

Learning and Action Alliances for innovation and active learning in a European context

Alliances d'apprentissage et d'action pour l'innovation et l'apprentissage actif dans un contexte européen

Elizabeth Dudley^{1,2}, Richard Ashley^{1,2,3}, Natasa Manojlovic⁴,
Sebastiaan van Herk^{3,5}, John Blanksby¹

1. Pennine Water Group, University of Sheffield, Department of Civil and structural engineering, Mappin Street, Sheffield, South Yorkshire, S1 3JD. lyzecofutures@cate1.plus.com
2. EcoFutures Ltd., 3 Greendale Court, Honley, Holmfirth, West Yorkshire HD9 6JW r.ashley@sheffield.ac.uk
3. Flood Resilience Group, UNESCO IHE, Delft. Westvest 7, 2611 AX Delft, Netherlands. s.vanherk@bwcv.es
4. Hamburg University of Technology, Institute of River&Coastal Engineering, Denickestr 22, 21073 Hamburg, Germany. natasa.manojlovic@tu-harburg.de
5. Delft University of Technology, Stevinweg 1, Delft 2628 CN, The Netherlands

RÉSUMÉ

Professionnels chargés de la gestion de l'eau et des systèmes inondations ont toujours travaillé en partenariat avec les autres. La forme et le fonctionnement de ces partenariats a toujours mis l'accent sur la fourniture de solutions structurelles ». Maintenant que les difficultés rencontrées par la société urbaine sont complexes et changeants relativement rapidement, il est opportun d'examiner la meilleure façon d'établir, de maintenir et de soutenir de tels partenariats. Voici les expériences récentes des deux projets INTERREG de l'UE utilisant l'apprentissage et Alliances action (LAA) est présenté. Examen du fonctionnement et le succès relatifs des 7 AAL a montré que les AAL peut aider à fournir le renforcement des capacités, grâce à l'apprentissage actif, la confiance et la légitimité et l'ouverture nécessaire pour livrer l'innovation nécessaire pour affronter les problèmes complexes et pervers dans la gestion des risques d'inondation . La diversité et la fonctionnalité des AAL différents, montre qu'il n'existe pas un seul format pour une AAL, chacun doit être localement et contextuellement à la terre et à développer son «propre vision et son modus operandi.

ABSTRACT

Professionals responsible for managing water and flooding systems have always worked in partnership with others. The form and functioning of such partnerships has traditionally focused on delivering structural 'solutions'. Now that the challenges faced by urban society are complex and changing relatively rapidly, it is timely to review how best to establish, maintain and sustain such partnerships. Here recent experiences from two EU INTERREG projects utilising Learning and Action Alliances (LAA) is presented. Review of the relative functioning and success of the 7 LAAs has shown that LAAs can help to provide the capacity building, via active learning, the trust and legitimacy and openness required to deliver the innovation needed to face the complex and wicked problems in managing flood risk. The diverse nature and functionality of the various LAAs, illustrates that there is not one single format for a LAA, each needs to be locally and contextually grounded and to develop its' own vision and modus operandi.

KEYWORDS

Alliance, Learning, innovation, partnerships, flood, risk, management

1 INTRODUCTION

Contemporary challenges faced by engineers and other professionals working with flood and water systems are unique in history. In the last few decades, the need to move from flood defences to flood

risk management (Newman et al, 2011), has prompted new ways of working to 'live with floods' and to attempt to deliver the most acceptable responses to increasing flood risk that satisfy the most stakeholders. The need for new approaches has challenged thinking, especially by engineers, who by training, deliver 'solutions to problems' (ibid; Bell et al, 2012). Managing floods is still seen as 'an engineering activity' by many, especially practitioners and the 'engineer culture' has been identified as a major impediment to innovation in this field (Harremoes, 2002; Cettner, 2012). Many engineers view working with 'the public' as difficult and a 'necessary evil', rather than as an essential activity. If the revised paradigm for managing flood risks in new ways is to work, then this attitude has to change. There is also a need to recognise that where there are public interactions, partnership working and consensual activities, then expert facilitators or coordinators are needed, with communication or behavioural psychology training. Third party facilitation, for example, can be the most effective at building the skills in: risk assessment; public consultation and relations; external (and internal) communications; and project management (Warner & Sullivan, 2004). The latter set out 'minimum standards' for those offering to help or facilitate partnerships: a professional qualification in some form of 'interest based' negotiation; practical experience in designing and facilitating multi-party workshops, helping to: assess multi-party benefits risks and costs of engaging in partnerships; convening a multi-party dialogue that leads to a robust partnership; building a consensus.

Despite their lack of training, many engineers believe they can effectively facilitate partnership meetings. This may have worked in the past, but now new ways of working together are needed, both with the public and also between professionals and other organisations. A Learning Alliance is one way of doing this. The concept of a Learning Alliance (LA) is relatively new, although working in partnerships to deliver innovation is a long-standing practice especially in enterprises. Application of the LA approach to improve water system management has become popular in a number of EU funded studies and is helping to innovate. In the SWITCH project (Butterworth et al, 2011), a Learning Alliance (LA) is defined as: *"a group of individuals or organisations with a shared interest in innovation and the scaling-up of innovation, in a topic of mutual interest...LAs typically comprise a number of structured platforms, at different institutional levels (city, river basin, national, international), designed to break down barriers to both horizontal and vertical information sharing, and thus to speed up the process of identification, adaptation, and uptake of new innovation."* LAs are about getting innovation embedded into delivery processes and fit the model for business development (Figure 1).

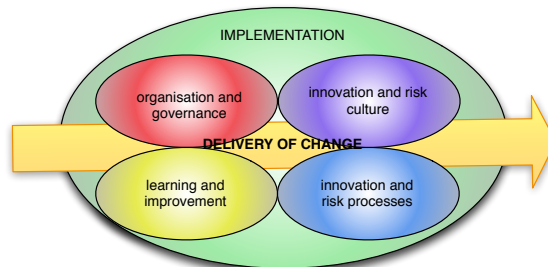


Figure 1 innovation in business practice (Cabinet Office, 2006)

The description from the report in which Figure 1 is shown, describes the implementation of an innovation and risk management approach:

- Create a decision-making environment where it is expected that assumptions and evidence will be challenged.
- Ensure that 'challenge' doesn't become a personal issue.
- Look to embed risk management in the organisation by selling the benefits rather than aspects of control.
- Ask pertinent questions about how risk assessments are carried out and ask about the relevance and status of treatments and controls.
- Clarify risk appetite in the context of the decision, rather than automatically assuming that all 'high' risks need to be reduced.
- Encourage people to think of the problems and find ways to solve them, and not to think how to extricate themselves if they fail, but how to ensure they succeed.

These characteristics also apply to LAs. Much can be learnt from approaches to innovation in practice from domains including private enterprise, where innovation is the life-blood of survival. Specialists in the field of water management must broaden their perspective in order to meet the challenges and uncertainties of rapid and creeping urbanisation, demographic and climate change, economics and public expectations. Innovation in integrated and adaptive water management can be classified in

terms of 3 domains: 1. Design, planning and engineering of measures and strategies; 2. system (performance) analysis, including of measures and strategies; and 3. Governance (Van herk et al., 2011a). A Learning Alliance is a governance arrangement that can be considered a 'governance' innovation in itself and can stimulate innovations in the other two domains (ibid). There is a need for supporting and learning networks and partnerships, looking at incorporation into urban systems as a whole. For this to happen, barriers to the adoption of sustainable water management practices need to be identified and overcome. As most water management in Europe is delivered by municipalities and in some cases utility companies, the best examples from private enterprise of innovation can help to inspire those responsible for delivery of these new ways of thinking and working.

Learning alliances have become a popular vehicle for delivering innovation in EU funded studies, not least because they provide new forms of partnerships that recognise that the challenges faced today require new ways of thinking and working from the past. This is particularly noticeable in the SWITCH EU 6th environment framework project, where delivery of water supply and sanitation in a number of developing countries was structured around well-functioning alliances (Butterworth et al, 2011). Here, the functioning of recently set up Learning Alliances in two INTERREG IVB projects, MARE and SAWA are reviewed and shows that there is no unique model or format for such alliances. This is illustrated by describing the experiences from the establishment, functioning and continuation of the MARE and SAWA alliances.

2 THE CASE STUDIES MARE AND SAWA

The MARE project (Managing Adaptive Responses to Changing Flood Risk in Europe) is a North Sea Region EU INTERREG IVb funded initiative involving municipalities in the UK, Netherlands, Germany and Norway. Its aim has been to initiate widespread implementation of adaptation measures to cope with flood risk. Within MARE, platforms of professional stakeholders in flood risk management 'Learning and Action Alliances' (LAAs) were set up to enable collaborative learning (Ashley et al, 2012). The alliances included groups of local, regional and national level authorities, knowledge institutes and private enterprises to promote inclusive co-operation between organizations for integrated flood risk management.

The SAWA project (Strategic Alliance for Integrated Water Management Actions) was also funded as a part of the North Sea Region EU INTERREG IVb Programme. Over a three-year project lifetime, five regions in Germany, The Netherlands, Norway, UK and Sweden worked together firstly to establish and then utilise a strategic alliance to manage local water actions, focusing on flood problems and in so doing, to share local experiences and develop knowledge together in relation primarily to the Flood Directive. SAWA, unlike MARE also considered the interactions between the Flood and Water Framework Directives. In SAWA, this has helped the development of flood risk management plans (FRMP) that align with the water directive.

Both projects SAWA and MARE utilised and reviewed the use of LAs respectively in the processes of integrating strategies for water management in terms of the Water Framework and Flood Directives and in adapting urban areas to changing flood risks. This paper sets out the formation, structure, management and conclusions from the SAWA and MARE projects in regard to Learning Alliances. In both projects, the standard 'Learning Alliance' (LA) concept was modified to include 'Action' in recognition of the need to actually make changes happen. Hence the term Learning and Action Alliance (LAA) is used here. Recommendations from activities, outcomes and data analysed support the initiation and continuation of the project based LAAs in the two projects based on the findings from examining the behaviour of the LAAs. This paper considers the place, function, establishment and functioning of LAAs, defined through workshops, interviews and questionnaires during the project processes. In SAWA the LAAs were a single alliance that included both professional and private stakeholders. MARE had 4 core LAAs plus an overarching project management LAA. Subsequently a Regional Alliance was also established in England associated with one of the core LAAs.

Validation of the processes of LAA establishment and functioning is outlined here and how these defined and supported the vision and needs of the constituent LAAs. An overview of the LAAs' individual visions and recommendations for support are introduced. The interviews and questionnaire were developed to gain knowledge in depth for each LAA and to inform how innovation and continuation of the LAAs could be supported. Recommendations are made regarding the place and value of LAAs based on the outcomes of this process, drawing conclusions about general commonalities across the 7 LAAs and the support required to help share knowledge and best working

practices transnationally, together with the development of a programme of tailored support for each LAA.

In MARE, uniquely, a behavioural psychologist looked at the formation, dynamics and personality of the LAA partnerships, showing that each of these had unique characteristics (personalities), demonstrating that there is no single model for an ideal LAA. This helped to understand how best to create and sustain effective functioning of such alliances, not only in MARE, but more widely. In SAWA, the LAA had been constituted as a vehicle to achieve a specific goal, which is development of a Flood Risk Management Plan in response to the EU Flood Directive 2006/60/EC. A multi disciplinary team was formed in order to support the introduction, monitoring and evaluation of the LAA. Additionally, the researchers observed and actively participated in the LAA (action research) providing additional sources of data and possibilities for triangulation of results.

3 THE LAAS IN MARE AND SAWA

LAAs are vehicles for learning together actively in order to innovate to address complex, or wicked problems. Innovation is impossible unless there is a willingness to take risks on the part of the decision makers; the same applies to the active learners in any LAA: *“Those organisations who were believed to spurn risk were found to be significantly correlated with poorer innovation performance.”* (Forbes Insights, 2011). LAAs share many of the characteristics of Learning Organisations: Systems Thinking; Personal Action; Mental Models; Shared Vision; Team Learning (e.g. Bell & Morse, 2008), and may just be a new name which applies more appropriately to the collection of individuals who make up an alliance on behalf of their parent organisations, rather than a single organisation.

The LAAs have been analysed here in relation to their culture and context, as these are crucial to understand their functioning and assess their performance, as is any process of transition (Cettner et al, subm). This holds especially for ‘power’ and who has it. For example, for one of the LAAs, operating outside the formal decision making structures allowed innovation to emerge and, with propitious timing, this LAA was able to bring this knowledge into the formal processes when these collapsed; resulting in truly innovative designs in an area of the City of Dordrecht outside the dike ring (Van Herk et al, 2011a). ‘Power’ and who has it, are important elements to understand in LAAs. For one of the LAAs, operating outside the formal decision making structures allowed innovation to emerge and, with propitious timing, this LAA was able to bring this knowledge into the formal processes when these collapsed; resulting in truly innovative designs in an area of the City of Dordrecht outside the dike ring (Van Herk et al, 2011a). This is evidence that the context and culture within which LAAs are set is crucial, as is any process of transition (Cettner et al, subm.).

The formation and characteristics of the LAAs in MARE has been described elsewhere (Ashley et al, 2012) based on initial reviews of the four city-based alliances and the over-arching project alliance. There are 3 stages in the life of an alliance:

1. Establishment
2. Functioning
3. Sustainability (continued functioning)

At each stage the relationship between the established institutional and governance structure (i.e. the formal decision making processes) is important and defines how effective the LAA can be in effecting change. These 3 stages are considered further in the following sections.

3.1 Establishment

The setting up of a LAA will be driven by a core group of instigators with a reason to form the LAA. In MARE this was following the already successfully functioning alliance in Dordrecht (van Herk et al, 2011b). The MARE overarching alliance was initially set up to develop the project proposal, bid for the funding and then define the precise work programme. The other 3 ‘city’ based LAAs were established in Sheffield/Rotherham (Don Catchment Alliance, DCAA) (described in detail in Ashley et al, 2012); Bergen and Hannover. The process of establishment is described elsewhere (ibid). The establishment also included a process of wider stakeholder analysis (Ashley et al, 2013) and the rapid forging of trust between the participants. Each of the 4 MARE LAAs were different, comprising different local contexts, ranges and types of participants suited to the challenges and the interests of participating organisation and individuals but all aimed at delivering innovation in flood risk management planning. Establishment of LAAs, in SAWA as well as MARE, entailed discourses about the value, function and legitimacy of an alliance, time commitments (and perceived wasting of this by ‘too busy’ participants) and freedom of the alliance to innovate and take risks in influencing the usually separate decision

making processes. Of the 4 core MARE alliances, only the DCAA was not focused on a particular project, rather on an entire river catchment, with the aim to innovate regarding integrated river basin planning for the Don river. The other LAAs focused on their respective cities and to a lesser extent, surrounding regions. The DCAA, although independent, included representatives of the key decision makers, the Environment Agency and Yorkshire Water. Neither organisation participated in the intended way, being protective of their corporate responsibilities and decision making powers. The DCAA was from the outset, seen by these organisations as an information imparting and exchange vehicle. In contrast, the Dordrecht and Bergen alliances were active learning vehicles, developing innovative ideas, alongside and within respectively, the formal decision making processes (Dudley et al, 2013). In one of the LAAs, a hierarchical structure meant that operation was strictly controlled from the outset by the key decision makers; constraining opportunities for open and frank active learning to develop innovation.

Due to the heterogeneity of the national and local contexts, availability of resources, as well as the priorities given to flood and climate change problems across partner countries, the LAA as an overarching concept has been found in SAWA to not necessarily be the appropriate vehicle for all contexts and applications. In the initial project phase of SAWA, the LAA concept was considered by many of the partners as too novel, and as such difficult to pursue within certain rather rigid institutional structures as well as being perceived as difficult to control, i.e. a risk of loss of power on the part of decision makers. As a result of this, the SAWA LAA was exclusively constituted only to support the 'bottom up' FRMP process in the small urban catchment of the Wandse River in Hamburg, i.e. to support the local community, practitioner delivery and in interfacing with the 'top' policy and decision makers.

All alliances were formed via workshops and group activities. There was also a separate alliance formed in England, the Yorkshire & Humber Learning and Action Alliance (YHLAA), which was pan-regional; hence the DCAA was a smaller jurisdiction sub-alliance within the wider regional alliance. Within the context of INTERREG projects, influence on national policies was deemed an important function of the LAAs. Hence legitimacy in the eyes of national institutions and governance structures was also important. This legitimacy had already been earned by the Dordrecht alliance prior to the MARE project (van Herk et al, 2011a) and it was influencing policy in the Netherlands. Initially, the YHLAA also influenced policy in England especially via an online e-portal for municipalities, whereas the Bergen alliance has steadily developed a high national profile in Norway, such that it is influencing how Norway adapts to climate change in areas beyond only flood risk. In Hannover the Alliance includes regional (Lander) representatives but is primarily City focused on how to develop a flood risk strategy.

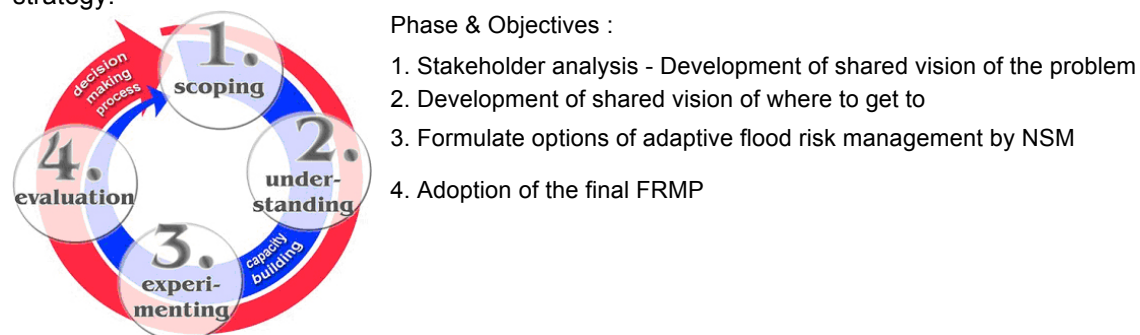


Figure 2 General Framework and main phases of Participatory Planning in the SAWA LAA (Manojlovic et al., 2012)

The process of development and functioning of the SAWA- Wandse LAA is shown in Figure 2. While it had been relatively straightforward to recruit the professional stakeholders (usually by direct contacts) in the SAWA project, challenges were encountered whilst selecting and motivating the representatives from the public and NGOs. Activities began as a series of workshops and site visits (14 in total) over a two year period, supported by an online collaborative platform (LAA Wandse) for information and opinion exchange. A thorough stakeholder analysis preceded the LAA set up and planning process. As the approach was bottom up, some 25 professional and private stakeholders were considered as participants. The professional stakeholders were representing water management, urban development, environmental as well as the contingency (emergency) sector. The public and private stakeholders were represented by NGOs, public initiatives, politicians and property dwellers. At the beginning the LAAs were rather fragmented, with diverging interests and ideas of what the role of different stakeholders should be. It was especially difficult for professional stakeholders to get out of

their 'comfort zones' at the start of the process and be open for interdisciplinary planning and co-learning. Also, typical conflicts, such as between spatial planners and water resources managers and also perceived conflicts between the two Directives (Water Framework Directive and Flood Directive) marked the initial planning phase of the LAA.

In the first stage of establishing an alliance it is essential that a vision is formulated. This may also be accompanied by terms of reference. The vision of the overall MARE LAA was to: "contribute to the development of a framework and resources by [building] and demonstrating a practical, transnational methodology to implement urban Flood Risk Management" (<http://www.mare-project.eu/>). In Hannover the vision was to be derived to support the City Strategy Vision 2020 – urban planning. Hannover has a large administration with good knowledge in different divisions; the problem was seen as how best to share the knowledge between divisions? The LAA members to deliver this included the Federal State, Agency of federal state, Regional body, City and others providing Scientific advice.

3.2 Functioning

Delivering on the visions, often based on terms of reference, legitimacy, mutual respect and trust are the primary characteristics of a successful LAA, as for any partnership or group activity (e.g. Das and Tang, 2004). Throughout the assessment process of the functioning of the LAAs, it was found that trust was clearly seen by all participants as the most important characteristic in the deliberations within the LAA, as with trust: "Not everything has to be negotiated, some details can be kept aside for later, not everything has to be written down and agreed upon by the constituency of the representatives in the process" (van Woerkum et al, 2007). Legitimacy from the usually separate, established decision makers in recognising the useful role the LAA can have in providing innovative ideas and in active learning is also essential.

Each LAA included leaders (not necessarily drawn from those who established the alliance), facilitators and champions. The leaders assumed roles appropriately to the context and challenges faced; i.e. there was invariably not one single leader, rather a group who assumed leadership on different issues. Leadership which was imposed and 'top-down' as in Hannover, was not conducive to innovation and such arrangements in alliances operated in this way are in fact indistinguishable from working groups or advisory panels, i.e. not true LAAs: "It is very difficult, because if the leadership is too structured and rigid you feel inhibited" (quote from a member of the Hannover alliance). Leaders needed to inspire: "They get people to do what they want and you do it due to his/her presence. I don't like delegation from a controlling top down approach, people need to be respected and trusted to do their jobs. These characteristics are essential in making me feel included in the LAA" (Don Alliance). Facilitators and champions also have important roles, the former ensuring meetings are set up properly and function well; champions are all members of the alliances in the role of spreading the innovation message to the wider world (Van Herk et al., 2011b).

Not having time to participate in the LAA events is often a problem for many of the key participants. Therefore there needs to be clear beneficial outcomes that make these players prioritise their involvement, i.e. can actually save them time overall. Moreover, this is a continuous challenge: the benefits need be emphasised continuously and new benefits can be added or reformulated to nurture the interest of existing and new participants. All LAAs have seen fluctuations in participation and commitment from members and project related work was especially effective at sustaining interest. The YHLAA for example, comprising mainly municipal water engineers, has provided a vehicle for participants to engage in new regulations and standards, providing a consensual alliance response as a group to consultations and draft regulations regarding flood risk management in England. As well as learning from one another, this co-generation of formal responses can obviate the need for individuals' to respond by themselves to such consultations. Part of this process involves 'telling stories together', i.e. hearing others' experiences and developing a consistent narrative as to how proposed regulations would unfold in practice. Also, the institutional and personal barriers should be surmounted, enabling participants to present their own opinion and not only of the institution they are representing: "I would vote for a, but my institution expects me to vote for b." (SAWA Wandse alliance). Each participant will have different expectations of the purpose and outcomes of a LAA. This 'framing' by individuals' and also by the organisation they belong to and may represent, needs to be understood (Lems et al, 2012). They need to feel respected, listened to and be part of the group if their interest is to be maintained. Leaders, coordinators and facilitators need to prepare well for this. Traditional 'engineering' technocratic approaches to devising flood risk management schemes are nowadays rarely appropriate (Newman et al, 2013) due to the need to engage widely to deal with the complexity of the issues. The best facilitators of LAAs are usually not engineers, although there are exceptions. Professionals with a social or behavioural science background are recommended for this role. Their

core skills enable the best to be drawn from LAA participants and for each to be given individual respect and mutual trust to be cultivated. Behaviourists are also better able to understand the appetite for innovation, i.e. willingness to take risks (See Introduction), the core need for an effective LAA (Dudley et al, 2012, and 2.1 below).

To be effective a LAA has to be able to move beyond the norms and regulatory constraints and innovate; without this there it has no purpose. The Dordrecht alliance has shown how this can be done and why it is so important, providing innovatory options for a development outside the dike ring in the City (van Herk et al, 2011a). In turn, an effective LAA challenges restrictive regulations and practices, pushing the boundaries into the novel areas needed to face the complex challenges now faced in water management.

3.3 Sustainability

Maintaining interest is a major requirement of continuing LAA activity. Given that 'active learning' is a primary need for all professionals and decision makers to cope with rapid social and environmental changes, a LAA can provide a vehicle for this. However, experience from MARE shows that sustaining interest is best done via a specific project focus. When one project has been completed, a new one needs to become the focus of attention. The wide scope of the DCAA, the catchment, was in part responsible for the collapse of this alliance; although key staff losses also contributed. Follow-on alliances focused in specific projects in Sheffield and Rotherham appear to be more sustainable, complemented by the pan-Regional YHLAA. The loss of leading and facilitating individuals in the DCAA also illustrated the fragility of any LAA that has not developed sufficiently to become independent of particular people. The SAWA- Wandse LAA will retain a focus on the development of flood risk management plans due in 2015 (2007/60/EC) and to be reviewed after six years, giving it a clear context and implications for the decisions made.

Above all, for individuals to continue to commit to a LAA, there needs to be clear rewards for the use of their time in the form of new knowledge, project outcomes and innovatory ideas. To sustain an LAA these rewards need be communicated and nurtured continuously, especially in transition phases between implementation, policy or research projects. Ideally within a context of mutual trust, legitimacy and shared responsibilities an effective alliance can function for many years, as illustrated by the Dordrecht alliance. Of course, the participants, the vision, goals, needs and challenges will change with time, as will the 'personality' of the alliance (Dudley et al, 2012). The Dordrecht alliance has started a new demonstration and research project by focusing on investment planning for FRMPs that has been inventoried as a joint emerging policy and research interest. In parallel, this initiative has already received a policy pilot status from the Dutch Delta Programme (Zevenbergen et al, 2012).

4 REVIEW OF THE LAAS IN MARE AND SAWA

4.1 MARE

Each beneficiary within MARE was part of a local/regional LAA whilst the overall MARE team was the core LAA for the project. Many of the MARE LAAs are continuing although the project has finished and at least two of the core project LAAs have expanded considerably since the start of the project, influencing national policies in Netherlands and Norway respectively. The core English LAA suffered from economic stringency and contraction in the constituent Municipalities resulting in the loss of two key members and collapsed as they had not built resilience into its structure by creating shared ownership amongst the wider partnership, although a wider Regionally based alliance has continued to function. It should be noted in England that Sheffield City Council has effectively formed a multi disciplinary LAA around the development of the Lower Don Valley project. Subsequently, Rotherham MBC established a multi disciplinary team to manage flood risk within a wider context. The next stage in the YHLAA, much affected by workload caused by the current year's flooding, continues to exist in a "virtual" state through emailing and other forms of networking, but the outcomes from of the INTERREG work will be fed back into it during the next year and the opportunity to maximise the benefits through the formation of a nested series of alliances as envisaged at the start of MARE will be explored.

The Hannover LAA has continued to function, although this has a hierarchical structure and does not appear to function in the way that a LAA was envisaged, providing an open and free environment to formulate innovation, it has led to innovation but only in regard to locally adopted ideas from international MARE partners. The Bergen and Dordrecht alliances have been extremely successful, being able to create truly innovative options to deal with flood risk management and also to influence

national policies.

4.1.1 Risk propensity

A study was undertaken to look at the behaviour of the participants in the MARE LAAs, especially their risk propensity in relation to innovation potential. This comprised workshops, a questionnaire and semi-structured interviews (Dudley et al, 2012). The decision framework of Zeleny (1982), reflects the findings here that a decision is not an 'act' but a 'process'. Each LAA was found to have a different process of development, structure, relational trust and decision outcomes; this was dependent on variables such as culture, structure, characteristics and visions. At each stage of LAA development there was evidence that actors were involved in the pre-decision, decision and post decision stages, albeit in differing forms. Some decision processes seem to create an atmosphere of 'fun, friendship and inclusivity': "Very friendly, open relationships, even with professors, it is not a very strict hierarchy. It allows people to communicate on the same level. Even if they have different competences, open discussion is important to get to solutions". While others members preferred less involvement at the decision stage due to time constraints, governing structures and roles within their own organisations. Therefore none of the LAAs could describe their decision as an 'act' or attributable to one individual; it is an inclusive process, through the vehicle of trust and communication.

Initially the concept of risk propensity and decision theory was introduced to the core participants in the MARE LAAs through a workshop. This received mixed responses from each LAA. Some could see the value in reframing the term 'risk' as a psychological effect in the LAA process, whereas others seemed to find it objectionable, even avoidant of the term risk. An established psychological testing questionnaire was adapted to capture and evaluate the possible effect that risk may have on decision processes by individuals and when part of an organisation (Abad, 2011).

Some municipalities did not want to complete the questionnaire in its original form, as the term 'risk' had a weighted meaning in terms of flood risk management strategies, and it also has strong cultural definition in certain countries. For example, in The Netherlands 'risk' is in real terms used when referring to loss of life, creating a very uncomfortable cultural, emotional response, leading to avoidant behaviour and even animosity from the actors; sensitivity is key in such evaluations: "In international alliances, a perception of opportunism may be attributed to a lack of cultural understanding and responsiveness" (Beamish & Lane, 1990). The confusion on 'risk' was further enhanced by the fact that the Dordrecht LAA was deliberately functioning in parallel to formal decision-making processes. Hence, the LAA would not assume 'political' risks, but especially because this allowed room for a risk-openness culture able to better explore innovative approaches So the word 'risk' had to be removed from the questionnaire before it was sent to any of The Netherlands' respondents.

The questionnaire results and the semi-structured interviews were analysed used the NVivo software, with statistical analysis carried out in excel. The results revealed that the LAAs that had mixed groups of participants who were both risk takers and risk averse, were those most likely to successfully innovate. In addition, the participants who had most strongly expressed their concerns that LAA involvement could be time-wasting were predominantly those from the risk averse group (Dudley et al, 2013).

4.2 SAWA

The nature of the interactions amongst the groups involved in the LAA was somewhat heterogeneous. While the stakeholder groups already interacted in a form of asking for approval or obtaining information from each other, the participatory planning was initially underdeveloped. Social games, open discussion and discourse between the LAA members positively changed attitudes as the LAA developed. The 'e lectures', available via the LAA platform, supported the understanding of the flood risk and were assessed as useful by the members. Simulation using a Flood Animation Studio indicated the participants' low awareness of the extent and consequences of floods to urban areas (Manojlovic & Pasche, 2011) and a site visit was used to boost understanding. At the end of phase 1 (Figure 2), the stakeholders improved their understanding of flood risk in the area; the members became more open to the collaborative planning and learning process and finally shared 'the idea' of the flood problem in the Wandse catchment. In phase 2, the 'e lectures' supported the discourse and live presentations. Finally, the main objective of the FRMP was envisioned considering the agreed "acceptable risk" and the possible measures to mitigate this. The modelling results utilising the Kalypso modelling platform (<http://sourceforge.net/projects/kalypso/>) related to impacts of urbanisation and climate change was the key for helping with decision-making in this phase. The active planning, phase 3 of the LAA, generated the most interest amongst the participants, enabling their active involvement. In order to make the sessions more interactive, the KALYPSO- Planner Client tool was

used enabling quantification of the effect of the suggested planning options. On completion of phase 3, a portfolio of the planning options was developed by the LAA members as well as the assessment of their efficiency and cost effectiveness.

In phase 4 the participants delivered their final statements about the planning options. The group showed consensus as to the acceptable planning options, giving the highest priority to the green infrastructure measures, restoration of flood plains and improvement of the morphologic conditions in the river. This outcome was mostly driven by the results of the efficiency analysis performed in phase 3, but also due to the multifunctionality of such measures (e.g. flood protection and ecological aspects, also related to the Water Framework Directive, 2000/60/EC). The outstanding conflicts (mainly related to the large scale measures, e.g. polders) in the LAA have been managed by defining the 'acceptable level of conflict' within a series of discussions facilitated by a political scientist and trained facilitator.

5 CONCLUSIONS

In a time of rapidly changing contexts, such as coping with changing climate, demographics and economic constraints, it is incumbent on professionals to work more effectively and, faced with novel situations and challenges, innovate. Working in partnerships, across departments, organisations, disciplines and with policy makers and the public has never before been so important if the challenges are to be met and opportunities taken in new clever innovative ways. Learning and Action Alliances have been shown in the studies reported here to be an effective means of structuring this collaborative working and developing innovatory ideas. However, there is no single model for an LAA that would be appropriate to all cases and contexts. It is necessary therefore to explore and understand local contexts, organisational and institutional structures and ideally, to design LAAs to fit to the current activities and working culture of the stakeholders to be involved.

The outcomes and functioning of the various LAAs reviewed here were each different. Some, such as the Dordrecht and Bergen LAAs were highly innovative, even re-writing rules and regulations, whilst others, such as the Don catchment alliance, collapsed without significant outputs. Other alliances, such as in Hannover, worked effectively to deliver an interpretation of the requirements and implementation of the EU Flood Directive, without really changing what was 'normal practice' locally. The LAAs appeared to function irrespective of spatial scales with a range of these being dealt with – catchment to local schemes. LAAs can innovate only if everyone involved adopts an open minded approach and institutional positions are flexible and decision makers are willing to listen (reference or conclusion). Established processes and institutions with responsibilities for making decisions often feel challenged by such partnerships and in at least one of the MARE LAAs, such partners adopted an 'information providing' stance rather than entering into meaningful and open discourse.

Development of mutual trust, legitimacy, outputs and an open and frank atmosphere as well as working together on tangible and specific projects, are the crucial components that motivate LAA members' commitment and ability to plan and develop a shared vision and thence to innovate. However, creating this working environment often took longer than anticipated in the 7 LAAs investigated. Social science approaches, such as social games, were found to be effective in supporting what was needed to overcome sectoral, institutional or personal barriers, strengthening team spirit. LAA sessions have to be inviting and attractive to participants (also by embedding "surprising effects" such as live simulation of a flood event) especially in the initial set-up phase, which necessitates knowledge acquisition by participants' for the planning/innovation phase. Thus, the capacity building processes within the LAA, although time and resource intensive, should continuously strive to support the decision making process.

An integrated approach, including harmonisation of activities with EU directives and local planning procedures (here e.g. 2000/60/EC or development plans), has to be taken throughout, making sure that all relevant stakeholders are involved. This can also lead to diverging interests amongst the LAA partners, which can be addressed using social and behavioural science methods and tools, allowing development as a process and hence sufficient time to become established. Sophisticated modelling and decision support tools for quantifying the failure mechanisms and impacts of spatial planning activities and also the efficiency and effectiveness of the planned measures turned out to be the key to acknowledge the credibility of the SAWA LAA by the members. This LAA comprised a predominance of engineers and natural scientists amongst the members and this may help to explain why they were so engaged in the modelling.

The legitimacy of the LAA should be established from the outset, clearly indicating the scope of the expected outcomes and the level of impact of the planning results, and be nurtured ever since. Both

internal as external legitimacy. As the formal leader of the SAWA LAA was the authority responsible for FRMP in the City of Hamburg, the legitimacy of the outcomes of this LAA were high. However, where an LAA is seen as a novel approach and new to the responsible authority, it is unlikely that there would be an immediate implementation of the LAA outcomes. Many of the outcomes from the 7 LAAs investigated will serve to demonstrate best practice for the authorities and municipalities that are challenged to develop FRMP by 2015.

The LAA process is assessed by many members to be time and resources intensive, involving a range of tools (social, learning, hydrodynamic) and interdisciplinary teams (social science, hydraulic engineers, IT specialists etc). The LAAs in Sheffield/Rotherham and in Wandse are currently in hibernation. It is intended that the SAWA LAA Wandse will be reborn in time to address the revision phase of the local FRMPs which have to be revised every 6 years contributing to sustainability aspect of LAAs. THE MARE LAAs Dordrecht and Bergen will continue and embark on new research, policy and practical challenges.

ACKNOWLEDGEMENTS

The authors are grateful to the EU and Secretariats' managing the ERDF INTERREG programmes, especially to the North Sea Region, from which SAWA and MARE have been funded.

LIST OF REFERENCES

- Abad M J S., Sanchez-Iglesias I., de Tella A M (2011). Evaluating Risk Propensity using an Objective Instrument. *Journal of Psychology*. 14 (1) 392-410.
- Beamish P W., Lane H (1990) Cross-cultural cooperative behavior in joint ventures in LDCs. *Management International Review*. 30, 87 -102.
- Bell, S., Chilvers, A., Hillier, J., (2011). The socio-technology of engineering sustainability. *Engineering sustainability*, 164, Issue ES3.
- Butterworth, J., McIntyre, P. d.Silva Wells C. Eds. (2011): SWITCH in the city: putting urban water management to the test. ICR International Water and Sanitation Centre. ISBN 9789066870789
- Cabinet Office (2006) innovation and risk management: a recipe for improving performance. January. European Centre for Business Excellence. National School of Government, Ascot, England.
- Cettner A. (2012). Overcoming inertia to sustainable stormwater management practice. PhD thesis TU Lulea, Sweden. ISBN 978-91-7439-537-2
- Das T.K., Bing-Sheng Teng (2004) A risk perception model of alliance structuring. *Journal of International Management*. (7) 1-29
- Dudley, E. Walker L., Ashley R M. (2012) Socio-psychological behavioural aspects of learning and action alliances for water management and adapting to flood risk Proc. 7th Int. Conf. on Water Sensitive Urban Design. Melbourne. 21-23 Feb 2012
- Dudley E., Ashley R M., Blanksby J R (2013) Final Report - Establishing LAAs and managing individual needs. MARE project.
- Harremoes P. (2002). Integrated urban drainage, status and perspectives. *Water Science and Technology* 45(3) 1-10.
- Lems, P. Aarts, N. and Van Woerkum, C. (2012). Dealing with Differences in Framing in Multi-Actor Interactions in Water Management. In: Van Burken, C.G. and Haftor, D.M. (eds.) Re-Integrating Technology and Economy in Human Life and Society. Proceedings of the 17th Annual Working Conference of the IIIDE, Volume 2. Maarssen, May 2-6, 2011. Rozenberg Publishers: Amsterdam.
- van Herk S., Zevenbergen C., Ashley R M., Rijk J. (2011a). Learning and Action Alliances for the integration of flood risk management into urban planning: a new framework from empirical evidence from the Netherlands. *Environmental Science & Policy*. 14 (2011), pp. 543-554. DOI: 10.1016/j.envsci.2011.04.006
- Van Herk, S., Zevenbergen, C., Rijke, J., Ashley, R. (2011b). Collaborative research to support transition towards integrating flood risk management in urban development, *Journal of Flood Risk Management*, Volume 4, Issue 4, December 2011, Pages: 306–317
- Manojlovic N., Pasche E. †(2011): Active Flooding for Capacity Building of Stakeholders, Proceed. of the UFRIM Conference, 21-23, September Graz, Austria
- Manojlovic N., Behzadnia N., Barbarins D., Pasche †(2012): learning&Action for Flood Risk Management Planning. Proceed. Of the Int Hydroinformatic Conference, Hamburg, Germany
- Newman R., Ashley R M, Molyneux-Hodgson S., Cashman A. (2011). Managing water as a socio-technical system: the shift from 'experts' to 'alliances'. Proc. Of the Institution of Civil Engineers. *Engineering Sustainability*. Vol. 164 Issue ES1. Paper 1000032. Doi 10.1680/ensu.1000032. 95-102
- Warner M., Sullivan R. (2004) Putting Partnerships to Work. Greenleaf pub. Sheffield. ISBN 1874719721
- Woerkum, C.M.J. van; Aarts, M.N.C.; Grip, K. de (2007). Creativity, planning and organizational change. *Journal of Organizational Change Management* 20 (6). 847 – 865
- Zeleny M (1982) Multiple Criteria Decision Making. European Institute for advanced Studies in Management. McGraw-Hill Book Company. 84-94.
- Zevenbergen C., van Herk S., Rijke J., Kabat P., Bloemen P., Ashley R., Speers A., Gersonius B., Veerbeek W. (2012) Taming global flood disasters. Lessons learned from Dutch experience. *Nat Hazards*. (Oct)