



Blue-Green Solutions in Urban Development

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With the ongoing urbanisation and increasing pressure for new housing and infrastructure, the nexus of developing compact, energy-efficient and yet liveable and sustainable cities is urgent to address. In this context, blue-green spaces and related ecosystem services (ES) are critical resources that need to be integrated in policy and planning of urban. Among the ES provided by blue-green spaces, regulating ES such as water retention and purification are particularly important in urban areas, affecting water supply and quality, related cultural ES and biodiversity, as well as cities potential to adapt to climate change. Blue-green infrastructure management is considered a sustainable way to reducing negative effects of urbanisation, such as decreasing flood risks, as well as adapting to climate change for example by controlling increasing flood and drought risks. Blue-green infrastructure management can for example create multifunctional surfaces with valuable environmental and social functions and generally handle greenways and ecological networks as important ecosystem service components, for example for stormwater regulation in a sustainable urban drainage system. The Norrström drainage basin (22,000 km²) is a large demonstrator for Blue-green infrastructure management. Both urbanisation and agriculture are extensive within this basin, which includes the Swedish capital Stockholm and is part of the fertile Swedish belt. Together, the relatively high population density combined with agricultural and industrial activities in this region imply large eutrophication and pollution pressures, not least transferred through storm runoff to both inland surface waters and the coastal waters of the Baltic Sea. The ecosystems of this basin provide highly valued but also threatened services. For example, Lake Mälaren is the single main freshwater supply for the Swedish capital Stockholm, as well as a key nutrient retention system that strongly mitigates waterborne nutrient loads to the Baltic Sea a function that is in turn threatened by climate change. Large socio-economic values are also at stake here with regard to ecosystem regulation of both flood and drought risks, again threatened by both climate change and human development activities within the Norrström basin itself.