

Urban stormwater source control policies: why and how?

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Abstract Stormwater source control is becoming a common strategy for urban stormwater management in many countries. It relies on regulations or other policy instruments compelling or inciting implementation, for each new urban development, of small-scale facilities to locally store and manage stormwater. Local authorities that pioneered source control since the 1980s have already observed that small-scale facilities systematically implemented over a catchment are able to influence its hydrological behaviour. This capability is the main strength of source control, as it allows compensation for the negative effects of urbanization. Yet, it also represents its main risk: if initial decision-making is not sufficiently accurate, source control can produce long-term negative effects. Because of its current spreading, source control will acquire an increasing role as a driver of hydrological changes in urban catchments, and the directions of these changes depend on current policy-making practices. This paper presents an analysis and a critical discussion of the main objectives that policy-makers attribute to stormwater source control. The investigation is based on a sample of French case studies, completed by a literature review for international comparison. It identifies four main objectives, some typical of urban stormwater management and some more innovative: flood reduction, receiving waters protection, sustainable development, costs reduction. The discussion focuses on how current policy-making practices are able to translate these objectives in concrete policy instruments, and on which knowledge and tools could improve this process. It is shown that for some objectives, basic knowledge is available, but the creation of policy instruments which are effective at the catchment scale and adapted to local conditions is still problematic. For other objectives, substantial lacks of knowledge exist, casting doubts on long-term effectiveness of current policy instruments. Research directions are identified to improve source control policies and thus the future hydrologic behaviour of many urban catchments.

Key words stormwater management, urban areas, source control, policy-making