



# Assessing receptivity for change in urban stormwater management and contexts for action



Annicka Cettner<sup>\*</sup>, Richard Ashley, Annelie Hedström, Maria Viklander

Department of Civil, Environmental and Natural Resources Engineering, Division of Architecture & Water, Luleå University of Technology, SE-971 87 Luleå, Sweden

## ARTICLE INFO

### Article history:

Received 14 November 2012  
Received in revised form  
11 January 2014  
Accepted 22 July 2014  
Available online

### Keywords:

Contexts  
Innovation  
Receptivity  
Sustainable urban stormwater  
Transitions

## ABSTRACT

Individual and organisational receptivity for change towards the use of sustainable stormwater management systems has been previously examined, but the significance of the different contexts for achieving this has been largely unexplored. This paper examines the significance of contexts associated to the actions to bring this about by proposing and evaluating an emerging framework based on two related receptivity theories: the individual or organisational approach and the contextual approach. Results from a Swedish national questionnaire with professionals in stormwater management have been used, together with a limited number of interviews to develop and understand the validity of the framework. The analysis has indicated that the respondents were professionally prepared for change (action) but not practically prepared due to inadequate supportive contexts. In response, a number of potential contexts associated to the necessary actions were identified. The framework was found to provide new insights into the influence of receptive contexts for a change in water management practice. These insights can be used by policy makers and others to better support the realization of professional openness for change and thus accelerate the process of change to sustainable stormwater practice.

© 2014 Elsevier Ltd. All rights reserved.

## 1. Introduction

Historically, decision makers and professionals have preferred to use piped systems to manage the drainage from urban areas, however, many pressures are now challenging this conventional 'common-sense' practice (Cettner et al., 2012a). Ageing water infrastructure, an understanding of technological lock-in (Walker, 2000), increasing incidents of flooding and pollution in receiving waters, growing and overheated cities and biological impacts are all stresses that need to be addressed together with the global challenges of climate change, population growth and environmental impacts (e.g. Van de Meene et al., 2011). Many studies refer to the need for a revision of stormwater systems and their management through new practices, new approaches and action that require a shift from the long standing tradition of piped systems to stormwater practice that is more sustainable by using green infrastructure and non-structural measures (e.g. Ashley et al., 2011; Harremoës, 2002; Niemczynowicz, 1999; Roy et al., 2008).

However, the slow pace of change towards stormwater being managed more sustainably in Sweden and elsewhere is often attributed to institutional system inertia. Since the 1970s when there was strong momentum for change in Sweden, there has been only modest progress in practical implementation of alternatives to piped drainage; the change process has lost much of this early momentum (Cettner et al., 2012b). Nevertheless, throughout the past 40 years of relatively modest change in practice, stormwater has continued to attract attention and there appears to be a growing interest amongst practitioners for the use of alternatives so that stormwater is managed on the surface in order to utilise the many added benefits this can provide (e.g. USEPA, 2013). The increasing interest is evident in the Swedish Water and Wastewater Association policy instrument, P105, which advises practitioners in planning and designing for sustainable stormwater management, (SWWA, 2011). P105 uses the term 'sustainable stormwater management' which is similar to BMPs (Best Management Practices) and SuDS (Sustainable Drainage Systems) in the USA and UK respectively (Fletcher et al., 2014). Unlike piped drainage systems, surface based systems can provide multiple benefits in use including flood control, pollutant removal and can add to the quality of urban space, livability and supporting ecosystems and green infrastructure through irrigation, provide cooling and an

<sup>\*</sup> Corresponding author. Tel.: +46 (0)920 491051; fax: +46 (0)920 491493.

E-mail addresses: [annicka.cettner@ltu.se](mailto:annicka.cettner@ltu.se) (A. Cettner), [r.ashley@sheffield.ac.uk](mailto:r.ashley@sheffield.ac.uk) (R. Ashley), [annelie.hedstrom@ltu.se](mailto:annelie.hedstrom@ltu.se) (A. Hedström), [maria.viklander@ltu.se](mailto:maria.viklander@ltu.se) (M. Viklander).

additional water source for supply (Ashley et al., 2011; USEPA, 2013).

The decline in rate of uptake and resistance to change is a major challenge in using stormwater systems that are more sustainable, not only in Sweden but also worldwide (Brown et al., 2009; Jonsson et al., 2000). The limited capacity for change is related to the socio-technical nature of the stormwater system, where changes are highly dependent upon social processes such as human interactions, power relations, values, norms and routines in the systems' planning culture and beyond (e.g. Bijker et al., 1987; Hughes, 1986). Stormwater systems are but one component of the many systems, services and utilities that compose urban living. Consequently, many studies have noted tendencies to persistent barriers to the use of alternatives to the traditional use of pipes that inhibits and restricts a shift in practice (Farrelly and Brown, 2008; Laws and Loeber, 2011; Stahre, 2008; Smith et al., 2005).

Various people (e.g. Brown et al., 2009; de Graaf et al., 2009; Van Herk et al., 2011) have used the concept of receptivity, i.e. the importance of remaining open to receive new knowledge, ideas and to act on this new knowledge. In considering receptivity, the conceptual model of receptivity (the four 'A' attributes, see Table 2) developed by Jeffery and Seaton (2003/2004) has been used to understand professionals or organisations' capacity in helping change the deep-rooted pipe-bound mentality. However, the four 'A' attributes of Jeffery and Seaton (2003/2004) lack context as an explicit consideration, despite other research which demonstrates the contextual importance when supporting change in large organisations (e.g. Pettigrew et al., 1992a; Berkhout et al., 2003). Further, recent studies in water management stress the need to address the limited knowledge and understanding regarding how different governance contexts influence the achievement of sustainable urban water management in practice (e.g. Van de Meene et al., 2011; Rijke et al., 2012). There are some exceptions, though, such as that a local context of strong municipal commitment and ability to find appeal among publics has capacity to help mainstream innovation (Morison and Brown, 2011). A case-study within the Australian water sector (Bos and Brown, 2012) highlights the importance of socio-institutional contexts for influencing a change in cultures, structures and practices. To facilitate innovation, focus should be on social processes where factors such as networks, champions, space, reputation, science/research, and bridging organisations could create a context for influencing a change. In line with the central message of knowledge gaps, an earlier reported Swedish interview study identified supporting contextual conditions as being of major importance when investigating the transition to sustainable stormwater management in Sweden (Cettner et al., 2012a, 2013). The study recognized that the four 'A' attributes failed to adequately consider the context of change and hence identified that an alternative framework that included a better understanding of contexts for change was required.

The overall aim of this paper is to evaluate an emerging framework for supporting action for change in stormwater management practices within the Swedish context. It also substantiates and validates the findings from the earlier reported interview study (Cettner et al., 2012a, 2013). This paper has used the results from a national questionnaire to understand change in stormwater practice, with three objectives: (1) to examine the usefulness of the receptive contexts associated to action suggested by Pettigrew et al. (1992a) together with the commonly used framework of the four 'A' attributes for change suggested by Jeffery and Seaton (2003/2004); (2) review the outcome and potential value of the framework that encompasses the contexts for change and the four 'A' attributes; and (3) further develop understanding about conditions on a Swedish national scale and beyond to support action in the discourse around sustainable stormwater practice. It also draws

broader conclusions from the Swedish study that are potentially applicable elsewhere.

## 2. Theoretical frame of reference

In response to the perception of the importance of individual competence to the ability to manage change (in 1980s management development discourse) Pettigrew et al. (1992a) examined long-term processes of strategic change in eight English District Health Authorities in 16 different case studies. Despite these Districts faced similar environmental and policy pressures the rate and pace of change was variable and there were differences regarding their ability to manage strategic change. To explain this variation Pettigrew et al. (1992a) identified eight factors, signs and symptoms, of receptivity associated with a faster pace of change (Table 1). The eight factors represent a set of interlinked conditions useful for identifying the ability to embrace new ideas and face the prospects of change. The terms receptive and non-receptive contexts were introduced (the latter was associated with blocks or barriers to change) which helped to understand how patterns of change were organized and the process of making change happen in large organisations.

Change explanations are viewed as an interaction between context and action where "contexts are used analytically, not just as a stimulus environment, but also as a nested arrangement of structures and processes in which the subjective interpretations of actors perceiving, learning and remembering help shape process" (Pettigrew et al., 2001, p. 699). An organisation with such a receptive context will be better able to assimilate innovations, although the significance of each of the factors individually and in combination is highly dependent on local circumstances. The dynamic view by Pettigrew et al. (1992b) is that change processes are reversible and may suddenly be interrupted by unexpected events or ill-considered actions which recognize "emergence, possibility, precariousness and iteration" (p.28) as the characteristics of the change processes. Newton et al. (2003) examined the usefulness of the receptivity model introduced by Pettigrew et al. (1992a) by analysing change in a public service setting using four attributes: applicability; associatedness; temporality and dynamism derived from Pettigrew et al. (1992a), where the first two of these are related to the attributes suggested by Jeffery and Seaton (2003/2004).

**Table 1**

Definition of eight factors associated with receptivity to change (Pettigrew et al., 1992a, 1992b).

Factor	Definition
1 The quality and coherence of policy	The starting point of a policy is critical. A broad vision appears to generate more movement than a blueprint.
2 Key people leading change	A broad and deep group leading change, representing complementary assets or skills for continuity and stability.
3 Environmental pressure	External factors could trigger change.
4 A supportive organizational culture	A supportive organisational culture that challenges and changes beliefs about success. Having a strong value base and an open approach. Rewards are important.
5 Effective managerial/practitioner relations	Managers/practitioner interplay is critically important against powerful opposition and in supporting a change
6 Cooperative inter-organizational networks	Productive networks with related organizations
7 Simplicity and clarity of goals and priorities	Narrow down the change agenda into key priorities and protect the core from short-term pressures.
8 The fit between the change agenda and the locale	Awareness that various influencing local factors may inhibit or accelerate change.

Download English Version:

<https://daneshyari.com/en/article/7483346>

Download Persian Version:

<https://daneshyari.com/article/7483346>

[Daneshyari.com](https://daneshyari.com)