Implementing Urban Rainwater Harvesting Systems: Between Policy and Practice

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Abstract : Despite the multiple benefits of sustainable urban drainage, as demonstrated in numerous case studies across the world, urban rainwater harvesting techniques are generally restricted to isolated model projects. The leap from niche to mainstream has, in most cities, proved an elusive goal. Why policies promoting rainwater harvesting are limited in their widespread implementation has seldom been subjected to systematic analysis. Much of the literature on the policy, planning and institutional contexts of these techniques focus either on their potential benefits or on project design, but very rarely on a critical-constructive analysis of past experiences of implementation. Moreover, the vast majority of these contributions are restricted to single-case studies. There is a dearth of knowledge with respect to, firstly, policy implementation processes and, secondly, multi-case analysis. Insights from both, the authors argue, are essential to inform more effective rainwater harvesting in cities in the future. This paper presents preliminary findings from a research project on rainwater harvesting in cities from a social science perspective that is funded by the Swedish Research Foundation (Formas). This project – UrbanRain – is examining the challenges and opportunities of mainstreaming rainwater harvesting in three European cities. The paper addresses two research questions: firstly, what lessons can be learned on suitable policy incentives and planning instruments for rainwater harvesting from a meta-analysis of the relevant international literature and, secondly, how far these lessons are reflected in a study of past and ongoing rainwater harvesting projects in a European forerunner city. This two-tier approach frames the structure of the paper. We present, first, the results of the literature analysis on policy and planning issues of urban rainwater harvesting. Here, we analyze quantitatively and qualitatively the literature of the past 15 years on this topic in terms of thematic focus, issues addressed and key findings and draw conclusions on research gaps, highlighting the need for more studies on implementation factors, actor interests, institutional adaptation and multi-level governance. In a second step we focus in on the experiences of rainwater harvesting in Berlin and present the results of a mapping exercise on a wide variety of projects implemented there over the last 30 years. Here, we develop a typology to characterize the rainwater harvesting projects in terms of policy issues (what problems and goals are targeted), project design (which kind of solutions are envisaged), project implementation (how and when they were implemented), location (whether they are in new or existing urban developments) and actors (which stakeholders are involved and how), paying particular attention to the shifting institutional framework in Berlin. Mapping and categorizing these projects is based on a combination of document analysis and expert interviews. The paper concludes by synthesizing the findings, identifying how far the goals, governance structures and instruments applied in the Berlin projects studied reflect the findings emerging from the meta-analysis of the international literature on policy and planning issues of rainwater harvesting and what implications these findings have for mainstreaming such techniques in future practice.

Keywords : institutional framework, planning, policy, project implementation, urban rainwater management

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