

CHAPTER 2

Stakeholder Engagement in the Generation of Urban Ecosystem Services

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Takeaways for Leading Change

This chapter highlights the importance of nature in urban environments. It discusses how future leaders in business, government and other organisations can foster openness and incorporate nature into the process of generating urban ecosystem services through stakeholder engagement. As an open and participatory process, stakeholder engagement highlights uncertainty and ambiguity, which are, and should be, embraced as part of the process. Stakeholder engagement can serve as a starting point for more open and participatory dialogue between various human and non-human stakeholders. Stakeholder engagement as an open process can also offer room for collaborative processes where surprises and other unexpected elements are recognised as openings for continuous experimentations and new opportunities. Such processes are especially required in solving wicked global problems and sustainability challenges that require recognising the complexity of the obstacles involved and accepting varied understandings of what are perceived as desired outcomes.

Sustainable development is generally defined as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development [WCED], 1987, p. 8). In cities, the major challenge is how to ensure and balance economic, ecological, and social sustainability dimensions now and in the future (Finco & Nijkamp, 2001). This challenge has become increasingly pressing given that more of the global population now lives in urban than rural areas and the rate of urbanisation is estimated to increase rapidly in the next three decades (United Nations, 2014). Ever-growing cities face many sustainability-related threats, such as climate change, overpopulation and growth at the expense of terrestrial and marine capacity, while at the same time cities are a significant source of these problems. Cities create over 70% of global greenhouse gas emissions and consume two-thirds of the world’s energy (C40 Cities, 2018). However,

cities can also provide opportunities and be a source for developing solutions to sustainability challenges. Sustainable development has become a dominant policy paradigm and a strategic goal for several cities (Finco & Nijkamp, 2001; Jokinen, Leino, Bäcklund, & Laine, 2018).

Urbanisation and the expansive growth of cities highlight the significance of urban nature to city dwellers. As cities grow larger and denser, natural areas located within cities are increasingly required to provide numerous life-supporting and life-enhancing opportunities to urban citizens (Fischer & Eastwood, 2016; Standish, Hobbs, & Miller, 2013). These opportunities can be conceptualised as ecosystem services, defined as “the benefits that humans obtain from ecosystems [...] produced by interactions within the ecosystem” (Millennium Ecosystem Assessment, 2005, p. 3). Urban ecosystems such as parks, recreational forests, urban gardens, green roofs

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and conserved natural habitats provide, among other benefits, fresh air and water, nutrition, health, recreation, and well-being for city dwellers.

The aim of this chapter is to shed light on stakeholder engagement in the generation of urban ecosystem services. Specifically, we position nature as a stakeholder and focus on how humans and nature as stakeholders interact and participate in the generation of ecological stormwater systems. Recent discussions have highlighted that the remaining blocks of natural habitat are insufficient to keep cities liveable. Instead, attention has turned to the active generation of urban ecosystems and the interaction between humans and the natural environment in this generation (Fischer & Eastwood, 2016). Public parks in cities are a well-known example of urban ecosystems; these are open greenspaces used primarily for recreation and accessible to all urban residents. They are regarded as offering important ecosystem services for improving the quality of urban life and the health of city-dwellers.

A more recent example of urban ecosystems is the generation of vegetated green roofs that complement other green networks in cities. Besides biodiversity benefits, green roofs gather and retain rainwater and help alleviate flooding problems, and thus enhance urban sustainability. Future opportunities for rooftop biodiversity and ecosystem services are extensive, as today's urban footprint includes more than 20% of roof cover (Sutton, 2015). Green roofs are also a prime example of stakeholder engagement in the process of generating urban ecosystem services. The green roof industry provides standardised diverse solutions for old and new buildings, which are implemented and maintained in collaboration with stakeholders.

To sum up, we are witnessing a new era where the idea of urban nature has changed from being a refuge separate from the urban structure to a crucial component of the built environment. "Re-naturing" cities involves understanding urban ecosystems as part of climate adaptation and the systemic interrelations between ecology and society (Duvall, Lennon, & Scott, 2018). Consequently, the networks governing urban green areas are undergoing fundamental change. While city planners and officials have traditionally been in charge of green area management, citizens and business organisations are now increasingly involved in these processes (Jokinen, Asikainen, & Willman, 2017; Whiteman et al., 2011). Accordingly, urban ecosystem services are currently generated in

collaboration and cooperation with various stakeholders in the public and private sectors and civil society.

This chapter contributes to the discussion on the future leadership of urban environments by examining how business organisations, the public sector, local communities and nature participate in the generation of urban ecosystem services through stakeholder engagement. The following conclusions are drawn. First, urban ecosystems, such as integrated stormwater systems, provide various benefits to city dwellers through socio-ecological processes. Second, the generation of urban nature is an inherently complex process that includes unforeseen and unexpected elements. The interactive and reciprocal human and non-human processes should be acknowledged and appreciated. In these processes, neither the participants, processes nor the outcomes can be foreseen or predefined; rather, indeterminacy, surprise, conflicts, and experiments are embraced. Third, wicked global problems and sustainability challenges require recognition of the complexity of the issues at hand, as well as acceptance of varied understandings of what are perceived as desired outcomes.

The chapter proceeds as follows. First, we utilise environmental politics and stakeholder management literatures to present recent discussions on urban ecosystem services and develop a conceptual understanding of stakeholder engagement in the context of these services. Next, we illustrate stakeholder engagement through the case of urban stormwater systems. Finally, we discuss how humans and nature as stakeholders can engage in the generation of urban ecosystem services, and how the elements of surprise and uncertainty can be acknowledged in these processes.

Urban Ecosystem Services and Stakeholder Engagement

Urban ecosystem services represent an important approach to enhancing urban sustainability. They are crucial for improving both the natural environments and the quality of life in cities (Gómez-Baggethun et al., 2013). The concept of ecosystem services proposes that the functionality

of ecosystems provides goods and benefits for humans that are realised when someone actively or passively requires, demands, or uses them (Millennium Ecosystem Assessment, 2005). These goods and benefits can include both material and non-material elements; material elements include food, water and nutrient cycling, and non-material elements incorporate benefits such as opportunities for recreation and pedagogy (Millennium Ecosystem Assessment, 2005).

Urban ecosystem services are distinct from ecosystem services elsewhere as they are intertwined with many non-ecological urban elements, including physical infrastructure, technology, social practices, and cultural contexts (Andersson et al., 2014; Kremer et al., 2016). While urban ecosystems alone are not able to maintain life in cities, they are needed increasingly to complement rural ecosystems (Andersson et al., 2014). Recent research on urban ecosystems has suggested that while the crucial natural resources and processes in urban environments need to be preserved, urban ecosystems need also be actively restored and generated. The urban context also highlights the socio-ecological interactions that take place and shape urban ecosystems (Fischer & Eastwood, 2016).

Stakeholder engagement has become an important approach for examining and managing sustainability issues as it provides the means to understand the complex and pluralistic interests, relationships and interaction within and among various organisations (Freeman, Harrison, Wicks, Parmar, & De Colle, 2010; Greenwood, 2007; Kujala & Sachs, forthcoming). Stakeholder engagement refers to practices organisations undertake to involve stakeholders in a positive manner in their activities (Greenwood, 2007, p. 315), or to the embeddedness of stakeholders' objectives, expectations, actor relations and actions in the leadership of an organisation (Maak, 2007). Stakeholder engagement can also be seen as an inclusive decision-making process that promotes equity, enhances local decision-making and builds social capital (Mathur, Price & Austin, 2008).

The traditional definition of a stakeholder refers to “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984, p. 46). The issue-based stakeholder view, however, takes a wider perspective by emphasising the issues that affect the well-being of and relationships among stakeholders. To understand

the generation of urban ecosystems, the centre of attention should shift from a single company or organisation to the issue at hand (i.e., to the collaborative generation of urban ecosystem services). The issue-focused perspective highlights that the goal is to approach and share understandings regarding the generation of urban ecosystem services instead of protecting the interests of any particular organisation (Roloff, 2008).

While most stakeholder research has included only human entities as stakeholders, an increasing number of studies argue that nature can also take on stakeholder status (e.g. Driscoll & Starik, 2004; Laine, 2010). The traditional stakeholder approach posits that as nature cannot voice claims or expectations. It cannot act as a stakeholder and can only be represented by other actors, such as individuals and environmental organisations (Laine, 2010). However, Driscoll and Starik (2004) argue that nature can be regarded as a stakeholder in the same way as the local community and the public.

Stakeholder engagement processes can deliver many positive outcomes, ranging from knowledge creation to social learning, but they can also act as important means of enhancing sustainable development (Mathur et al., 2008). According to Freeman, Kujala, Sachs, and Stutz (2017), integrative stakeholder engagement consists of (1) examining stakeholder relations, (2) communicating with stakeholders, and (3) learning with stakeholders. Kujala, Lehtimäki and Myllykangas (2016) emphasise the importance of joint interests, the ability to collaborate and trust as important elements of stakeholder engagement. Moreover, understanding the relationship dynamics and actor identities is paramount in the analysis of stakeholder engagement processes (Lehtimäki & Kujala, 2017).

Heikkinen et al. (2019) suggest the ideas of radical democracy are useful for considering stakeholder engagement in complex socio-ecological settings such as urban ecosystem services. Radical democracy allows, first, for the consideration of both human and non-human stakeholders as participants in open processes, and second, for the appreciation of complexity, difference, and disagreement in the engagement process. They further argue “an open approach to various ways of communicating and expressing views is necessary when the aim is to include both human and non-human participants” (Heikkinen et al., 2019, p. 123). The challenges that remain are how to recognise and balance the various stakeholder

interests inherent in the socio-ecological processes and how to generate open processes with the potential to enhance sustainable development. For example, the motivations of business organisations for engaging with environmental issues include interests such as competitiveness, legitimisation, and ecological responsibility (Bansal & Roth, 2000), while citizens may look for recreational use and improved well-being.

In brief, the open process perspective on stakeholder engagement posits the processes, participants, or outcomes of participation cannot and should not be predefined (Brown & Dillard, 2013). In the generation of ecosystem services, this means there might be unexpected elements active in the process (Lindenmayer, Likens, Krebs, & Hobbs, 2010).

Stakeholder Engagement in Stormwater Systems

To illustrate stakeholder engagement in the generation of urban ecosystem services, we have explored integrated stormwater systems. We collected empirical data from six stormwater systems in three large cities in Finland: Helsinki, Vantaa and Tampere. The empirical data included field observation material, document analysis, and indoor and field interviews conducted with 14 consultants and city officials. The data were collected from 2015–2017.

Integrated stormwater systems represent both a novel solution and a policy transformation in urban ecosystem service generation. Stormwater systems aim to handle rainwater and melt water (i.e. runoff water) by delaying, filtering and purifying the water. Integrated stormwater systems refer to the integration of stormwater practices into the urban landscape by using, for example, ponds and creeks as alternatives to piped solutions in surface runoff water management. The integrated systems combine water and vegetation in various ways and increase multifunctional land use in urban areas. These systems are gaining support in cities; they increase climate resilience and flood protection, improve runoff water quality, and at the same time provide many other ecosystem services such as recreational use, biodiversity conservation, scientific research, and aesthetical landscaping (Cettner, Ashley, Viklander, & Nilsson, 2013; Hoang & Fenner, 2016).

We focused on four key stakeholders of the integrated stormwater systems, namely business organisations, the public sector, the local community, and nature. Here, business organisations were mostly consulting companies which typically draw up the plans and designs for the development and maintenance of stormwater systems. Our cases were initiated by the public sector, including the city officials, civil servants, and researchers working for the city governments. Local community refers to the people living in or near the stormwater systems, as well as the citizen groups and associations who are the main users or beneficiaries of the systems. Nature as a stakeholder denotes the water and vegetation generated in the stormwater systems, including their diverse and evolving entanglements. In stakeholder engagement, we focused on the actor identities (Lehtimäki & Kujala, 2017), the nature of stakeholder collaboration (Kujala et al., 2016), and the elements of uncertainty and surprise (Lindenmayer et al., 2010), as presented in Table 1.

	BUSINESS ORGANISATIONS	PUBLIC SECTOR	LOCAL COMMUNITY	NATURE
ACTOR IDENTITY	<ul style="list-style-type: none"> • Developer and producer of stormwater systems 	<ul style="list-style-type: none"> • The initiator, coordinator, financier, and supervisor 	<ul style="list-style-type: none"> • Users, contributors, and co-dwellers of the stormwater sites 	<ul style="list-style-type: none"> • Contributor to the ecological functionality of stormwater systems
COLLABORATION	<ul style="list-style-type: none"> • Contractual collaboration with the public sector 	<ul style="list-style-type: none"> • Contractual collaboration with business organisations • Formal communication with the local community 	<ul style="list-style-type: none"> • Formal and spontaneous communication with the public sector and business organisations 	<ul style="list-style-type: none"> • Participation through appearance, manifestation and functionalities
ELEMENTS OF UNEXPECTEDNESS	<ul style="list-style-type: none"> • Uncertainty related to new products • Uncertainty and unpredictability of ecological processes 	<ul style="list-style-type: none"> • Uncertainty related to local community involvement and use of the area • Uncertainty and unpredictability of ecological processes 	<ul style="list-style-type: none"> • Uncertainty related to the development of the housing area • Uncertainty related to the appearance of the stormwater site 	<ul style="list-style-type: none"> • Surprises through unforeseen ecological processes

TABLE 1. Stakeholder engagement in stormwater systems

Business organisations are the designers and producers of stormwater systems, typically in collaboration with the public sector. This collaboration is also a vital opportunity for business organisations to develop and test new products and services. In these processes, it is typical that business organisations seek to integrate project profitability with knowledge development. Businesses consider the development of expertise on stormwater systems as a means to become pioneers and front-runners in sustainability and in creating sustainable business opportunities.

Business organisations mainly have contractual collaboration with the public sector. This collaboration is often centred on innovative and enthusiastic individuals who are motivated to engage in the development of new products. Business organisations also collaborate with other organisations both domestically and internationally when developing their products. Since stormwater systems are not widely established structures, they involve many elements of unexpectedness, uncertainty and surprise. For business organisations, this means dealing with obstacles and the constant need to research and develop their products.

The generation of stormwater systems is framed by public interest. The *public sector* – city officials, civil servants, and researchers working for the city government – is the initiator of these processes. The public sector is also responsible for coordinating, financing, and supervising the generation of the stormwater systems, and it enables new research and experiments to emerge in the field.

In addition to contract-based collaboration with business organisations, the public sector engages with the local community through formal hearing processes that allow people to voice their interests. Local people can also give informal feedback to the public sector. The public sector collaborates with local and international peers, such as other cities and research networks. Much like the business organisations it also faces some elements of uncertainty and surprise. These uncertainties can relate to the involvement of local communities as well as the unpredictability of the ecological elements related to stormwater systems.

The *local community*, including the people living in the area and citizen groups and associations identified as users and co-dwellers, contributes to both the design and the development of stormwater systems through their

everyday activities in using the area. For example, local people might have a habit of taking a certain route through the area. This activity may become an element in the design of the area or, over time, it might change the area as new pathways develop spontaneously. However, in the design and the production of the stormwater systems, the role of the local community is still relatively minor compared to the more powerful public sector and business organisations.

The local community collaborates with the public sector through both formal and informal processes. From the perspective of collaboration, the local community has essentially been the object of business organisations' and public sector activities and communication. However, the collaboration within the local community – among local dwellers and citizens' associations – might be active and close. For local communities, stormwater systems are still mostly foreign, and therefore can cause some surprises and uncertainties. For example, local communities may expect constant water elements when they see a blue colour in the plans, while stormwater systems might actually be dry green areas most of the time. Another element is the uncertainty related to the development of housing, as local communities may not see stormwater systems as a desired element in the area. In addition to being surprised and even disappointed, local

communities can themselves unexpectedly affect the stormwater systems, for example by creating paths, building their own dams and making minor changes to the structures.

Nature is a key stakeholder in the generation of stormwater systems, given that natural processes render the ecological functionality of stormwater sites possible. The ecological processes taking

place in the stormwater systems are both autonomous and responsive to human activities. This means that human activities can influence the ecological processes, but cannot alone determine the outcomes of these processes. Some kinds of ecological processes take place in any case, irrespective of human influence or the absence of such influence.

Nature engages with human stakeholders by appearing, manifesting, and functioning in stormwater sites. Mostly, nature is the object of, and shaped

Ecological processes
take place irrespective
of human influence.

by, the activities and expectations of other stakeholders and continually creates conditions for their actions. As a stakeholder, nature produces unexpected elements through unforeseen ecological processes.

Discussion

This chapter presents stakeholder engagement as a collaborative process in which openness is valued. Accordingly, the various stakeholder interests and expectations are viewed as important, without seeking a consensus or compromise (Brown & Dillard, 2013). Stakeholder engagement in the generation of urban ecosystem services allows different parties to foster various interests. Stakeholders may have divergent interests and motives yet still see value in collaboration (Kujala et al., 2017). For example, business organisations are increasingly present in developing and producing solutions for urban environments. Through this, they aim to establish and strengthen their market position and enhance their profitability. The expectations that business organisations have when engaging in the generation of urban ecosystems are often tied to their core actions, as they aim to deliver a profitable project to their customers, create new market opportunities, and develop new products and expertise. However, engagement in the generation of stormwater systems is also seen as a way to enhance their image as a front-runner and innovator in sustainable solutions.

For the public sector, the main interest in participating in stormwater systems is to produce attractive living areas for citizens. Cities may strive to become pioneers in stormwater management and sustainability by integrating stormwater systems in city governance. Moreover, the public sector aims to follow the global developments in stormwater control and manage risks and costs through integrating effective stormwater systems. Public sector actions can also stem from the expectation of enhancing nature and biodiversity.

The interests of local communities in stormwater systems can be described as the desire for pleasant, convenient and green residential areas. This stakeholder group expects concrete changes such as water elements within the residential environments. They are considered passive currently,

seen more as objects of other stakeholders' activities. However, their role might grow in the future given their increased involvement in the process.

Our exploration of stakeholder engagement in stormwater systems demonstrates how nature can be acknowledged as a stakeholder. Stormwater systems form a particular context in which nature takes shape situationally in various ways, but without any promises to humans about positive or negative outcomes. From the point of view of nature, relations with other stakeholders can be described as nature being the object of other stakeholders' actions, and also reacting to these actions. These relations are commonly informal and spontaneous. In line with this observation, human engagement with nature occurs largely through nature's appearance and manifestation or by its active agency in its stakeholder role (Leino, Karppi, & Jokinen, 2017). Nature's collaboration with other stakeholders can also be described as being shaped by the social activities of other stakeholders.

How to lead complex changes where nature takes a stakeholder position? The discussion presented here implies it is not possible or fruitful to define a narrow stakeholder identity for nature. This conceptualisation should be clarified so that nature is not furnished with human characteristics, however. Nature has no objectives, expectations, interests, goals or trust in the sense we humans have, but yet the conceptualisations should go beyond the traditional stakeholder approach when referring to nature.

We conclude with the following argument: In the generation of urban ecosystem services, we should appreciate interactive and reciprocal human and non-human processes. Stakeholder identity varies situationally. There is no sense in adopting leadership seeking to command and control human-nonhuman processes in a linear fashion. Instead, the leadership required for change should create circumstances where enabling and constraining conditions provide space for the desired course of development.

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