

AFFORDABILITY OF STORMWATER AND FLOOD RISK MANAGEMENT SCHEMES FOR LOCAL GOVERNMENT

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ABSTRACT

Consultants are in a unique position to see the struggles Local Authorities face with regards to affordability of stormwater and flood remediation schemes. Looking across the many Local Authorities charged with delivering stormwater services, several common issues emerge across many of them that are worth identifying and seeking to share.

In short, it is clear that Stormwater, being the 'poor cousin' has not had the attention that is required to allow communities and habitats to thrive successfully. As such, a different way of thinking is required to deal with these issues. We need to be adaptive and embrace stormwater management as an opportunity to add significant value to communities. We need to be looking towards developing low tech solutions, adaptable resilient facilities which could operate across multiple functions. Where multiple functions can be achieved there are opportunities for funding from different sources. Larger Municipal Councils have an advantage in this space. Having access to a greater funding pool affords the luxury of dedicated staff working on strategy and larger budgets to use for future proofing.

Some Councils are able to lead providing appropriate 'big picture planning' and developing clear visions for regeneration and new development. Strategic land purchases made over several years are now being developed into critical stormwater management areas. They are pushing the best practice boundaries to maximise water quality treatment, establish new ecological ecosystems, improve biodiversity, link to key walkways and cycle routes, create new amenity and recreational areas, all whilst achieving their primary stormwater function for flood alleviation and enabling further development.

An attitude shift towards taking a 'big picture' point of view and the increasing awareness and focus on stormwater management is a step in the right direction. It is a huge improvement on the reactive approach of the past, where solutions were considered in isolation due to lack of data and the complexity of interactions between pipes, and watercourses, attenuation systems, infiltration systems, etc.

While designing in isolation may have fixed the initial issue, the solution itself could transfer the problems elsewhere, resulting in further upstream or downstream flooding. Fortunately, the evolution of integrated catchment management planning and technological advances in hydraulic modelling software and ground surface mapping allows us to look at the system as a whole and understand the complex interactions between piped systems, channels and surface water.

There are multiple competing and increasing demands on stormwater infrastructure as a result of global and national pressures:

- Increased perceptions – Communities are becoming more vociferous and identifying higher expectations around acceptable levels of service and greater sensitivity to adverse effects (flooding, discharge of contaminants, etc.).
- A changing and variable climate, including sea level rise.
- Urbanisation – seeking to deliver improved levels of service to 'fix' historical land use decisions as well as the demands of future development.
- Increasing water quality standards/regulation.

It also seems that the more we know, the bigger the problem becomes. This is because assessments uncover issues; where on several occasions, additional issues are unearthed that have as yet not manifested themselves in real life. Over time, multiple factors such as

- urban sprawl and urban densification,
- urban creep,
- traditional stormwater management approaches to enable development,
- the reactive management and funding of stormwater assets in response to events, and
- aging infrastructure has led to having near entire stormwater systems being grossly inadequate.

This raises questions about how to fund the work, as the cost of upgrading and maintaining a network to industry standard level of service can appear (in isolation) to be almost cost prohibitive. In some cases to make a scheme affordable would see the costs spread over a period as long as the life of the piped asset.

Local Authorities are also faced with their own Local Government issues, and smaller Councils are inevitably the hardest hit:

- Stormwater as the "poor cousin" – water and wastewater are lifelines whereas stormwater is more for the public good and hence the allocation of three waters funding has tended to go to serve these necessities. There is no denying that floods can be devastating, however the intermittent and relatively short-lived impacts of flooding are never going to trump the continuous requirement for safe drinking water and management of wastewater.
- Funding – investment and operational expenditure for stormwater has historically been low with spending largely in response to flood events. Stormwater is often funded from other rates so the true costs can be buried.
- Staff – the larger City Councils are able to have separate strategy, policy, delivery and enforcement roles and internal capability and resources to undertake their own design projects whereas smaller Councils are much more reliant on external consultants to help them provide stormwater services to the local communities.
- Rating systems – in some cases there is not even a separate stormwater rate.

- Competing political agendas, with funds often directed towards the more “visible” projects such as roads, parks, or bigger “flavor of the month” projects like libraries and swimming pools.
- There are economies of scale for larger Councils; the costs to develop design guidelines, Codes of Practice, stormwater bylaws and undertake investigations and options assessments are often similar, regardless of geographical size or urban density.

So what can we do about it? There is no denying that knowledge of a problem is better than burying our heads in the sand. But where do we start making improvements when the upgrades required are so extensive?

The key steps of change require collaboration, vision and adaption.

Collaboration is important for bring stakeholders together and getting buy in and support for stormwater vision and improvement projects. There are opportunities for Councils to work smarter, learning from each other and collaborating in order to share knowledge and be more efficient. Successful collaboration we have seen work for Councils includes:

- Developing a joint guideline documents e.g. design guidelines or an Engineering Code of Practice.
- Internal collaboration between roading and water (stormwater) departments where there have been opportunities for roading budgets to contribute to stormwater upgrades.
- Sharing resources – a business case to employ a technical specialist may be difficult to justify without guarantee of a full work load but sharing of the resource between two (or more) Councils can bridge this gap.
- District councils within a region coming together to collaboratively work through regional issues.

With a collaborative culture established, a vision for regeneration of the town/city that is consistent with the vision for the district/region is the next critical step. The vision needs to be outcomes based and consider all aspects of the environment – the natural environment, the built environment and the social/cultural environment. There should also be consideration for a timeframe to achieving this vision and the potential costs involved.

Adaption comes next and is related to how the vision is achieved:

- Capture new development as a way of reversing the continual downward trend.
- Identify stormwater infrastructure required to achieve the vision and estimate the cost and period over which that work might be funded. Understanding the extent and cost of upgrading the traditional stormwater system can be an important step, giving perspective to the consideration of alternative options.
- Consider the whole of life of the asset and whether over the same period for the same funds there might be a different solution that achieves the same result with better overall outcomes such as looking at alternative ways to manage stormwater that reduce the need for or cost of hard infrastructure (e.g. catchment-wide retrofitting of water sensitive design elements to reduce runoff quantities)

- Think broader in terms of multiple-use stormwater facilities, assets and systems and who else may be able to contribute to funding.
- Consider reducing levels of service with higher emphasis on overland flow path management.
- Change thinking around developer contributions to assist with critical upgrades.

The route to achieving the desired vision is an adaptive pathway. We need to be agile and able to adapt to change as change is the only constant.

KEYWORDS

Local Government, Local Authority, Council, Affordability, Collaboration, Vision Adaption, Whole of Life