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D6.1.6c Experiences from City Learning Alliances as an Innovative Water Governance Mechanism

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D6.1.6c Experiences from City Learning Alliances as an Innovative Water Governance Mechanism

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Deliverable Briefing Note

Deliverable D6.1.6c Experiences from City Learning Alliances as an Innovative Water Governance Mechanism
Audience The document was prepared for an audience both inside and outside the SWITCH consortium. It is mainly for technical researchers within the project interested to reflect on how their research and demonstration activities link to water governance.
Purpose The purpose of the document is to synthesise views expressed by project researchers and city stakeholders on the role of city learning alliances and their views of how learning alliances have contributed to improved urban water governance and management. The document provides an introduction to the learning alliance approach and details the main challenges in establishing learning alliances within an urban context. The document aims to challenge both researchers and other relevant stakeholders to be more proactive in urban water governance through action-learning and action-research to improve urban water management outcomes.
Background The analysis in the document was informed by extensive consultation with a sample of project researchers and other city stakeholders during the SWITCH project, from January 2007 through to October 2010. A number of surveys were undertaken of the views of researchers on learning alliances and the first two of these were written up and published as Learning Alliance Briefing Notes. Further views and accounts of stakeholder and researcher experiences with the City Learning Alliances were gathered as part of the city assessment exercises undertaken in mid 2008 and again in early 2010. A final survey of views of researchers and some city actors was undertaken in October 2010. The findings are set in the context of wider experiences with multi-stakeholder and action learning approaches to address complex development issues.
Issues The key issue identified at project inception was how to improve the relevance and uptake of research outputs relating to urban water management, in the context of poor integration of water management in many cities. The project address a historical context of research being undertaken in relative isolation from stakeholders, fragmented institutional responsibility for water management issues, and limited stakeholder engagement in research to resolve water governance challenges. The city learning alliance was seen as a promising mechanism for addressing these challenges and for improving urban water management through the uptake of research outputs and through improvements in the relevance of research being undertaken.
Recommendations The review does not include specific recommendations. Instead it outlines the main challenges to be addressed which setting up and implementing city learning alliances, and from this inferences for good practice can be derived.

EXECUTIVE SUMMARY

This paper documents the SWITCH experience with city learning alliances from the perspective of of stakeholders and the contribution that they can make to urban water governance. Learning Alliances are an innovative researcher-initiated, intervention in integrated urban water management IIUWM). Their design implies that researchers, along with other stakeholders, more actively engage with urban water management and governance issues in order to progress innovation in the direction of improved integration and better governance. The intention of a learning alliance is to establish a multi-stakeholder process at city level to encourage key actors, with inputs from researchers, to engage and innovate in the direction of integration of water management that is more sustainable and equitable. Researchers represent organisations which have conventionally been marginal to much urban water management decision-making. The SWITCH project invited them to take a fresh look at their rules of the game, and become more proactive in engaging with other city actors. SWITCH city learning alliances are described in the current era of "neo-liberal" governance approaches. SWITCH city learning alliances have, in some of the participating cities, potential of a new informal institution which can influence shifts in urban water governance.

The views of project researchers and their role in learning alliances as a means for shaping the future of water management and governance in cities is explored alongside the views of "city stakeholders" and the city learning alliance facilitators.

Findings from a series of interviews and observations conducted during the course of project implementation, from January 2007 through to October 2010 are analysed using a key elements of an effective engagement process derived from recent literature on cross-sectoral partnerships and strategic alliances. The narrative moves through the design and conceptualization of the learning alliance approach at the start of the project to the formation and operation of city learning alliances, in the context of decision-making relating to urban water management. The analysis draws on views expressed by three main actor categories involved; project researchers, city stakeholders and learning alliance facilitators. These views indicated not only acceptance of the learning alliance concept in the context of the need for technical innovation, but also that many actors see the potential for learning alliances to engage with water governance issues. The paper concludes with a summary of the challenges and lessons from the SWITCH experience of implementing the learning alliance concept for better governance and more integrated urban water management.

1.0 Introduction

1.1 Trends in Urban Water Management

Aspects of urban water governance and related challenges of rapid urbanization, climate change, unequal access, institutional and disciplinary fragmentation have received increasing attention from the international research community (Rogers and Hall, 2003; Revi, et al 2006; Semadeni-Davies et al, 2008; Castro, 2004). Literature on strategic planning signals the need for and value of more participatory and inclusive approaches to planning and decision making when addressing complex development challenges (Friend & Hickling, 2005), including those facing cities (Kain & Sodderberg, 2005). There is also growing interest in the results from applying newer governance models to water management, such as "neo-liberalism" in the Philippines (Fisher,2009) and participation models in China (Enserink and Koppenjan, 2009). Moreover, following on the lead of researchers working in the social and health sectors (Walter et al, 2003) and natural resources conservation (Stayeart and Jiggins, 2007) some researchers in the water sector are seeking to increase their impact by engaging in action-research and social learning, working with decision makers and planners to influence the way that water is managed as part of water governance in cities (Salgado et al, 2008; Brown, 2008; Pearson, et al 2010).

The above trends are evident in an ambitious international action-research project, Sustainable Water Improves Tomorrow's Cities Health – SWITCH funded by the European Union. SWITCH, which started in 2006 is in its fifth and final year. Through a consortium approach the project sets out to bring research expertise to bear on the "wicked" challenge of integrated urban water management (Butterworth et al, 2008; (http://www.switchurbanwater.eu/about.php). The research consortium which makes up the SWITCH project brings together over 100 professionals from more than 33 partner institutions (mainly universities, and a few international research centres and municipalities) from more than 15 countries. While the majority of the SWITCH project research expertise comes from a "technical" and water engineering background, the project design includes multi-stakeholder platforms known as city "learning alliances", the subject of this paper. Moreover SWITCH has input from a smaller number of applied social scientists most of whom were involved in gathering the data informing this paper.

1.2 Learning Alliances and Water Governance

Learning alliances are a management innovation from the private sector emerging in the context of globalisation and the "knowledge economy". The 1999 merger of major car manufacturers Nissan and Renault, was assessed as an effective "learning alliance" (Stevens, 2008). From the private sector perspective, effective alliances are "strategic alliances" involving exchange of knowledge and expertise that help a company to improve its performance and competitive edge (Ghosh, 2004). Research into such alliances emphasises not only functional knowledge exchange as a technical process, but the importance of a social learning process to an effective alliance (Das and Kumar, 2007, Le Ber and Branzei, 2009 & 2010) and that to benefit from such an alliance an organisation should be oriented towards "learning" (Ratten, 2008). The importance of a social learning process in which researchers play a key role, is recognised in the context of complex environmental resource management situations (Pahl-Wostl and Hare, 2004; Ison et al, 2007). The influence that power relations have upon learning is also emphasised in organisational change research (Contu and Wilmott, 2003). Steyaert and Jiggins (2007) emphasise, in the context that power relations are often unequal, the need for researchers to play a facilitation role in supporting stakeholders to better understand their own roles in complex natural resource management situations. The underpinning assumption is that researchers should to step down from their proverbial "ivory towers" and take the risk of active engagement in a co-learning and knowledge sharing process which informs multi-stakeholder decision making in complex situations. Researchers are thus expected to have more influence on decision making. Figures 1 and 2 illustrate the one of the changes that was expected of the learning alliances.

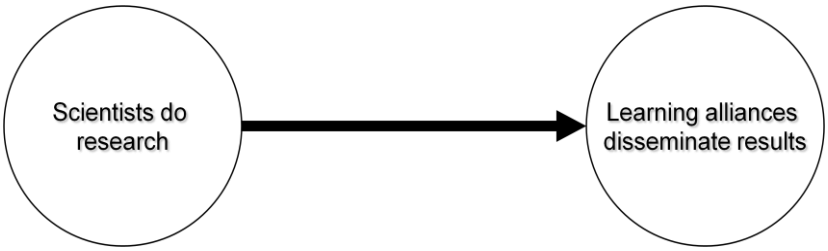


Figure 1 Research Scientist conduct independent research and share results at the end

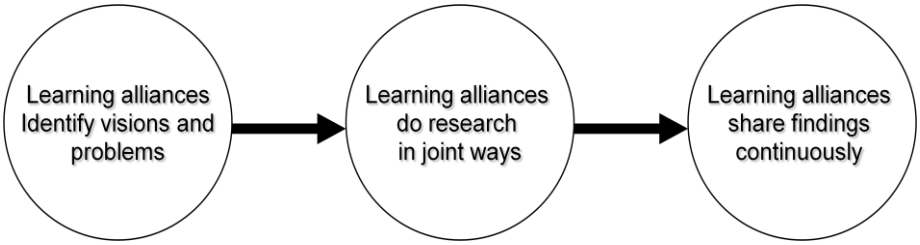


Figure 2 Research Scientists part of learning alliance and working together with other to do research while continuously sharing research.

SWITCH is not the first or only action-research project in the water sector to use learning alliances as an institutional framework through which researchers can engage with other stakeholders. Learning alliances as multi-stakeholder processes centred on social learning and knowledge exchange have been promoted as an approach (Smits et al, 2007) and used in earlier integrated water management projects in the Middle East (Moriarty et al., 2005; Moriarty et al 2007a and 2007b), a global project on rural water and productive used (Penning de Vries, 2007) and projects focusing on specific aspects of the urban water cycle (Smits *et al 2009a*). However, SWITCH is unique in promoting the learning alliance approach in the urban water sector, in large cities representing a wide range of cultural political and economic contexts across 3 continents.

The SWITCH project design also included research outputs relating to governance. In a project briefing paper produced under the Learning Alliance heading governance is defined as, "the exercise of authority and legitimate influence in the management of a city's water and water-related affairs at all levels of decision-making. This includes the complex mechanisms, processes, and institutions through which stakeholders articulate their interests, mediate their differences, and exercise their legal rights and obligations with respect to water management……. the main tasks in governance are: 1. to decide what to do; and 2. to deliver on that decision" (da Silva, et al 2008). The SWITCH project design was such that there was a clear intention that researchers should input into longer term urban water management decision making in the participating cities, and the expectation, over the longer term was that some of the organisations represented on city learning alliances would take up innovative ideas and implement them.

1.3 Conceptual underpinnings of SWITCH learning alliances

The concepts underpinning the SWITCH learning alliance approach can be identified from the project literature and related publications (IRC, 2005; Morris, 2006; Butterworth and Morris, 2007; Moriarty, 2007; Verhagen et al, 2008, Butterworth et al 2008; Howe and van der Steen, 2008).

At the design stage arguments for a learning alliance were related to ideas about functional integration in a complex situation, cost-effective research, good governance and opportunities for influencing water governance.

Learning alliances were based on the premise that when tackling a complex situation or "wicked problem" (Butterworth et al, 2008), a group of relevant people working interactively are more likely to come up with better options than a clever individual operating in a command and control situation. The underlying assumption of the project design was that complex problems, like urban water management and its governance, require creative solutions that involve new types of interaction and engagement between experienced researchers and other stakeholders with key responsibilities and interest in the urban water sector. For some water engineers this was a paradigm shift, challenging the notion that a single expert or small group of "experts" could effectively steer a process as complex as more integrated management of the urban water cycle. For researchers this implied engaging with the "real world" of decision making and engaging in a process rather than focusing on their "products" (Lomas, 2000).

Secondly, learning alliances were seen as a key for getting better returns to donor investments in research. Drawing on the idea of an "innovation system" (Arnold and Bell, 2001) the design intention was that a city learning alliance would constitute an "innovation system" which would "facilitate integration and scaling-up of innovation in urban water management (Morris, 2006, p 1). The background was that much research had been funded which had not been put into use. Hence a learning alliance was seen as a functional "action-research" mechanism for improving the application of research towards an agreed objective; "integrated urban water management". "The central premise of the Learning Alliance approach is that, by giving as much attention to the *processes* of innovating and scaling up innovation as is normally given to the subject of the innovation itself, barriers to uptake and replication can be overcome"(IRC, 2005). For researchers, this requires more attention to stakeholder involvement in their research, and on effective communication with stakeholders. This perspective was re-enforced by an emphatic statement from the EU representative at the end of the project's first "scientific conference" in 2006, who after hearing presentations about the plans for research told delegates "SWITCH is not a [conventional] research project, it is about getting existing research into use."

Thirdly, the moral case for learning alliances was made, based on ideas about "good governance". As facilitators of innovation, SWITCH learning alliances were expected to promote "good governance" in the sense of "greater accountability, participation, transparency and equity in the development process" (Morris, 2006 p 1). This view was underpinned by concerns that aspects of urban water governance are influenced by vested commercial, organisational, class and individual interests which would, if not brought into the open through a learning alliance process, would work against fuller integration of water management. In this context, SWITCH's design included work packages on Water Governance and Social Inclusion that were designed to address some of these concerns (Nelson et al, 2008).

Fourthly, the learning alliance approach was set, pragmatically and opportunistically, in the context of global trends in what has been termed "neo-liberal" governance of the water sector (Fischer, 2009) and increased stakeholder participation in the research sector, including natural resources research. These trends, as played out in the SWITCH cities and the research sector, were viewed as opportunities to intervene by bringing in international research expertise to tackle complex and location specific urban water problems in a way that was different from previous efforts (Howe and van der Steen, 2008). The project learning alliances were seen as the key to a process of facilitated innovation in the participating cities; "a learning alliance can provide a key for engaging multiple stakeholders and bringing together their diverse perspectives on a problem and its potential solutions, and enabling new ways of working to emerge" (Morris, 2006:2). In year 1, an idea was that city learning alliance might "commission" research activities from the project partners, as a process of "demand-led" research (Morris, 2006). By year 2, there could be more emphasis on stakeholders collaborating as part of an action research process. To support this idea a project briefing paper explaining the basis of Action-Research was produced as a guide for project researchers (Moriarty, 2007). By year 3, Learning Alliances were expected to deliver a wider range of benefits including to "foster a new form of demand-driven research", improve communications between water sector institutions, increase the scientific basis for decision making, help break down political barriers to solving urban water issues, allow better representation of all stakeholders in the decision-making processes and "show to other sectors (e.g. public health, agriculture, spatial planning) that the Learning Alliance approach is feasible and results in more rapid adoption" (Howe and van der Steen, 2008).

1.4 An overview of the project actors

At the project design stage a project briefing paper (Morris, 2006) identified three main types of actors involved in SWITCH city learning alliances as:-

1. "project consortium members" [mainly researchers] who "aspire to more integrated urban water management that is sustainable, less risk prone and more equitable" (Morris, op cit p2);

2. "stakeholders with interests in IUWM ,and particularly those associated with project themes or work packages being focused on the city" (ibid) (e.g. city planners, regulators, utility operators, politicians and civil society organisations);

3. "a coordinator – head chef – to champion the alliance, and team of enthusiastic co-workers to support him or her" (ibid) –(the coordinator was a researcher in the project consortium who was expected to coordinate and link research to the LA, working with the LA facilitator and other researchers).

Drawing on views expressed by these three actor categories, backed by the author's observations, this paper describes the project experience with the learning alliance approach. The analysis of actor's views builds on the project conceptualisation of learning alliances at the design stage (Morris et al 2006) and draws heavily on a recent review of effective strategic cross-sectoral partnerships which focuses on the "social innovation" process (Le Ber and Branzei, 2009). Actor's views are analysed within the context of a social innovation process which requires different types of actors to work together in order to address a complex problem. A conceptual framework which aims to capture the key elements of an effective social innovation process is used to make sense of the actor's views of learning alliances and experiences of the project at various stages of implementation. The challenges, lessons and implications for scaling up a learning alliance approach as a method for promoting innovation in urban water management and governance are discussed.

Research Actors: The majority of the researchers in the consortium had a "technical" or engineering background related to the water sector and were involved in one of five thematic work packages (Howe and Van der Steen, 2008). These five work packages were led by experienced researchers, specialists in their fields, mostly with consulting experience and a genuine commitment to bringing their expertise to bear on water management challenges. Other technical researchers involved were younger, including a group doing their Ph Ds through the project. There was a small group of social scientists with water sector experience who are involved the project's sixth work package

"Governance and Institutional Change". Learning alliances fell under this work package, and were under the overall coordination of a member of the project's "management team" which was made up entirely of researchers. In all the participating cities researchers from nearby universities were involved. In addition, researchers from European research organizations supported the city learning alliances or local research teams.

City Actors: In each city, researchers, usually through the city learning alliances, engaged with stakeholders who were viewed as important to achieving the project aim of more integrated urban water management. These stakeholders, "city actors" typically include experienced engineers in charge of water related services provided to the city or with a regulatory role relating to water and environment. Also included in this group were city planners and politicians, and in some cities civil society representatives with involvement in the water sector. In a few cities private developers are also represented. In some cities, project researchers had already developed links with particular individuals with influence in the management of the water sector prior to the establishment of the learning alliance. As a category the city actors had greater diversity of interests and function than the project researchers. In three cities (Hamburg, Bello Horizonte, and Zaragoza) the municipality were funded through the project as partners.

In November 2009, city actors were invited to a SWITCH City Summit held in Delft. At this time representatives from Accra, Tel Aviv, Hamburg and Lodz were interviewed about their views on learning alliances. City actors from other cities (e.g. Birmingham, and Belo-Horizonte) were interviewed during internal assessments of progress.

Learning alliance facilitators & city coordinators: Establishment of learning alliances was a challenge during the first year of SWITCH. Project resources had not been specifically allocated for this task. However in early 2007 the project management team allocated resources specifically for engaging learning alliance facilitators and operational costs such as workshops and communications. At this point each participating city had a "coordinator" who was a senior researcher. In most cases the city coordinators identified the individuals to facilitate their learning alliances. Most of the "LA facilitators" selected had a water engineering and consultancy background. However, the facilitator for Hamburg had a planning background and for Lodz a background in mediation and conflict resolution. During 2007, LA facilitators were offered training in facilitation skills. During 2008 and 2009 LA facilitators were given further training in process monitoring and documentation and met to review and share experiences as part of a project training and capacity strengthening process. City coordinators mostly did not participate in this training.

2.0 Methodology and Analytical Framework

Data is drawn from two main sources: interviews with project actors, supplemented by participant observation by the authors who were also researchers in the project. A series of semi-structured interviews using open-ended questions were conducted at different stages of the project with a cross-section of project actors. The interviews were conducted within the cities as part of city assessments undertaken in mid-2008 and early 2010, and when researchers and others actors were participating in four project scientific meetings held between January 2007 and October 2010. Notes were made during the interviews and later written up. In some cases, transcripts of interviews were sent to the interviewed person for their comments. The results from two sets of interviews conducted in 2007 were analysed and shared as internal "briefing papers" which were initially available to all actors within the project and later externally available via the project website (e.g. Da Silva, 2007, Sutherland and Darteh, 2008). The authors were also involved in the internal city assessments, which involved visits to cities and interviews with city stakeholders and researchers involved in these cities. Interviews with project actors are supplemented by "insider observations". These observations were made during attendance of various meetings, during training of the city learning alliance facilitators, in work packages covering socio-economic aspects of urban water management and in workshops and informal interactions with various project actors. One of the authors was on the project's management team. As project "insiders" the authors view this data as equally valid to findings derived from research conducted by "outsiders" to a project, because they have addressed the main challenges faced in organisational ethnography (Brannick & Coghlan, 2007).

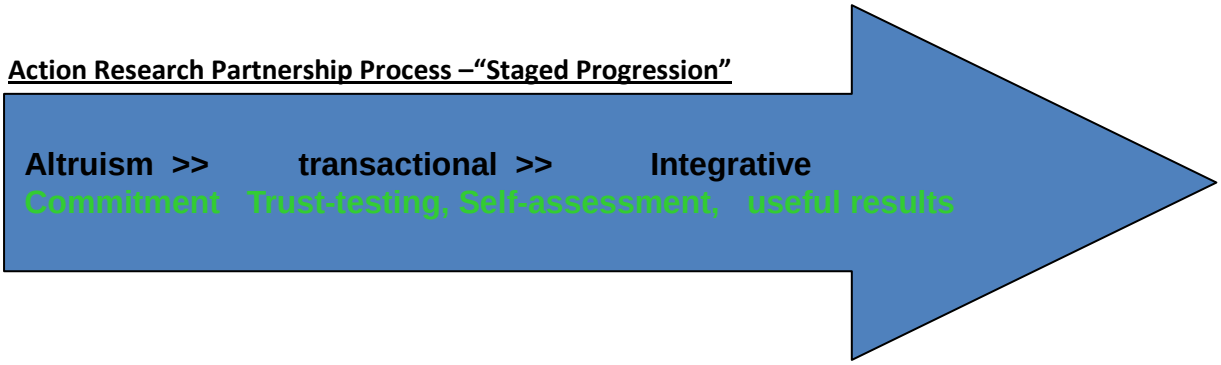
The approach to analysis is inductive; the views of the three main stakeholder categories and the observations made have been used by the authors to construct an actor-oriented narrative which identifies some common ideas, trends in the "evolution" of learning alliances and outcomes from the learning alliance process. This analysis has been informed by literature on the processes involved for effective governance oriented action-research (Steyaert and Jiggins, 2007) and cross-sectoral partnerships (Le Ber and Branzei, 2009). Actor perceptions and observations are considered in relation to some key elements for an effective process which include:-

- A deliberate design and implementation process, including effective "facilitation"
- Considered selection of partners
- Partners develop acceptable procedures for implementation

- Partners grapple with complexity in a process of “social learning”
- Effort that is persistent and unusually demanding
- Effective relations between organisations are fostered and levels of engagement increase over time,
- Partners deliberately adjust their roles to sustain momentum.

These core elements are also part of an ideal three-stage stakeholder engagement process that would constitute successful action-research. The process starts with an altruistic phase when potential partners are prepared to commit and provide inputs into an uncertain multi-stakeholder venture; in the case of SWITCH this would be to commit to participation in a city learning alliance. This progresses, through increased engagement and testing of the trust by the parties involved into the second stage of a series of transactions with some expectation of future benefit. This future benefit which may be a general goal that has been agreed as part of the transactional process, such as an agreed “vision” and or “strategy” for water management in the city. The transactions might include negotiations about who would contribute and analyse the data needed for moving from a vision into a realistic strategy. The process reached its integrative stage when tangible results are achieved – which in this case may be starting to implement an agreed strategy for improving water management, perhaps involving both technical and institutional innovation. This might involve developers, planners, regulators and service operators working together as part of an urban regeneration project or urban expansion.

Action Research Partnership Process –“Staged Progression”



The above process of effective action research can be linked to the earlier definition of governance within a neo-liberal context. Directive and “command and control” decision-making and implementation styles make way for a more consensual approach to decision making (including

planning) which involves multi-stakeholder negotiation and planning efforts followed up by a more cooperative and "joined-up" approach to implementation.

3.0 Establishing SWITCH City learning alliances - Overview

A short overview of city learning alliance activities and the way that city learning alliances were established, including some of the early challenges faced, sets the context for the analysis of how learning alliances took shape in SWITCH.

Starting in 2006, SWITCH established city learning alliances in 9 cities in Europe (Birmingham, Hamburg and Lodz), Latin America (Belo Horizonte, Cali and Lima), Africa and the middle-east (Accra, Alexandria and Tel Aviv). In these 9 cities, each city learning alliance developed and functioned somewhat uniquely. Some activities undertaken in many city learning alliances are summarised in Box 1. Most of these activities were implicit in the project design, and were linked, in one way another, with a project "deliverable" falling under the category of "training" or "research".

Box 1 - Summary of Learning Alliance Related Activities

1. Stakeholder analysis and scoping – to identify who to involve in city learning alliances,
2. "Start-up/launching" meetings – in most cities to introduce stakeholders to the learning alliance concept, identify common issues and problems, and introduce the research planned/under way in the city,
3. Topic specific workshops/meetings – often with a training element, to build the capacity of identified stakeholders in areas seen as key to improving water management in the city – e.g. urban agriculture, natural systems, storm-water management, decision support tools (City Water Model) , waste-water treatment.
4. Workshops to develop a "Vision" for water in the city and provide training and guidance in strategic planning,
5. Learning alliance meetings (e.g. annual or twice yearly) to report on progress with research, plan demonstrations, and update on SWITCH activities,
6. Networking and presentations by learning alliance facilitators – to promote the concept of multi-stakeholder engagement around integrated urban water management.
7. Meetings with and training of community based organisations – (mainly in Belo-Horizonte, Accra and Lima),
8. Involvement in city regeneration initiatives – mainly Hamburg, Birmingham and Lodz
9. Planning on demonstrations of integrated urban water management,
10. Communications activities, including setting up city websites to link members of the city learning alliance

Some early challenges and deviations from the initial plan are outlined and the underlying reasons explained.

The first challenge faced was the concept of "demand-led" research which proved to be difficult to implement in all participating cities. The main reason was that the EU process and rules for project formulation and how senior researchers worked with these. The research project proposal format required partners in the consortium to sign up to topics and research "deliverables". Rather than form generic deliverables that could be shaped through an interactive project process and dialogue with city stakeholders, the tendency was to define specific deliverables, or research products, including Ph Ds on specific topics. This was done prior to the establishment of the learning alliances. EU rules on matching funding for research were a further hindrance to implementing demand-led research. The matching funding rule not only imposed practical restrictions on researchers moving between cities, but encouraged funding for research which might have been research driven rather than "demand-led" that was already partly funded from other sources. Further, the project design and related rules regarding types of partner organisations did not provide a basis for city learning alliances to hold part of the project budget with which to commission research (including subcontracting and additional partners where necessary). Such an arrangement would have provided a strong basis upon which city learning alliances could require project researchers to address particular issues that were a priority for their cities.

Secondly, the idea of a "coordinator and team of enthusiastic co-workers" (Morris et al, 2006) to initiate city learning alliances proved difficult to get going. At project inception in 2006, there was not a specific budget line to design, establish and facilitate the city learning alliances, hence any activity in this direction needed funding from other budgets linked to specific project deliverables. There was an expectation of project management, that proved naïve in retrospect, that because learning alliances were a key part of the project design, research budget holders would use their resources to support the establishment of them and/or that participating cities (as potential beneficiaries) would fund learning alliances. In the second year (2007) project management, encouraged the member responsible for the learning alliances, created a budget line to enable "learning alliance facilitators" to be recruited. Facilitators were identified, contracts and terms of reference drawn up for them, and training was provided. By the end of 2007, most of the cities had a designated "learning alliance facilitator".

The way that each learning alliance was formed and operated differed between the participating cities. While this paper does not fully explore the reasons for the different direction taken by each

learning alliance, a brief overview of some of differences provide context for the findings presented below. Each learning alliance operated within its specific context; historical, cultural, demographic, institutional, infrastructural, economic and political. To some extent this defined the "entry points" for city learning alliance activities.

This context for the participating Latin American cities is well described in a project publication (Smits et al, 2009b). In these cities water supply services had been developed to a relatively advanced level, and the remaining engineering and institutional challenges related to waste and storm water management. This therefore provided the main focus for project intervention within the water cycle. The wider governance context was one of participatory democracy, which was relatively more operational in Brazil (Belo-Horizonte). The roles played by researchers in each of these cities was related both to their own interests, and also to the extent to which they were valued and able to take on the role of "trusted broker" or facilitator of stakeholder engagement. In the

The context for the participating European cities was aging infrastructure, relatively well developed water services and institutions with clearly defined functions, relatively weak civil society engagement in the water sector, and regeneration initiatives ongoing during the lifetime of the project. The linking SWITCH interventions with ongoing urban re-generation projects was not explicitly mentioned in the project design or learning alliance concept papers, but this became part of the agenda in Hamburg, Birmingham and Lodz where the city learning alliances were involved in urban regeneration programmes, seeing these as great opportunities for introducing new thinking about urban water management. This emerged as a practical role that the project could play in facilitating multi-stakeholder engagement and including formerly marginalised stakeholders such as property developers, into the water management process. This strategy was taken furthest in Lodz, where the learning alliance approach spread out into other sectors and took on a life of its own well beyond the project's boundaries (Wagner et al, 2009).

In the other cities outside of Europe; Accra, Alexandria, Beijing and Tel Aviv, each learning alliance process was shaped by a fairly unique context. In Accra rapid urbanisation, high levels of poverty, differentiated and patchy water and sanitation service provision, weak linkages between different agencies, and weak municipal involvement in water services meant that engagement with the municipal authorities across all aspects of the water cycle became a major focus of the learning alliance, including strategic planning. In Alexandria, where water had been and continued to be

nationally a high profile issue, there was a complex and highly evolved institutional framework for water management. There was also a felt need to both achieve greater efficiencies in the light of population growth and also the issue of how to provide improved water services to poorer settlements not connected to mains networks. Rules of protocol needed to be observed and power and authority relations in the water sector well understood for the learning alliance to have significant influence. The focus was on strategic planning for integration along with extension of the network in order to extend water and sanitation services to an informal settlement. In Beijing, the sheer size of the city and complexity of its water management and the institutions involved, together with rules about how business is done, made the idea of a city learning alliance unworkable. The key actors instead focused on a part of the water cycle where innovation could address integration issues, and mainly relied on other known and trusted institutional mechanisms for stakeholder engagement and decision making – although the benefits of some multi-stakeholder meetings was also acknowledged by some. In Tel Aviv, in the context of water being a highly strategic and sensitive issue, a centralised and well engineered modern and evolving water management system provided an opportunity to show case and further develop technology as a demonstration that included a research element. A further opportunity was the weak linkage between municipal authorities and national water operators, and the learning alliance provided a mechanism for integrating water into the strategic planning for the city, and for developing sustainability indicators to monitor progress into the future.

The above were the contexts into with learning alliances were introduced by the project. A challenge was therefore achieving meaningful engagement between researchers and other stakeholders around water management problems, to agree what action-research might be done. This was not an easy task. Water management issues were raised in the learning alliance meetings, but the research and technical expertise was not always available to enable the issues to be fully explored. More typically city learning alliances were a forum into which researchers, as recognised "experts", could introduce their research ideas. Project researchers could decide for themselves whether or not to attend city learning alliance meetings. If they did attend they could decide how to engage with other stakeholders in the meetings. If they did not attend there was no specific project requirement for them to engage with city stakeholders in undertaking their research.

To address the relatively weak link between research activities and water management issues in specific cities, in the latter half of 2007, project management explicitly supported efforts to influence city water management planning processes. This was done via "visioning" workshops and long-term strategic planning processes, including training in strategic planning. This initiative was a recognition

of the need to provide city stakeholders, some of whom might be waiting for researchers to present their results, with a "vision" of what SWITCH was trying to achieve and how they might be involved.

4.0 Findings

Findings are narrated under the key elements required for an effective multi-stakeholder action research process, phrased as questions.

4.1 A deliberate design and implementation process – with effective facilitation?

The SWITCH project document provided a relatively clear design for implementation of the project's "consortium", the term used to describe the contractual relations between a range of organisations receiving EU funding for project activities. Nevertheless, the scale and geographical spread of the project and the breadth of its mandate provided space for the details of implementation to be shaped in each city and indeed within each "work package". The project design proposed a number of risks to effective implementation of the learning alliance approach. The first risk was that researchers and research organizations had the power and decision-making within the project. Senior researchers holding budgets and making decisions could justify producing research outputs using a conventional approach, rather than engage in an action research and learning process. Secondly lack of initial budgetary provision for learning alliances to operate was a further risk. This was underpinned in some cases by a view that because researchers are bringing in the expertise and the cities stand to benefit from this, the cities should therefore contribute towards the costs of setting up and running city learning alliances". A further risk was that researchers lacking previous experience of action research would find it difficult to conceptualise what the project required of them and proactively engage with other stakeholders.

In spite of these risks, the views of researchers and learning alliance facilitators, over the period of project implementation, suggest that in most cities a critical mass of the partners worked, progressively, towards achieving a clear process for stakeholder engagement. The importance of a learning alliance developing a clear objective was made by a learning alliance facilitator who, three years into the project, when asked about the mainly challenges they faced, replied "Firstly, it was a challenge for me and others to understand the idea of a learning alliance. Secondly it was a challenge to believe that it can work and see the potential benefits. Thirdly, convincing learning alliance members was a challenge. This will be easier now that we have a well defined objective".

This response suggests that while the design for learning alliances and the overall goal of the project was clear, developing a clear objective for a particular city learning alliance was not a starting point, but the outcome of a process of multi-stakeholder engagement taking years rather than months. This is evident from the views expressed at different stages in the project.

In January 2007, during the project's first "Scientific Meeting" in Birmingham attended by project researchers (other stakeholders were not present), a cross-section of these researchers gave their views on learning alliances (da Silva, 2007). Researchers were asked the question "what is your understanding of learning alliances?". Many had quite clear expectations about the functions and characteristics of learning alliances, although different aspects were emphasized. Some responses emphasised general communication and collaboration processes describing a learning alliances as; "a place where people mix and talk and learn from each other", and "a vehicle for establishing collaboration and the inclusion of different stakeholder groups". Other researchers saw learning alliances as providing research outcomes such as; "dissemination of research results" or "a way to tap into different sources of knowledge, but also ways of securing more funding and ensuring successful application of innovations."

In December 2007, a second survey of researchers attending the project's 2nd scientific conference in Tel Aviv was undertaken (Sutherland and Darteh, 2008). Asking the same question, "what is your understanding of learning alliances?", elicited responses that indicated project researchers were thinking with greater specificity about what learning alliances might do or achieve within the lifetime of the project. By this time some of the senior project researchers interviewed had played an active role in getting city learning alliances established. Researchers indicated that learning alliances should:-

- articulate city needs; "at an early stage express the city needs to the project" and "to ensure that demand-led research is relevant to the city".
- develop a shared vision and strategies for the future; "to work towards finding a vision, scenario and strategies to find a way together in Integrated Urban Water Management" and "to get water into the City vision", be a "forum for understanding issues and for long-term thinking"
- "link researchers with the cities", "provide a link between the city and SWITCH", "engage stakeholders with research and work together",

- have a cross sectoral function: “enable working together, as water is both multi-sectoral and cross-sectoral”,
- have other functions relating to planning and innovation: “discussion of issues of interest, decision support models and a platform for demonstrations”

Two years later, 13 researchers attending the project’s 4th scientific conference in Delft were interviewed in a 3rd survey. The most striking development in researcher’s views was an increased emphasis on learning alliances as an effective multi-stakeholder process that could focus on more specific purposes, going beyond providing a platform for dissemination to and communication with stakeholders. In each city the learning alliances had become more clearly defined in relation to what had become their main focus. Some examples of the focus of learning alliance facilitators at this stage were:-

Institutional collaboration for innovation - “The real problem is not a technical problem, but the lack of institutional collaboration, long term visions and openness to change and innovation. Learning Alliances could help overcome these problems. Also there is the aspect of social inclusion” (Cali Learning Alliance Facilitator)

Participatory decision-making - “Learning alliances are a kind of democratisation of information to help the population to make decisions about water. If people know about the issues they can question and contribute to decisions. The need to work together is central to the idea of learning alliances” (Belo Horizonte LA Facilitator)

Participatory action-research - “learning alliances are working at local level to bring together researchers and research users (schools, municipalities or private sector) to do research together, analyse situations, test solutions” (Lima LA Facilitator)

Feedback for researchers - “It (the Learning Alliance) is supposed to help researchers to determine what is useful and what is not useful about their work” (Birmingham LA Facilitator)

By 2009, some of the researchers based outside of Europe were clearly emphasizing the initial concept of a learning alliance, including city stakeholder contributions to action-research. Researcher statements included; “Stakeholders put in resources – time, funds, effort, share ideas, challenges, problems and solutions and learn from one another”; “the LA is a network of relevant stakeholders and to get into action, you need all who are involved in the problem to be on board”;

“action research, as opposed to purely academic or laboratory research, is not possible without involvement of stakeholders”.

Researchers based outside of SWITCH cities also had more defined ideas by 2009. One described learning alliances as; “a mechanism for bringing different people together with different backgrounds interests and agendas, who share a problem, to jointly define a commonly agreed solution. Researchers provide support regarding options and can share information. Ideally the researchers also get inputs and feedback on the research from initial stages”. Another such researcher had a more ambitious view, emphasising advisory and advocacy potential, seeing a learning alliance as a “multi-stakeholder platform … providing advice on urban water management issues and advocating the IUWM concept to decision makers and to communities outside the LA.”

By 2009, some researchers attending the City Water summit in Delft were also thinking about learning alliances more specifically in relation to urban water governance and decision making. Views differed on this aspect. One researcher felt that “learning alliances should not be decision making bodies”, implying that they should be linked to but separate from water governance. Another researcher stressed the need for a multi-stakeholder platform that brought decision makers together to address practical issues; “the learning alliance is about everyone working together for the common good. The policy and legislation aspect is crucial. For example implementing Sustainable Urban Drainage Systems needs us to bring policy makers into meetings with the regulators. Meetings are very valuable if they are of the right kind and constructive.” A decision making role was emphasised. One research stated “the LA is a methodology aimed to improve water management in the city by involving stakeholders in the decision making process”. Another researcher suggested a more formal decision making role “a kind of parliament for discussing water issues and making decisions so far as it is possible”. Another research noted “the LA should be a platform in which actual decisions are taken, in the short and long term, in the city and should work through the stakeholders to achieve these actions”.

By 2009, project research management team members interviewed, having received criticism from external reviewers about the work packages not being well integrated, also emphasised the importance of learning alliances for project effectiveness. City alliances were described by one management team member as “crucial to ensure uptake of research activities in SWITCH” and by another as “the mechanism that will create the imperative for change in the way water is managed”. Another member of the management team emphasised the role of Learning Alliances in ensuring more demand led- research processes in cities and pointed to the potential of learning alliances to

influence planning and decision-making; “Learning alliances are the method for linking scientists to practitioners and people in cities to ensure our science is relevant, and to bring together city participants to plan together in a more integrated way”.

Four years into the five year project evidenced more reflection by the management team on learning alliances. One member contrasted the “theory” of learning alliances with their actual functioning; “in theory the LA is a multi-stakeholder platform to define research needs, steer research, upscale innovations - both horizontal and vertical learning and integration... Upscaling of innovations is the weakest point. Some learning alliances are not at the right level for the strategic planning. In one city the LA has proved to be 1) a platform within the city which that allows ideas about future cities to be formed, considered, discussed and is a possible direction for activities of the city to be established, and 2) a place for sharing ideas on research and demonstrations in the city.”

4.2 Effective facilitation?

The view that effective facilitation is a key element for successful change management and action-research processes is clear in the literature (Stayeart and Jiggins, 2008). The evidence from SWITCH supports this view. Where funding and/or human capacity for facilitation was not in place, then the city learning alliances have not become well established, or not established at all. For example in 2009 a project researcher observed “getting a funded learning alliance facilitator is a challenge. This is not the case in this city, and so the learning alliance is not working.”

The importance of funding an effective facilitation process is evidenced by the project management decision-making about continuing to fund learning alliance activities mid-way through the project, following the earlier decision in the first year to provide funding. In 2008, the project, the management team decided to allocate future funding to a smaller number of the city learning alliances based on a process of “city assessments” (Howe, 2008). The assessments identified the participating cities in which learning alliances were more functional and making most progress. A finding was that then the city learning alliances had become functional entities, valued by both researchers and other stakeholders in the cities where learning alliance facilitators had been carefully selected, attended the training provided, were available to the project consistently, were well supported by the city coordinators and took their task seriously. Where some or all of these factors were absent, learning alliances were observed to be of limited effectiveness, and were

tending to re-enforce rather than challenge existing ways of working. In November 2009 a city stakeholder from Hamburg lamented the fact the LA facilitator had left stating "I would like it if the meetings were more frequent. I don't know what will happen now that X has left. He did good work and the information he provided was useful for me. Since X went away, there has been very little communication. Before he put together a lot of information and this was useful for me." A city stakeholder from Accra also noted the role of the LA facilitator in response to the question, how has your involvement changed over time he explained "I have seen Y's confidence grow over time and that of the others who work with her. including the way they present in meetings and the general way they interact with the LA members. When i see them putting in this effort then it makes me want to do my best". These comments make it clear that the work and serious efforts of city LA facilitators did impact positively on members of the city learning alliances and motivated them to engage with the learning alliance process.

4.3 Considered selection of partners?

Selection of "the right" partners is emphasised in literature on action-research (Stayeart and Jiggins, 2008) and cross-sectoral partnerships (Le Ber and Branzei, 2009). In the SWITCH project, selection of partners for action-research and learning was undertaken at two main levels; selecting research partners and selecting other stakeholder partners within cities. In both cases partners were selected mainly by the project researchers and learning alliance facilitators. Some partners were drawn into the learning alliance process, as the project ideas were worked out as an organic process, both within the project consortium and in each of the cities

The core group of research partner organisations were selected during project design. The process of putting together the consortium was based to a great extent on using existing personal networks to make contact and from there researchers were drawn into the project for a range of motivations. To a great extent the individual researchers working in the project self-selected because of what the project had to offer that was aligned with their interests.

A research based outside of Europe explained in 2010 that "I was part of the proposal development group, when idea was conceived. I got into discussion with IRC and together we developed and proposed what should be done in Accra and proposed Accra as a demo city. The idea of urban water management was just in line with what I was doing so it was great opportunity to take this research further".

A researcher based in Europe explained in 2010; "My involvement in this project was purely by chance. We had a relationship with the Burkina Faso Oagadogo school of engineering and a student doing a study of GIS on urban agriculture had a link with a person at IRC (one of the consortium partners). That person gave my name to IRC and I joined the first meeting. I was attracted to the mix of sciences – the social sciences with the harder sciences to get the two different approaches together for added value and synergy"

Many of the researchers became involved because senior researchers in their organisations were already involved, and were also interested in what the project had to offer. Some were specifically attracted by the learning alliance concept. A researcher interviewed at the final Scientific Meeting held in Lodz in 2010 recalled "I attended the first meeting and met X and Y. I was attracted by the Learning Alliance idea. My first job after my Ph d was working with stakeholders and I wanted more of this type of interaction".

Other researchers interviewed at the same meeting, asked how they became involved in SWITCH, mentioned other things the project had to offer them:-

" WEDEC was involved at the proposal stage and I was asked to get involved and agreed because I had been working as a water engineer in a water company so found the idea of demand management attractive".

"X is my boss and approached me about the project. I was attracted by the opportunity to be involved in European research and being able to pick a topic that was in my area of specialisation".

"I got into switch by default just after I joined IRC – I was enthusiastic because this is a big project and it sounded interesting".

"I got involved in SWITCH because Accra was selected as one of the cities and Y was the local coordinator at the time. She informed me about the project and I was invited to the project workshops".

Use of the internet to bring in new organisations was also used. An EU based researcher explained, "a researcher from IRC googled 'Water management' and found our research group at Middlesex University. She then emailed the head of our group who contacted me and that's how I got involved. I wanted to do research that was useful and work with stakeholders to get results."

The SWITCH project consortium members were mostly new to each other and the partners were selected for their science reputation rather than their ability to set up and manage a city learning alliance. This situation meant many of the senior researchers needed to be convinced of the need to recruit learning alliance facilitators. Moreover, because the facilitators recruited were in most cases younger junior and part-time, and the senior researcher was clearly "the boss", this limited the extent of their initiative and activities in some cities.

As project implementation progressed, a limited number of additional organisations and individuals were, after consideration by the management, invited to join because of their particular skills, or because of ongoing activities that fitted with the project's goals.

The selection of stakeholder partners in cities was informed by stakeholder analysis and existing relations. The project design included stakeholder analysis for each city and after this was undertaken it guided the decision regarding who should be invited to attend the first learning alliance meetings. In many cities relationships existed between project researchers in Universities and some city stakeholders. Such relationships were perhaps a result of a previous multi-stakeholder initiative or a projects that had an action-research orientation. This use of previously known and trusted partners was important for partner selection "risk management" (Le Ber and Branzei, 2009). However this risk management strategy was limited because the wide scope of the project generated a felt need by researchers and learning alliance facilitators to be as inclusive as possible when establishing the city learning alliances.

Reflecting on the composition of their city learning alliance a researcher noted "At first I thought representation should be broad to include various organisations not directly involved in water management. I later came back to the view that the learning alliance should cover mainly water management, urban planning and ecological actors as the most important ones. During the scoping these water related actors were defined, and then the learning alliance was enlarged to include actors beyond the municipality, due to different responsibilities for different rivers". This statement is indicative of the layers of complexity that build up over time when addressing the challenge of bringing all the relevant stakeholders together to address urban water management issues.

An additional aspect of inclusivity related to the inclusion of stakeholders who were less visible than others in the governance structures of a city. For example, one UK based researcher lamented that "NGOs need to be more prominent but there are not many in the city who are involved with water and environmental issues." A researcher from Lodz explained their experience of discovering, through the learning alliance, the benefits of a more inclusive approach; "I was part of the Lodz LA. I

learned about the competences of the different members of the LA at the level of departments and also individuals. For example before the project I had no idea about the NGOs around and the scope of their actions. Through interactions with different groups of people I discovered the power of the "bottom- up" movement as a force to reshape the city. The LA proved that my earlier view of the city as dormant was a wrong perception. I discovered there were forces for change at work."

The idea of achieving broad and balanced representation was also emphasised as being important by one research; "broad representation, not too much from government, a few researchers, NGOs and concerned citizens.'' This suggests a view that the criteria for selecting of Learning Alliance partners did not only look at issues of competence or trust, but at achieving a balance of different interests.

In some cities, notably Lodz, Cali and Birmingham, efforts were made to bring private property developers into the learning alliance process. These developers did not have a specific institutional mandate related to water management, but were seen as an opportunity for getting water management research ideas and products into practice. An example from the city assessment undertaken in Cali illustrates that city learning alliances might provide a space within which building standards can be negotiated. This demonstrates the process of a city learning alliance moving from a transactional phase towards actual application of new technology with the support of various stakeholders involved in the learning alliance.

Box 1: Constructors' interest in joining the alliance

Carlos Mauricio Posso is the manager of *Constructora Buena Vista*, one of the big developers and contractors in Cali. Amongst others, this company is involved in developing the expansion area in the South. He thinks the SWITCH concepts may be of interest to his company for various reasons. First of all, "green" sells; there is an increased interest for houses that are "green". Secondly, applying SWITCH concepts may reduce the costs of housing development. For example, if water saving devices can be applied in houses, diameters of sewerage pipes can be reduced as well, which in turn will reduce costs. His company will now do some studies for housing using these concepts up to feasibility level. If it turns out to be feasible, even physical implementation may start. However, he also foresees some limitations. For example, some of the municipal norms, e.g. on diameters of sewerage pipes, are quite strict. The alliance will therefore be important as a space for identifying limitations in municipal norms and standards, which may hamper the application of SWITCH concepts and related innovations in new housing development. (Lobina et al., 2008)

4.4 Partners develop acceptable procedures for implementation?

One of the challenges in multi-stakeholder, interdisciplinary or cross-sectoral initiatives is agreeing the rules of the game, and indeed agreeing a common language for communication between the various actors. The SWITCH project did not employ explicit strategies for this. Apart from the project proposal and some training on "facilitation" during the second year there were no set guidelines about how to establish and manage a city learning alliance that would undertake action research. In this context the three categories of actors had to grapple both with rules imposed by the funding conditions, initiatives and instructions from various influential researchers within the project and the specific norms and patterns of interaction in the various cities.

This challenge was perhaps one of the most daunting, and in many ways was not tackled "head-on" during project implementation. Instead of using the city learning alliances as a focal point of interaction, the research actors within the project gravitated towards interactions with other researchers with who they could communicate most easily and carry on with the business of research. Hence in the first four years of the project there were annual scientific meetings, and also more specialist meetings and workshops which spun off from these. The rules of the game were those common in scientific gatherings, and familiar to all attending and hence not a challenge.

A Europe-based researcher who worked in cities in Asia, Latin America and the Middle-East felt that "the conditions needed for establishing them [learning alliances] are critical, It's a good idea but it depends on the local political situation including the level of democratisation…the objectives are very clear but I am not sure if the idea works for all cities." This researcher noted that in cities where western-type democracies are not well developed, decision making is top-down and not consultative, researchers also are not experienced in responding to demand. In these contexts he felt the idea of a multi-stakeholder learning platform would be too new and challenging for it to be accepted as a way forward by the key stakeholders.

In the project's fourth year a "City Summit" was organised in Delft, using additional resources outside the project budget. This provided an opportunity for interaction between city decision makers and researchers in the project from multiple cities. The event was underpinned by expert facilitators who made the event interesting and entertaining. The actors were outside of their usual "home" environment, and the procedures and ground-rules were set by the host organisation and the facilitators. The outcome was a success in terms of information sharing and motivation of city

leaders in the direction of more sustainable urban water management in the cities represented. However, the question of how city learning alliances should operate to support the desired direction of change was not fully explored.

An implication of "parachuting" a progressive concept such as a "learning alliance" into a specific urban setting, with its own history and culture, is what to call it. Hence there was uneasiness in some cities about using the term "learning alliance." For example in Tel Aviv the term "water club" was chosen instead. This term seemed to fit a context where a relatively small group of like minded stakeholders, with clearly defined interests and organisational functions, could meet semi-formally to discuss issues, share information and solve problems. In Alexandria, researchers indicated that the term learning alliance did not sound official or serious enough and more official sounding names were suggested. In the UK a researcher familiar with participatory planning processes noted "I am not sure how different it is from public participation programmes already in place in municipalities".

In spite of these challenges, learning alliances were established in most of the cities, and the operational procedures were worked out in practice and in context. In terms of agreeing the "rules of the game", some of the initial issues were very practical. For example in Birmingham at an early stage there was negotiation with the stakeholders about the timing and length of meetings, and it was agreed that any meeting should be in the afternoon and not longer than 2.5 hours so that the meetings did not overly impact on peoples "day jobs". Another rule of the game that began to emerge was the need to create and preserve a neutral space where differing views could safely be aired.

In most SWITCH cities, as part of the project design, the learning alliance was involved in research demonstrations. In some cases these were recognised as very useful to the action research process. In 2009, a city stakeholder in the Birmingham learning alliance emphasised the importance of demonstrating technical solutions. "if it was not for SWITCH we would carry on development as usual. You need demo projects to push things in the right direction. They enable you to evaluate the benefits. Demo scaling up is important. You need demos to make people see that they work in practice and not only in theory."

In Accra there were discussions about how participation by various stakeholders could be funded. This was in the context where is the norm for participants in a meeting to receive some form of

allowance for attendance. City actors are widely dispersed, it is expensive to move around the city, salaries are low and budgets for transport limited.

A researcher based in China (Beijing) noted the importance of both language and social status and how these limit the scope of engagement in the action research process; "LAs are for sharing knowledge and new ideas…planners and policy makers are used to working together, there is respect for researchers and they speak the same language. It is more difficult to have discussions between policy makers and farmers. Here there's an issue of hierarchy and authority". Differences of power/status were also mentioned in other city learning alliances. For example one researcher attending the Birmingham LA felt that representatives of higher level authorities and interests were not as forthcoming as they could be in sharing information during formal meetings.

4.5 Partners grapple with complexity in a process of "social learning"?

On the one hand, an international project like SWITCH, implemented simultaneously in 13 cities, provides great potential for a complex process of learning and exchange of viewpoints and knowledge. On the other hand, to realise some of this potential, the significant barriers already mentioned needed to be addressed during project implementation. Implementation includes both managing the learning alliance process in each city and the process of learning between different cities. After 5 years, the sense is that each of the project actors has reached their individual position regarding the extent to which they have been willing and able to grapple with the complexities, both of engaging with the project itself, and of the water management situation in particular cities.

We have already indicated how the process of selecting city learning alliance members involved the process of inclusion and also putting some boundaries in place so that interactions within the learning alliances could be productive. Hence part of managing complexity is about managing relationships and interactions. This is illustrated in a comment from a city stakeholder in Hamburg in 2009 that *"there are so many stakeholders and also the project is only for one small part of Hamburg."* In this case the learning alliance focus is on one part of the city targeted for regeneration. This focus allowed a more inclusive process of stakeholder consultation around a planning process relating to water-sensitive urban design (Howe, 2008).

The process of social learning requires researchers to stretch their boundaries, or to have the freedom to cross over existing disciplinary boundaries. In some cases this has happened. One EU

based research reflected in 2010 that "Since 2006 when I got involved there has been an influence. I have picked up the idea of an integrated approach to issues, not what is in the box. The need to look wider and towards more sustainable systems. The project helped me to have a broader picture". Another EU based researcher felt the project had helped her to realise her idea of what research should be; It (the project) did not necessarily change my view of research, but it supported my view of what research should be – it supported the idea of modern ecology, open to a range of solutions and approaches. I also liked the learning alliance methodology for working with stakeholders".

Grappling with complexity also involved managing differences in languages, power and other aspects of social differentiation. Hence Belo Horizonte's learning alliance facilitator felt that city learning alliances could help in "overcoming political and social issues in bringing different groups together. Empowerment of marginalised groups within the city so they can also participate". While some other learning alliances were aware of the need to address social differentiation, in most cases this proved difficult to address through the city learning alliances. One reason was that the combination of a large number of different actors, and communication difficulties that representatives of marginal groups might face in big meetings where senior representatives of water related organisations dominated.

Being able to compare progress being made and to share results from other cities was identified as a potential resource for maintaining the interest of learning alliance members. From this point of view the project design assumed that the complex problems in particular cities could be helped by exposing these cities to knowledge and experience from other cities. Comments indicate that this potential was difficult to effectively realise within the lifespan of the project, even for researchers. A researcher interviewed in 2010 stated "it is a huge project and this makes it hard to have an overview, we are all on just a bit of it, a lot of information we are not aware of because it is simply too big". Even the project website does not appear to have met the expectations of some project actors. In 2009 a learning alliance facilitator commented "getting information and ideas from other cities to feed into the learning alliance meetings is a challenge. In this respect not having a budget to travel does not help, and the [SWITCH project] website is not easy to use either. If I cannot find the information I need within a minute or so then I will not use a website again."

The views suggest that actors in the project have, in varying degrees grappled with aspects of complexity, as part of a social learning process. Some comments reflect the natural feelings of frustration that such a process entails.

4.6 Effective relations between organisations are fostered and levels of engagement increase over time.

The project had a triple challenge in fostering effective relations and engagement; 1) between key actors (including researchers) in the participating cities, 2) between the researchers within the consortium and 3) between the participating cities and also the international researchers not directly involved in these cities ("global learning alliance").

Relations and engagement within cities: A premise underpinning the SWITCH project design was that "organisational fragmentation" was a major barrier to achieving more integrated urban water management in most cities. In the three participating Latin America cities, where a relatively more uniform and relatively "progressive" governance framework already existed, the need to achieve fuller integration and improve relations between organisations and actors was flagged (Smits, et al, 2009b). In the European cities, added to the challenge of institution fragmentation, was the challenge of aging infrastructure which the cities could not afford to rebuild, further limiting the scope for technical innovation in terms of integration. This was most marked in Birmingham, where the UK centralised water governance arrangements made the task of integration at the city level particularly challenging as clearly documented in an institutional mapping exercise undertaken as one of the project deliverables (Green, et al, 2008). The differing national water governance contexts and the influence this has on city learning alliances was emphasised in 2009 by an EU based researcher who had engaged with SWITCH city learning alliances in Brazil and the UK; "Some LAs are more structured than others. For example in Belo Horizonte the LA is more structured and owned by the municipality and the University works from within the framework. In Birmingham the LA has less structure, each group has its own vested interests so it is more difficult to have a major achievement."

In the other cities (Alexandria, Tel Aviv, Beijing, Chongqing, and Accra) the water governance arrangements were more specifically linked to rapid urbanisation creating high levels of demand on water supply and sanitation services, with increasing competition between various uses of water and relatively more opportunities for technical innovation. Moreover the specific historical situations in these cities, each with its distinct cultural and governance heritage, meant that the researchers and other actors had to feel their way forward in terms of building and strengthening relationships between organisations and key actors. While the institutional and governance architecture varied

significantly from one SWITCH city to another, the views of the project actors interviewed suggest both a felt need to improve relations between the key organisations and that the project learning alliances, and related mechanisms, were addressing this need. Comments from stakeholders in a selection of the participating cities illustrate different aspects of the engagement and relationship building process.

Tel Aviv: In 2009 a city representative from Tel Aviv explained "recently we met the SWITCH team and became involved in SWITCH. At first the project started without the municipality. We are only involved through the university. They are not us and that creates a difference." Another city stakeholder explained "I attended the first time in Tel Aviv to discuss the strategic plan, and now in Delft it is the second time. I was involved in the strategic plan for Tel Aviv before I was fully aware of it. For example in the annual reporting I had to report against headings included in the strategic plan. At this time I was not aware of the whole content of the plan, and had not been involved in the development of the strategic plan, so did not understand the thinking behind the headings I was reporting against. When I learned about the city strategic plan, and that it did not include water, I became worried about this because water is a major national issue and there is awareness about this all over the country. After learning about strategic planning I made an effort to open up the city strategic plan and include water in it as an important part of the plan in the context of a national issue". This account illustrates linking of city planning processes with national level processes. A city representative more closely involved in research from the same city commented "we found there was no need for all those meetings …. the research and strategic planning groups are separate ….. we are not meeting with the authorities and water users, such as farmers, constantly, but through the water club, every 6 months or so." The remarks overall suggest progress in building relations and engagement. The last remark suggests a view that more progress is made when sub-groups in the city focus on a specific task, such as the strategic planning or the application of the technical research. At the same time, the comments also suggest that some stakeholders feel, and are seen as, more central to the processes than others. In this case the reduction in the frequency of meetings is perhaps an indication that a measure of trust was built up in the earlier stages, and the core members of two sub-groups felt more comfortable to proceed and report back progress in the Water Club meetings.

Accra: In Accra comments from city stakeholders also suggested differing histories and levels of engagement. In 2009, the new Mayor explained "I got involved when I took over as the new Chief Executive of the Metropolitan Assembly. Before then other members of the Assembly attended the

LA meetings". Another city representative from Accra emphasised the challenge of linking the learning alliance to levels of decision-making, particularly between the city level and national level; *"it requires buy-in from decision makers and changing of attitudes among public and municipal departments. Normally water issues are dealt with at national level and city planners don't deal with each other daily. We need to create linkages between the different levels*." During the Accra city assessment in 2010 one stakeholder remarked "*from attending meetings I realised that there were departments that are doing their own thing especially where there should have been collaboration. Our eyes are being opened that is is better to collaborate and have a strong link between the assembly and other stakeholders*". Another stakeholder explained, "*I got to know about SWITCH about 2 years ago….we have shared experiences and learnt from ourselves. I met a good group of people I don't meet normally, realised it is an opportunity to meet a lot more partners; now I've started meeting some of them on other issues; e.g. working with the EPA on sustainable development plan; some of the people I met at SWITCH were in my group; had had new friends who are doing research; IWMI, WRI who I've now been meeting on other platforms*"

Lodz: In 2009 a city stakeholder from Lodz, who admitted being a sceptic at the start explained "it is important to understand what everybody wants so we can understand what investment is needed. Since we are implementers we need to hear what others say as well. In the beginning, I thought it was not useful. I thought the LA was artificial and was created for a reason that was not clear to me. Now it is useful to have everyone in one room at one time to talk of the problems and come to the solutions. People work together but this togetherness is not the same as when we meet". The final comment suggests the inherent value of cross-organisational meetings within a city, in terms of generating a sense of common purpose, expressed as "togetherness". A city researcher gave her experience, emphasising that the SWITCH researchers differ from their peers in terms of engaging with the city."I was very shocked to find that the attitude in the university is that we cannot achieve change in the city. There are so many barriers and the researchers seem like dinosaurs. They are interested only in their lab results. In the SWITCH team the attitude is very different and there is a positive energy: a supportive environment and they say ' let's do it!'"

A number of project researchers interviewed stressed the value of using learning alliances for multi-stakeholder engagement and establishing an interactive process through phrases like: "Interaction, sharing of knowledge, experience, views, expectations and concerns – past, present and future in relation to Integrated urban water management." "Face to face interaction - nothing can replace this"; "meeting point, without the learning alliance key people would not meet each other". One

researcher stated that learning alliances made “multi-disciplinary discussion” possible while another referred to “three-way discussion; research, operators and inhabitants,”

This last remark links to the other type of fragmentation found, that of the subgroups of researchers within the project consortium, mandated to engage in action research with cities. The tendency for each work package to be semi-autonomous and not integrated with city learning alliances continued to be a concern well into project implementation. During the first year of the project at a meeting in Hamburg an effort was made to get researchers more engaged with city problems and this issue was revisited a year later in at a meeting Tel Aviv. However such efforts were not sustained and were not followed up by project management. In 2009 a member of the project management team observed, “The learning alliances seem isolated from the other work packages. The learning alliance approach is the philosophy and cornerstone of the SWITCH project, but it is not shared by all of the Work Packages.” To address concerns raised by an external review of the project, in 2009 project management formed an “integrator team”. In practice the team did not develop and movements towards integrated were largely voluntary. In retrospect, a project inception report or meeting might have addressed the risk of poor integration at an early stage, as by the time the issue was raised the direction of research in the work packages had already been set.

The early idea of a ‘ global learning alliance’ enabling city learning alliances to exchange experiences and learn from each other and also from international researchers, was part of the project design. However, this was not funded as it was already proving difficult to carve out enough funds to support city Learning alliances. One person who initially facilitated a city alliance remarked: “The reality on the ground is that the city alliances are struggling to see the bigger picture. They have limited exposure”. In his view, the City Futures Summit was a key tool for getting their buy-in to the overall vision of SWITCH and could have helped create greater buy-in if it had taken place earlier in the project. Some other opportunities included a meeting in Zaragoza where some mixed delegations from SWITCH cities met each other. A project communications strategy was produced but looked the same as for other research projects and didn’t really grabble with the implications of a multi-stakeholder global action research project and the role of the learning alliances. The project had few measures which seriously encouraged regular communications between its members e.g. no website were people could comment/ interact, no email list server, and the list of emails of project members was often hard to use and not updated. There was a newsletter occasionally produced but that was a bit 1 way.

4.7 Effort that is persistent and unusually demanding – building consensus?

In the earlier part of the project not all project researchers were committed to engaging persistently in a demanding process. One researcher commented in 2007 that "existing cities are difficult to change. SWITCH is about cities of the future, we should focus on building new cities so that innovations can be more effective from the beginning". A different researcher stated "I'm not interested in it (i.e. the LA) yet. I prefer to do my research and let other people give training to the stakeholders". A third researcher interviewed stated "to be innovative, the technologies should be leading. Now its more like the tail wagging the dog"; implying that researchers should be clearly in the driving seat as the experts.

More evidence of researcher awareness of the need for persistence from all three categories of project actor came from interviews undertaken in early 2009. For example a younger researcher base in Lodz reflected that "getting data is very difficult and requires a lot of perseverance. At first, people wanted us to pay for the data and we needed to convince them that it was a good thing and they should cooperate. This attitude is difficult to change. Also, we have to tell stakeholders to wait until we can show them a better way, while the plans for city development are already being developed." A similar situation was experienced by a young researcher based in Birmingham "we *got some of the data needed very late towards the end of my Phd deadline. It is because of X group/company- they just didn't give the data…….they became more interested once I demonstrated it.*".

A city stakeholder from Accra explained "I attended the first LA meeting and have been to at least 10 LA meetings since then. My involvement has changed. Things started at a slow pace and as the LA became known and accepted there has been a move forward, the momentum gets faster and there is improvement in the meetings and maturity as well in the way the meetings are conducted and the way they do things … when I see them putting in this effort then it makes me want to do my best". This account not only evidences persistence of effort, but also suggests that a well managed learning alliance process helps to encourage stakeholder commitment over a longer period. In early 2010 a city stakeholder from Birmingham reflected the time and effort to get a multi-stakeholder process under way; *"At first the municipality was not interested in SWITCH. It took a lot of time and hard work to convince them."*

Building consensus between stakeholders, the expected fruit of persistent effort, was strongly emphasised by representatives from all of the cities. The comments of city stakeholders from various learning alliances suggest that in addition to technical innovation, negotiation, consensus building and joint problem solving are also seen as key to achieving change within the cities:-

"every stakeholder speaks of their interest and from that we find the common interest for everybody" (Lodz city stakeholder),

"the learning alliance aims to get consensus on strategic goals and make plans through stakeholder participation" (Accra city stakeholder).

"a learning alliance is a group of people of different disciplines who sit and think together to promote and get solutions to certain problems, in this case the problem of water." (Tel Aviv city stakeholder)

"The Hamburg learning alliance is a platform to share information and work towards water sensitive urban design. It should raise awareness on different interests and bring these interests together and try to find solutions." (Hamburg city stakeholder)

"we need a lot of time to communicate and come to consensus, it doesn't happen that fast, things progress during meetings; not everything is solved in a day." (Birmingham city stakeholder)

4.8 Partners deliberately adjust their roles to sustain momentum?

The earlier statement from a researcher in Lodz that "in the SWITCH team the attitude is very different and there is a positive energy: a supportive environment and they say ' let's do it!'" suggests that some of the researchers have deliberately adjusted their "conventional roles".

However, most of the interviews did not provide a substantial direct evidence of project actors adjusting their roles to sustain the momentum for change within SWITCH cities. What they suggest is in many case the city learning alliances did encourage project actors to cross boundaries and think within a wider context. The Head of Lodz's water infrastructure department when attending the scientific meeting in Tel Aviv in 2007 referring to the learning alliance in her city, noted "Communication, particularly between different levels of hierarchy within the city administration is difficult. Also working out common ways of working remains a challenge. That is shared decision

making with regard to planning and strategising, as we have different visions at the moment." An Accra city representative at the summit also emphasised the need for city stakeholders to be open to new ideas from research stating "We realise SWITCH helps us to come up with innovative ideas for doing things and move us into new ways of doing things." A city engineer from Lodz interviewed 6 months later, as part of the assessment of progress emphasised the value of the learning for forging linkages between different actors and improving the flow of information "through the learning alliance I first met some people that I only knew by name before… the learning alliance has enabled the participants to send signals' about key issues to the city authorities, and to open the eyes of people to areas that are beyond the scope of their own jobs… I would now like to see a higher intensity of meetings and events including smaller workgroups to take up specific issues" (Butterworth, et al 2008). These comments emphasise the scope for a learning alliance not only to engage city stakeholders in a technical innovation process, but also the processes of engaging within an existing hierarchy of decision making and developing working relationships with other sub-sectors in the city. This supports one of the key ideas underpinning learning alliances at the project design stage that "switching emphasis from researchers devising new technologies – *doing different things* – to improving how the multiple stakeholders in the innovation system work – *doing things differently* – will lead to interventions having greater impact"(Butterworth and Morris 2007: 3).

To have achieved more substantial role adjustment by the key actors would have required more radical changes to the project at an early stage, including the re-defining of the deliverables to better align these with what the project wished to achieve in the participating cities. The project was managed in a way that retained money and power in the hands of the research organisations and senior researchers, and did not attempt to re-define deliverables. The city demonstrations that were not defined at the start of the project did provide some scope for actors to adjust their roles, but this proved difficult to implement in many cases, sometimes because of the matching fund rule.

4.9 Learning Alliance Outcomes –from forming to performing?

The interviews conducted in 2009, suggested that by the fourth year city stakeholders engaging with the project learning alliances were able to identify the benefits for themselves. By this stage of the project some of the SWITCH city learning alliances had progressed from the "formation" stage through the "operation" stage of a strategic alliance which offers the opportunity for partners to

explore differences, learn from each other and influence each other's perceptions, to the "outcome stage" (Das & Kumar, 2007).

Examples of early outcomes provided from stakeholder interviews of early 2009 illustrate some of the early fruits of learning alliance and the process of stakeholder engagement in the cities:-

"As a result of their engagement in the city alliance, decision makers now see water not as a given, but as a strategic issue" (City stakeholder, Tel Aviv).

"SWITCH learning alliance built on and expanded existing networks. Now stakeholders are interacting with others that they had not known before SWITCH. They speak to each other, because they now know each other and know what the other is doing. (Researcher, Beijing)

"LA members meet now without formal invitation letters, they invite other LA members to their meetings". (Learning Alliance facilitator, Belo Horizonte)

Before the project the water issues were not even discussed, people had piped water and were happy, then discussed about storm water and how it could be integrated into the management. *"[SWITCH] made a big difference and I am very sure about this. The impact was awareness and advocacy, relating to storm water and also climate change."* (Researcher, Belo Horizonte)

"One of the LA members called to request more information on SUDs. Another LA member spoke spontaneously about SWITCH concepts, talking SWITCH language like 'the need to work together, integrated approach, moving beyond end of pipe solutions' and talking about the learning alliance at another meeting I attended (Learning alliance facilitator, Birmingham).

"The government of Lima is very interested in applying this multi-stakeholder approach to other areas of policy development. The LA concept and materials have been helpful to us and also support from IRC. SWITCH has brought attention to water". (Researcher, Lima)

By this stage there was also some evidence of stakeholder influence and participation in the shaping of products being developed by project researchers. Project management team members interviewed in 2009 felt that in the cities there had been some changes in the way that research is being done, An example is the way that a decision support tool known as "City Water" has been

developed with a lot of input from stakeholders, so that now it is a scoping tool, rather than a detailed simulation model or tool. One of the management team commented, *"and this is painful for the researchers …having a person breathing down your neck asking about the relevance of your research to policy and practice – otherwise scientists tend to work in silos."*

Other early outcomes from the learning alliance and related activities were recently captured in city internal "City assessments" undertaken in 2010 and in presentations at the 5th and final scientific conference in Lodz in October 2010.

The production of strategic documents which set out the future directions for water management in some of the participating cities has been a significant output. Experiences from this process were shared by some of the researchers, learning alliance facilitators and city stakeholders involved. At this meeting many of those sharing experiences were from the host city, and the comments below from city stakeholders are indicative of the impact of Lodz's learning alliance, particularly on the way that the stakeholders look at water management.

"before (involvement in the learning alliance and strategic planning) we had our perspective and our way of doing things. We still have our perspective, but now we have a different viewpoint on planning in the city. We can bring these views to our boss who is involved in decision making. We don't use the language of the researchers but put the message into a language that he can understand. We write briefs for him and he is able to use these to influence decisions." (Two city planning officers, Lodz)

"A challenge is how we manage the water supply and sewer. We have more capacity than we actually need and this results in lower income for the company due to decline of industry. We are economising on water via new devices. My staff know when to issue different permits and have to manage important information on conflicts of interest. We need to remove water from the city when the city is flooded, give permits for collection but ensure that the water is contained for as long as possible. It will take time to manage this conflict of interest. (Water company representative, Lodz)

"If not for this project a lot of sewerage would be taken to the rivers and water drained into the soil. Investments improve standard of living – former factory owners did not all consider clean water for their employees. The new river is now beautiful, this is now SWITCH for me." (Water Company representative, Lodz)

"new people come to the city have a chance to ask questions about how the city is developing, now the inhabitants talk more about water – water as a treasure and the different types of water we have" (Municipal Water Engineer, Lodz)

Other cities also evidenced fruits in terms of perspectives of stakeholders, and their understanding of the value of research, both current and future, as an aid to decision making. An Environment Agency officer in Birmingham explained in relation to a SWITCH demonstration, "I think green roofs are interesting and don't know when the reports will be available but hopefully they will give me an idea of whether you need a green roof policy – for example if we can say (i.e. to a developer) you are planning 14 floors, so we will give you 15 floors if you are planning to have a green roof – then everyone wins". "We will also need to have better data to answer the questions about green roofs, like "does it prevent flooding? How much water does it hold up? Does it really clean up water?"

From the research side there is also evidence of embracing and indeed promoting the need for more stakeholder engagement. SWITCH researchers involved in Birmingham's learning alliance have recently published work emphasising this in relation to the introduction of sustainable urban drainage systems (SUDS) in England and Wales (Revitt and Ellis, 2010).

Above are examples of "early outcomes". Given the long-term nature of the urban water management change agenda, a more important outcome will be a commitment by the learning alliance partners to continue with the alliance. Based on organizational research in the private sector, this is likely to depend on the extent to which partners have started to depend on each other; " During the outcome stage of the alliance, the greater the degree of interdependence between the partner firms, the greater will be the degree of commitment of the partners to the alliance" (Das and Kumar, 2007, p669).

5.0 Challenges, Lessons and Conclusions

5.1 Main Challenges and lessons

For the learning alliance approach to be incorporated within the urban water governance process, the SWITCH experience has highlighted certain challenges to be faced, and related to these challenges, lessons that might help future initiatives. As there is no blueprint or one-fits-all recipe to establish learning alliances as an element of urban water governance the challenges are not presented in any particular order. Moreover, given the importance of local context, different types of challenge may emerge in future initiatives of this nature.

Getting effective facilitation in place: The SWITCH experience suggests that "facilitation", which includes having an effective "facilitator/s" is a key to a successful learning alliance. This role involves earning the respect of the main stakeholders, and this involves inputs of a significant amount of time from a skilled and committed person, or team of people, who receive some form of reward and recognition for the task. As one of the learning alliance facilitator's with an engineering background noted with regard to the task of facilitation, "it is hard for an engineer to understand: it's not like a engineering process with clear steps "

Setting up a city learning alliance requires not only a person or people with good facilitation skills, but the financial and other forms of support, particularly support from influential actors. In the SWITCH project the senior researchers bearing the title "city coordinators" were influential in terms both of their gravitas within the cities, and their control of parts of the project budget. There was variation between cities in the amount of resources (i.e. staff time and budgets) allocated to support learning alliance facilitators, and this impacted on the way that the city learning alliances operated and developed in each city.

The type of person selected as learning alliance facilitators had a significant impact on the development and functioning of city learning alliances. In many cities learning alliance facilitators undertook this task alongside other duties and with limited support from others. Learning alliance facilitators where more effective not only when they had support, but also when they had the experience, local standing, and time to devote to this task.

"Drive/Champions": The need for "drive", often by individuals referred to as "champions" who provide sustained leadership for a particular cause, is recognised as a key element for an effective multi-stakeholder process in various sectors including natural resources (Sanginga et al, 2007), ICTs (Adam et al, 2007) and more generally in development (United Nations, 2004). The effectiveness of publicly funded efforts in the UK to institutionalise the role of local "champion" has been researched, indicating that local champions, like learning alliance facilitators, require support and training (Institute for Voluntary Action Research, 2009). The SWITCH project did not, as part of its methodology, explicitly set out to identify local champions or to support these. Strong champions did not exist in all participating cities from the start. However it is apparent in the cities where more progress has been made in engaging with stakeholders, SWITCH has worked through local champions. In most cases these have been locally respected researchers, with both an academic record and existing relationships with some city stakeholders. In a few cities the learning alliance

facilitators, have over time through their interactions with other stakeholders also become local champions in their own right, serving as a rallying point around which interested stakeholders (including researchers) could provide inputs and thereby sustain the momentum of the learning alliance. This process has been supported also by members of the project's management team taking on an international role of championing the cause of IUWM, and working with some of the local champions to raise the international profile of the project, and involve city stakeholders in international events. Future initiatives with similar ambitions to SWITCH might give more attention to including mechanisms for the identification and support of local champions as part of the design.

Getting the researchers on board: One of the main drivers behind the learning alliance concept, was the perceived limited uptake of funded research and hence the need to get existing research relevant to water management "into use". The SWITCH experience highlights the potential divide between researchers and other stakeholders as a challenge. In the fourth year of the project one project researcher commented "as a researcher I feel my outputs are not requested", while a learning alliance facilitator lamented "we are here to help disseminate research, but we don't know what's out there. I feel underutilized. Are the researchers in the work packages thinking of the research users?". Underpinning this challenge are the limited incentives within the research sector for researchers to engage in longer term action-research initiatives. Younger researchers are usually on short-term contracts and looking for their next research job before the research project ends, and hence have few incentives to develop long-term relations with city stakeholders. More experienced researchers with more job security usually require publications, rather than engagement in action-research, for their career progression. The researchers interviewed at the final conference who had engaged more effectively with city stakeholders fell mainly into three categories: 1) senior older researchers with significant previous engineering consulting experience who also were signed up to the vision of integrated urban water management , 2) mid-career researchers with established positions who either felt passionate about application of their research and/or were already involved in consultancy and research networking activities, 3) younger early-career researchers committed to undertaking research with stakeholders . Where the SWITCH project was successful in the application of research it was largely the product of building on previous work undertaken by committed and visionary researchers who were not afraid to cross over from academic publication into more direct influencing, advisory and facilitation roles. This suggests that "getting researchers on board" to a large extent depends on selecting the "right type" of research partners (both at individual and organizational levels). This is not to preclude the fact

that as a result of involvement in a project like SWITCH, some researchers not fitting the above criteria might be "won over" to the action-research approach.

Developing trust and mutual respect: The SWITCH experience highlights the key importance building relationships of trust and mutual respect between the stakeholders a finding from complex partnership arrangements and strategic alliances in other sectors (Das and Kumar, 2007; Le Ber and Branzei, 2010). Developing trust and mutual respect not only applies to relationships between researchers and city stakeholders with key roles in water management. It also applies to relations between different project researchers and between different city stakeholders. In some but not all of the participating cities, the city learning alliance meetings developed into a platform where researchers and other stakeholders were comfortable to meet and freely exchange ideas. For example in Lodz all parties have come to value the learning alliance meetings, and these have also played an important role in moving the urban water agenda forward in other cities such as Birmingham, Hamburg, Accra, Alexandria and Tel Aviv, along with the participating cities of Latin America. Development of trust and respect has been a gradual process in most cities, resulting from fairly frequent meetings of the learning alliances underpinned by interactions between some of the members in between meetings. This proved difficult to achieve in Beijing, largely due to cultural etiquette and existing established informal and bilateral mechanisms for achieving innovation and consensus. A lesson is that while trust and mutual respect are key elements for an effective process, the specific means for developing these ingredients may well vary from one city to another around the world.

Nevertheless the SWITCH experience in many of the participating cities suggests that multi-stakeholder platforms, where researchers have a strong input, do have a future role in urban water governance. Action-research in Australia which has explored many of the institutional issues that constrain innovation in urban water management also supports this view (Brown and Farrelly, 2009; Brown, 2008).

Understanding and working with power relations: Understanding power relations and how these impacted on city learning alliances is at two levels; within the participating cities and within the project research consortium. The design of SWITCH include governance research "deliverables" as stand alone components within a work package. One of the products of this research was an innovative and comprehensive mapping of water governance arrangements in the UK using Birmingham as a case study (Green et al, 2008). Prior to this each city had undertaken a stakeholder

analysis as part the preparation for setting up the city learning alliances, and guidance for this was provided (Verhagen, 2007). At a later stage a related diagnostic methodology was made available (Batchelor and Butterworth, 2008). While some resources to guide analysis of power relations in cities were provided, limited social science involvement at these stages meant that an explicit in-depth analysis of power relations and how these might influence the dynamics of city learning alliances that informed the strategy for stakeholder engagement was not achieved. Nevertheless, some of the research coordinators and learning alliance facilitators with experience in the cities had a working knowledge and insight into the importance of power, this helped to guide their strategy for engaging with different stakeholders.

In case where a learning alliance is to achieve meaningful influence on the direction of urban water management, achieving legitimacy of the platform and continuity in participation by relevant stakeholders is key. This includes getting high level officials to attend meetings and endorse the learning alliance, and getting the people from the key organizations to attend meetings and follow up after these meetings.

A further aspect of power relations overlooked in project design was the politicization of urban water issues in cities (e.g. Mazungu and Mabiza,2004; Whitfield, 2006). This does not appear to have been factored into the thinking behind learning alliances. The important of undertaking an analysis of local context, including the history of water management in each city, was highlighted by external reviewers towards the end of the project (personal communication with project management team).

Equally important to the development of city learning alliances, were the power dynamics within the project consortium. Hence the ongoing challenge of getting city learning alliances adequately funded was largely a function of the concentration of project power and resources within the hands of a small number of research institutions and researchers . Moreover, within each city the operations of the learning alliance facilitators depended to some extent on the level of support they received from the city research coordinators.

A lesson is that in similar future initiatives as part of project inception a more thorough situation analysis incorporating the power dimension would be useful, as would an analysis of how internal dynamics within a project team could influence the development of learning alliances.

Engaging with the various levels of governance within a city, and between the city and other levels, was a challenge in most of the cities and as such constituted a potential barrier to future technical and institutional innovation. There is a clear gap between international research and local implementation. Institutional barriers are difficult to tackle. In Lodz and Belo Horizonte the importance of links to regional bodies was recognised, but it proved difficult within the project time-frame to achieve meaningful engagement of these bodies in the learning alliance process. In Birmingham bringing the national level decision makers on board proved a challenge. In cities such as Tel Aviv, research and the strategic planning are separate processes and the municipality became involved and aware of the project research activities towards the latter half of the project. The main lesson, in the context of project design, is that addressing the various levels of governance through a global project like SWITCH was very ambitious. Future projects with such aims might focus on a much smaller number of countries, or just one country.

Language, Cultural and Capability Difference SWITCH cities included 8 different major languages and 12 national cultures. The importance of differences in language, culture and its impact on two-way communication in developing strategic partnerships and alliances (Ghosh, 2004) was underestimated in project design.

Challenges applied at different levels of engagement. Within the project consortium the researchers spoke and wrote in different languages, within English as the agreed language for communication. In cities the main communications between researchers and stakeholders were in the national language, and hence researchers not speaking this were at a disadvantage and depended on translation in order to operate. Within cities engagement of members of the public and some stakeholders (e.g. urban farmers or junior technical staff) with learning alliances and researchers were affected by differences of status and vocabulary. Such stakeholders may lack the skills and confidence to get involved in research. Projects like SWITCH would benefit from more resources and flexibility to enable capacity building of local stakeholders to engage as partners in participatory action research based on jointly identified problems.

National cultures, proved significant in terms of understanding the mechanisms for supporting innovation that might work better than others. In the Chinese cities of Beijing and Chongqing, efforts to initiate city learning alliances did not develop as planned. Instead university based project partners played an “honest broker” role to bring together different stakeholders in more informal bilateral meetings. This modification was in response to previous experiences with multi-

stakeholder platforms in the cities and the "rules of the game" for public meetings which reflected significant differences between the Western origins of the SWITCH thinking and the current ways of doing business in China. The lesson, in the context of a city learning alliance "methodology", is that this could incorporate an analysis of how innovation has been taking place and the implications for a multi-stakeholder process around water management.

Altruism and Partner Choice Two key elements for an effective multi-stakeholder process around a complex issue are both altruism and choice of the "right" partners. Studies of public-private sector partnerships have documented success in cases where choices between alternative partners could be made (Le Ber and Branzei, 2010) the concept of "partner choice" it is less easy to apply to urban water management. Choices are possible in terms of selecting research institutions, and also in selecting potential cities for action research on water management. However, once the cities have been selected, most of the partners will be key stakeholder organisations having a "monopoly" of a particular water management function. In this context the exercise of choice will be more in terms of identifying which individuals in these organisations to engage with. Related is the need to be strategic about who to involve in what activities, and in what order.

The project recommended use of stakeholder analysis and process planning and facilitation. Further research could be done into how the projects learning alliance facilitators used the stakeholder analysis and the training they received in facilitation and process documentation to steer the learning alliance process.

Sustaining learning alliances: While nearly all the project partners interviewed acknowledged the value of city learning alliances, they also questioned how these could be sustained. "How keep people interested and motivated" was a question posed by one learning alliance facilitator". Balancing the interests of learning alliance members, sharing information and having open discussions in learning alliance are not easy, particularly when there is lack of trust and when there are unequal power relations. Building trust between stakeholders is a slow and complex process: "like chipping away at a great boulder" as one learning alliance facilitator explained. Developing productive stakeholder participation in learning alliance meetings and other activities is a challenging task which requires skilled facilitation. This like any other skill will need to be paid for if city learning alliances are to continue beyond the end of the project.

5.2 Conclusion

This document has explored SWITCH city learning alliances, as a potential innovation in an era of "neo-liberal" governance approaches. The narrative has moved through the design and conceptualization of the learning alliance approach at the start of the project to the formation and operation of city learning alliances, in the context of decision-making relating to urban water management. Key elements of an effective multi-stakeholder action research process provided a framework for the analysis of the view-points of the three main actor categories involved; project researchers, city stakeholders and learning alliances facilitators. Project actors views indicated not only acceptance of the learning alliance concept in the context of the need for technical innovation, but also that many actors see the potential for learning alliances to engage with water governance issues.

During the learning alliance formation stage many project actors were open-minded, some were optimistic, and some were skeptical, regarding what learning alliances could achieve. As the learning alliances moved from formation to operation, LA facilitators faced the challenge of sustaining a multi-stakeholder process. Project management were initially less supportive of getting city learning alliances established, but as the project progress became increasingly supportive of the idea behind city learning alliances and continued to provide resources to support learning alliances, seeing the learning alliance's potential as a platform for longer term strategic planning around urban water issues, and also for uptake and "up-scaling" of researchers products. The city stakeholders interviewed indicated appreciation of the city learning alliances and a number moved from a skeptical position to a support stance. They valued learning alliances as a safe and useful platform for the exchange of information, networking and forging relationships, and for gaining access to new knowledge relevant to water management. There remain differences of opinion as to whether or not, and to what extent, learning alliances should have a decision-making role within cities. Perhaps more important in the context of a governance function is who participates in learning alliances. If participants have recognized authority and influence in the city, there is greater potential for a learning alliance to influence changes and innovation in the way that urban water is managed.

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