decided after limited consultation with some members of the Learning Alliance.	25
Demonstration activity plans are consistent and integrated within LA plans (city storylines) and are supported but without clear commitments to scaling-up.	50 benchmark
Learning Alliance members with potential to scale up demonstration activities pro-actively made suggestions and proposals that were addressed in demonstration plans.	75
Learning Alliance members maintain a keen interest in demonstration activities at all stages and report back against their initial commitments to scale-up interventions.	100
Justification of score (with date)	Score awarded
A demonstration project is planned on the river island of Wilhelmsburg. The demonstration activities are prepared and discussed with some key members of the Learning Alliance. Furthermore the demonstration project is developed according to the vision for an IUWM on the river island of Wilhelmsburg. Hence the expectations of the whole LA are introduced in the project. The demonstration project is also introduced in the city storylines. The demonstration project could serve as an example for a sustainable IUWM for the whole island of Wilhelmsburg. Plans for the scaling up of the results are in preparation.	50 January 2008
A demonstration project is planned on the river island of Wilhelmsburg. The demonstration activities are prepared and discussed with some key members of the Learning Alliance. Furthermore the demonstration project is developed according to the vision for an IUWM on the river island of Wilhelmsburg. Hence the expectations of the whole LA are introduced in the project. The demonstration project is also introduced in the city storylines. The demonstration project could serve as an example for a sustainable IUWM for the whole island of Wilhelmsburg. Plans for the scaling up of the results are in preparation.	50 August 2008
Not applicable-demonstration has been cancelled.	0

Objective 4: The SWITCH team and Learning Alliance understand why change is occurring in IUWM, not just what happens!

Indicators are the amount and quality of process documentation undertaken to capture the change process and its dimensions and motivations, and the sharing of that information to encourage learning.

Scenarios for objective 4	Score
No process documentation is in place.	0
Occasional ad-hoc process documentation is undertaken using some of available tools (including different media such as writing, photography, film etc.) but with limited attention to detail or quality.	25
A few process documentation tools are used regularly following a process documentation plan but results are not widely shared.	50 benchmark
Several process documentation tools are used regularly and results are widely shared within the Learning Alliance.	75
Effective process documentation is used for reflection and analysis that results in improved project implementation plans.	100
Justification of score (with date)	Score awarded
Some process documentation tools are used systematically (project diary and minutes from events and interviews). From the meetings reports are prepared which are suitable for public relations (to share the results of the project documentation). A systematically process documentation plan is missing.	40 January 2008
Some process documentation tools are used systematically (project diary and minutes from events and interviews). From the meetings reports are prepared which are suitable for public relations (to share the results of the project documentation). A systematically process documentation plan is missing.	45 August 2008
Process documentation is carried out post-meeting by way of a report. This is issued to the Learning Alliance, but there is not a process documentation plan in place.	25 January 2008

Hamburg - additional objective H1: Residents, consumers and socially marginalised groups are introduced to the Learning Alliance and take part in the process

Indicators are targeted activities to engage residents, consumers and socially marginalised groups within the Learning Alliance process, the use of appropriate tools, and the level of representation and engagement of these groups.

Scenarios for objective H1	Score
No activities to introduce residents into the Learning Alliance process, and no stakeholders represent residents in the Learning Alliance.	0
Use of basic methods for grassroots information sharing, and some stakeholders represent residents in the Learning Alliance. Facilitators identify socially marginalised groups and think about possible ways to involve them appropriately.	25
Suitable methods are regularly used for information sharing and facilitating active participation of residents and socially marginalized groups in the Learning Alliance process (developing of IUWM solutions, setting of research priorities etc.)	50 benchmark
Legitimate representatives of residents are part of the core Learning Alliance, and socially marginalised groups respond positively to participation methods and their engagement.	75
Learning Alliance Members legitimately represent the real composition of the society (including socially marginalised groups), and additionally some residents are directly involved in the process.	100
Justification of score (with date)	Score awarded
Stakeholders which represent the inhabitants (and serve as multiples) are closely integrated in the Learning Alliance. The stakeholders participate actively in the developing of an IUWM plan. A grassroots information sharing is ensured. Some socially marginalized groups are identified and methods for their integration are discussed but not realised until now.	40 January 2008
Stakeholders which represent the inhabitants (and serve as multiples) are closely integrated in the Learning Alliance. The stakeholders participate actively in the developing of an IUWM plan. A grassroots information sharing is ensured. Some socially marginalized groups are identified and methods for their integration are discussed but not realised until now.	50 August 2008
Stakeholders which represent the inhabitants (also socially marginalized groups) are closely integrated in the Learning Alliance. The stakeholders participate actively in the discussion of strategic planning of an IUWM. An online questionnaire is provided and public interviews have been conducted. A grassroots information sharing is ensured. Some socially marginalized groups	60 September 2010

are identified and methods for their further integration are discussed; the realisation is planned.	
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Hamburg - additional objective H2: An IUWM plan informed by connected demonstration project is developed and adopted by the Learning Alliance members.

Indicators are the completion of an IUWM planning process and the acceptance and use of the plan by stakeholders, including activities to implement the plan.

Scenarios for objective H2	Score
No activities towards an IUWM plan or SWITCH demo project are realised.	0
A short IUWM plan is developed but not accepted by the Learning Alliance members. There is no connection between the SWITCH demo project and the IUWM planning process.	25
An IUWM plan is developed and accepted by core members of the Learning Alliance. There is an attempt to connect the SWITCH demo project to IUWM planning.	50 benchmark
An IUWM plan is accepted by all Learning Alliance members and used as the basis by some for their own planning activities. The SWITCH demo project is integral to the IUWM plan, and steps towards implementation are clearly identified.	75
The IUWM plan is accepted by all Learning Alliance members as a basis for their own planning activities and the SWITCH demo project is a core step in an implementation plan (of the IUWM plan) along with other realized activities.	100
Justification of score (with date)	Score awarded
The planning process of the IUWM plan started and a vision was developed which is agreed by all members of the LA. The SWITCH demonstration project is developed according to the vision of IUWM. It is planned to integrate the demo project in the IUWM plan. It would be more suitable if first the IUWM plan is prepared and then the demonstration project could be developed but there is not enough time to enable this step-by step development. (compare objective 3)	40 January 2008
The planning process of the IUWM plan started and a vision was developed which is agreed by all members of the LA. The SWITCH demonstration project is developed according to the vision of IUWM. It is planned to integrate the demo project in the IUWM plan. It would be more suitable if first the IUWM plan is prepared and then the demonstration project could be developed but there is not enough time to enable this step-by step development. (compare objective 3)	40 August 2008
Not applicable as demonstration has been cancelled and the IUWM plan for Wilhelmsburg island has been scaled back.	0