

2.4 Funding, policy, regulatory and enforcement practices

2.4.1 Funding programs for stormwater management

Description

Effective stormwater management requires substantial resources. For example, Taylor and Wong (2002b) surveyed leading stormwater management agencies in Australia and overseas and found:

- On average, leading Australian stormwater management agencies responsible for minor and major/trunk drainage spent approximately \$18.52 per person per year on stormwater management (in 2001 dollars).
- Compared to equivalent Australian agencies, leading US agencies that were surveyed spent approximately 3.8 times as much (per capita) on stormwater management.

In Australia, resources are typically obtained from:

- Short-term grants (e.g. Natural Heritage Trust, Swan-Canning Cleanup Program Funding, NSW Stormwater Trust, Victorian Stormwater Action Program, etc.);
- Consolidated revenue or general rates (e.g. a local government may fund stormwater management initiatives through its general rate base);
- Environmental levies (e.g. a local government may charge a separate levy as part of its rates, to fund specific environmental initiatives); and
- Stormwater-related fees (e.g. a local government or regional stormwater authority may charge properties a fee to use downstream stormwater drainage infrastructure).

There is compelling evidence from case studies, particularly from North America, that establishing a dedicated and stable source of funding for stormwater management ensures long-term viability of programs and public support. For example, Lehner *et al.* (1999) surveyed 100 stormwater case studies in the US and concluded that there were six ‘foundations of success’ in relation to stormwater management projects:

1. Focusing on pollution prevention (e.g. using non-structural and structural source controls);
2. Preserving and utilising natural features and processes (e.g. using vegetated buffers, ‘cluster development’ principles);
3. Providing strong incentives, routine monitoring and consistent enforcement to establish accountability;
4. Establishing a dedicated source of funding to ensure long-term viability of programs and public support;
5. Providing strong leadership to provide a catalyst for success; and
6. Providing effective administration.

In areas of Australia where major stormwater-related grants programs have been in existence for several years and then removed, local government authorities are increasingly establishing their own dedicated funding mechanisms. These often take the form of an environmental levy or a property-based stormwater fee (known as a ‘stormwater utility’ in the US).

The US Centre for Watershed Protection (2000) describes a ‘stormwater utility’ as a method of stormwater financing, where property owners are charged a modest fee for using the stormwater drainage network. The revenue gained from these fees is used to finance capital and operating expenses that are needed for local stormwater quality and quantity management.

The US Centre for Watershed Protection (2000) also reported that the American Public Works Association considers stormwater utilities as the ‘most dependable and equitable approach available to local government to finance stormwater management’. Such funding arrangements were rare in the early 1990s, but are now an important revenue raising mechanism in several hundred cities and counties across the US.

Applicability

A stable and dedicated funding mechanism for urban stormwater management is needed in all urban areas, particularly those experiencing rising stormwater costs and community expectations.

Exploration of funding options should occur early in the development of a region’s stormwater management program (e.g. as a critical management action in the region's stormwater management plan). As mentioned below, awareness of stormwater-related issues within the community would need to be significantly raised before a funding mechanism can be established. In this context, ‘community’ includes all key stakeholders (e.g. elected officials, environmental groups, ratepayer associations, etc.).

Recommended Practices

One method of creating secure and stable funding for stormwater management is through the establishment of an environmental levy or a property-based stormwater fee (known as a ‘stormwater utility’ in the US). The US Centre for Watershed Protection (2000) provides the following five-step plan for successfully creating a ‘stormwater utility’.

- ✓ Accurately estimate revenue requirements.
- ✓ Determine an administrative structure for stormwater management (e.g. determine the scope of activities needed to manage stormwater and identify the administrative units best suited to perform each task).
- ✓ Devise a fee structure and a billing system. For example, a fee schedule may be structured according to the amount of directly connected impervious area on the property.
- ✓ Implement a public information program. Public involvement during and after the establishment of the stormwater utility is believed to be essential for its successful implementation. Through participation processes, the community could also be involved in designing the stormwater utility.
- ✓ Adopt stormwater utility ordinances. This step ensures that the utility has a statutory basis, if challenged.

Benefits and Effectiveness

Funding is obviously essential for sound urban stormwater management. However, the type of funding arrangement is also important.

For example, there is persuasive anecdotal evidence around Australia that short-term funding programs have led to poor outcomes in some cases. This evidence includes gross pollutant traps that were hastily built with grant funds, but never maintained due to a lack of ongoing funding. In this situation, gross

pollutant traps may exacerbate the pollution problem, by converting nutrients in an organic form to a bioavailable form in the anoxic environment of an unmaintained trap.

A good example of a funding system is the use of economic incentives that can operate under a property-based stormwater fee/utility. For example, such a funding mechanism can be structured so that properties with a large amount of directly connected impervious area (e.g. a traditional carpark) pay a relatively high fee, while properties with a small amount of directly connected impervious area (e.g. a carpark with bioretention systems) pay a relatively low fee. Such an arrangement provides a strong, ongoing economic incentive for water sensitive urban design for both developing areas and existing areas. It is also consistent with the ‘polluter pays’ and ‘user pays’ principles. This approach may be particularly attractive in developed areas where stormwater quality and quantity needs to be managed but there is little room downstream for stormwater detention and treatment structures.

Challenges

A potential challenge to establishing stable, dedicated funding arrangements is resistance from existing ratepayers. However, such resistance is often minimal where the need for stormwater funding is clearly communicated to the local community, mechanisms are established to ensure stormwater-related fees/levies are used for stormwater-related projects only, and the community is involved in the design of the funding mechanism (e.g. through citizen juries or focus groups).

Another potential challenge is the amount of work required to establish the funding mechanism, particularly where a property-based stormwater fee is structured in relation to each property’s directly connected impervious area.

Another potential challenge is where jurisdiction for stormwater management is controversial or complex. In such circumstances, an organisation like a local government authority may be reluctant to invest resources in establishing a new stormwater funding mechanism. Also, the legal validity of the mechanism may be uncertain. Responsibilities (e.g. of State government agencies and local government authorities) must be clearly established before new funding mechanisms can be introduced.

Cost

It is estimated that it would cost a local government or regional stormwater authority approximately \$50,000 to establish a property-based stormwater management fee that is structured in relation to each property’s directly connected impervious area. The bulk of this cost is associated with calculating a suitable fee for each property. These costs could however be quickly recovered once the fee is established.

Following a survey of 97 stormwater utilities across 20 States in North America, Black and Veatch (1996) reported that the average monthly residential charge was approximately US\$2.50 (in 1996 dollars).

Additional Information

The US Centre for Watershed Protection (2000) stressed the importance of involving the public before and after the implementation of a stormwater-related funding mechanism. They concluded that the experience of communities that have successfully implemented stormwater utilities underscores the importance of public education and involvement. It should initially be assumed that the general public is unaware of the impact of stormwater runoff, or the role it plays in maintaining watershed quality. However, it assumes that once educated, the public will be discriminating in the services and programs they expect to be delivered from a new stormwater utility (p. 408).

Examples / Case Studies

Black and Veatch (1996) conducted a survey of 97 stormwater management agencies across 20 States in North America that had implemented a property-based stormwater management fee to address stormwater quality and quantity (i.e. a 'stormwater utility'). Some of the trends they observed are provided below as an indicator of typical experiences.

- 61% of respondents felt public information/education was essential to the success of the funding mechanism and only 1% considered it unnecessary.
- 55% of respondents used the percentage of impervious cover as the basis for the fee.
- 74% of respondents billed on a monthly basis.
- 57% of respondents provided some form of credit if on-site detention/retention practices exist.
- 81% of respondents reported that the stormwater utility helps to fund capital as well as operating and maintenance costs.
- 82% of respondents reported that the stormwater utility revenue meets 'most needs' or at least 'most urgent needs'.
- 11% of respondents reported that the stormwater utility revenues were adequate for 'all stormwater needs'.

References and Further Information

Black and Veatch 1996, 1995-1996 *Stormwater Utility Survey*, Management Consulting Division, Kansas City, Missouri, pp. 10. Not seen, cited in Centre for Watershed (2000).

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