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PUTTING RESEARCH INTO PRACTICE: APPLYING AN INNOVATIVE PLANNING/MANAGEMENT PROCESS IN THE COOKS RIVER CATCHMENT

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Abstract

Set in southwestern Sydney, the Cooks River has long been an area of residential and industrial activity. The Cooks River Catchment covers a relatively small area of ~10,000 hectares, but is densely urbanised with ~500,000 residents. The Cooks River has suffered degradation over the last 200 years as a result of vegetation removal, channel modification and use as a drain for sewage, industrial and domestic waste, and stormwater. While point source pollution has predominantly stopped, widespread, diffuse pollution from the heavily urbanised catchment continues to be a major problem.

Councils in the Cooks River Catchment have collaborated on projects related to the River through the Cooks River Foreshores Working Group (CRFWG) - an officer-level group that facilitates communication and coordination between councils, state government agencies and the local community. In 2007, the CRFWG initiated *OurRiver – Cooks River Sustainability Initiative*, a project with eight partner councils (Ashfield, Bankstown, Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale, Strathfield) focused on urban water management. OurRiver is a three-year, state-funded project aimed at implementing a catchment-wide program to improve stormwater management and river health by addressing four issues previously as hindering the implementation of sustainable urban water management practices:

1. planning on too large a scale,
2. lack of involvement by multi-disciplinary staff,
3. insufficient community involvement, and
4. fragmented governance.

This paper describes how OurRiver has addressed the four issues above, and the project outcomes and key lessons for success. OurRiver is based on Marrickville Council's Urban Stormwater Integrated Management (USWIM) model - a collaborative, context-based and multidisciplinary process. OurRiver applied the USWIM model to six subcatchments across the Cooks River region that encompass eight different local government areas. The subcatchments are diverse in social make-up, land use characteristics, and the level of capacity of various councils. OurRiver adapted the model to the specific needs of each subcatchment.

Each subcatchment was researched to understand its physical (e.g., land use, soil type), social (census demographics, survey of residents' and businesses' attitudes/behavior related to water and the environment), and institutional (major decision makers, landholders) characteristics. This information was collated into public-friendly information booklets. Armed with the information booklets and with their own valuable knowledge of the local area, residents, council staff, and other key stakeholders came together in a series of visioning sessions and planning forums to develop a vision for what their subcatchments could be like and identify goals and actions in order to achieve those visions.

These initial collaborative planning steps form the backbone of subcatchment management plans that bring together the subcatchment information, vision, goals, and actions with options for how to implement the actions. For example, OurRiver has developed over 70 concept designs for Water Sensitive Urban Design devices to clean stormwater and conserve water resources.

To support ongoing benefits, OurRiver is facilitating development of an alliance of catchment councils that will build on existing collaborations and the momentum gained by OurRiver in order to ensure long-term, coordinated management and enable sustainable urban water management practices by providing support in key areas.

1. Introduction

Set in southwestern Sydney, the Cooks River has long been an area of residential and industrial activity. The Cooks River Catchment covers a relatively small area of ~10,000 hectares, but is densely urbanised with approximately 500,000 residents. The Cooks River has suffered degradation over the last 200 years as a result of vegetation removal, channel modification and use as a drain for sewage, industrial and domestic waste, and stormwater. While the point source pollution has predominantly stopped, widespread, diffuse pollution from the heavily urbanised catchment continues to be a major problem. An assessment of pollution entering Sydney waterways from sewer overflows, stormwater, and rainfall revealed that a large proportion of the pollution was caused by urban stormwater (CWP, 1992). In Sydney, the responsibility for the provision and maintenance of drainage infrastructure has historically been shared between local government and Sydney Water, with Sydney Water providing and maintaining the larger channels and pipes whereas councils develop and maintain local feeder drains that deliver into the larger drainage system.

A number of councils in the Cooks River Catchment have collaborated on projects related to the River through the Cooks River Foreshores Working Group (CRFWG) - an officer-level group that facilitates communication and coordination between councils, state government agencies and the local community for a more strategic and coordinated approach to the management of the Cooks River, its foreshores and recreational areas. In 2007, the CRFWG initiated *OurRiver – Cooks River Sustainability Initiative*, a project with eight partner councils (Ashfield, Bankstown, Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale, Strathfield) focused on urban water management. OurRiver is a three-year, state-funded project aimed at implementing a catchment-wide program to improve stormwater management and river health by addressing issues identified as hindering implementation of stormwater management plans in Metropolitan Sydney in the 1990s (Brown, 2003; Brown, 2005; Brown et al., 2005):

1. planning on too large a scale,
2. lack of involvement by multi-disciplinary staff,
3. insufficient community involvement, and
4. fragmented governance.

While technical knowledge and funding are important, the research found that these factors were not the main obstacles. Evidence of this is the range of innovative engineering techniques available that have been applied around Australia and the fact that councils spend significant resources every year on drainage infrastructure and flood works. A low level of technical knowledge and resources for sustainable urban water management may reflect an organisation giving it low priority and thus assigning junior engineers and minimal budget.

The OurRiver project is based on Marrickville Council's Urban Stormwater Integrated Management (USWIM) model – a collaborative, context-based and multidisciplinary process designed to address the above problems.

OurRiver built upon the USWIM foundation and applied it to six subcatchments across the Cooks River region. This required applying an innovative process to new areas that encompass eight different local government areas. This paper presents a case study of how OurRiver has addressed the four above issues, project outcomes and key lessons for success. The experiences with different subcatchments show that good outcomes can be achieved under a variety of circumstances. Though the outcomes in each subcatchment are similar, the process to attain them was adapted according to the local social and physical characteristics, and council drivers, structures, processes and culture.

2. Addressing barriers to implementing sustainable urban water management

Sustainable urban water management (SUWM) encompasses both philosophical and technical aspects of water management. The technical side of SUWM involves a looking at the "total water cycle" and includes:

- reducing reliance on imported potable water (through water conservation and using water that is fit-for-purpose),
- reducing the impact of stormwater on waterways, and
- reducing the volume of wastewater leaving the catchment.

In addition to these technical aspects, SUWM also involves using a participatory, integrated approach where the community, multi-disciplinary staff and other stakeholders take part in planning and decision making.

The concept of SUWM has been incorporated into a variety of plans and strategies in Australia and abroad (e.g., the Australian National Water Initiative objectives, community planning principles in the 2010 Metropolitan Water Plan for Sydney); however, successful implementation of SUWM plans and policies has been challenging. For example, the NSW Government's stormwater reform program, which was designed to lead to wide-spread change, resulted in a number of plan documents but minimal shift in on-ground practices to SUWM (Brown et al., 2005). OurRiver aims to embed SUWM into partner council practices by addressing issues previously identified as hindering SUWM implementation (Brown, 2003; Brown, 2005; Brown et al., 2005). The following sections describe OurRiver's method as follows:

A. Working on a subcatchment scale,
B. Working with multi-disciplinary teams,
C. Working collaboratively with the community to develop subcatchment management plans, and
D. Addressing regional governance issues.

A. Working on a Subcatchment Scale

Developing plans on a catchment-wide scale can be difficult since physical conditions and social characteristics can vary widely. In the case of the Cooks River, the upper reaches are typically concreted stormwater drains that the community does not identify with, whereas parts of the lower Cooks River are bounded by parks and remnant bushland and have community groups that regularly perform volunteer bushcare and rubbish removal along the riverbanks. To ensure that processes used and solutions developed would be appropriate to local conditions, OurRiver focused on six subcatchments rather than developing a catchment-wide plan. These six subcatchments are located across the catchment (Figure 1). They vary in size from 103 to 417 hectares and jointly cover approximately 15% of the Cooks River catchment (Table 1).

Subcatchments were chosen based on a selection process that looked at 17 subcatchment characteristics, including feasibility for water sensitive urban design (WSUD), level of community interest, pollution levels, land use, population size and number of councils involved. The level of homogeneity in terms of land use and

residential demographics was an important consideration, as the more homogenous an area the more applicable communications and solutions will be to a wider area/percentage of the population. The subcatchments chosen include four mainly residential subcatchments and two mainly industrial subcatchments. Some subcatchments include highly visible and well-used sections of the Cooks River (i.e., Ashbury and Strathfield South), while others have no well-known waterways (i.e., Munni Street and Eastern Channel East). Four of the subcatchments fall entirely within a single LGA whilst Ashbury Subcatchment falls into two LGAs – Ashfield and Canterbury, and the Upper Wolli Creek Subcatchment spans three LGAs – Canterbury, Hurstville and Rockdale. The subcatchments differ in density and population size (e.g., Munni Street has 14,000 residents mainly living in terrace houses and apartments while Ashbury has just over 2,000 residents living in mainly stand-alone houses). The boundaries of all but one subcatchment (Strathfield South) are based exclusively on stormwater catchments. The Strathfield LGA boundary cuts through part of a stormwater catchment; parts of the stormwater catchment that fall outside the Strathfield LGA boundary were not included in the Strathfield South Subcatchment.

Context mapping of each subcatchment was undertaken to determine social, physical and organisational characteristics that would inform collaborative planning activities and future implementation of subcatchment management plans. The following research was undertaken:

- Social profiling
  - Examined census data on a variety of relevant statistics (age distribution, education, residential tenure, etc.) (ABS, 2006).
  - Conducted residential and business surveys to ascertain current knowledge, behavior and attitudes to water and the environment (~2700 responses; 15% response rate).
  - Interviewed community services staff about prior community engagement undertaken by council in the subcatchment and any other subcatchment-specific knowledge and suggestions.

- Physical profiling
  - Detailed data collection and analysis related to a range of physical characteristics including current and future land use, soil type and stormwater and sewer systems.
  - Calculated current rainfall, water use and wastewater generation to create a subcatchment water budget to identify potential potable water savings and alternative water sources (i.e., local rainfall and stormwater runoff).
  - Modeled current pollutant loads to establish the level of stormwater treatment and/or pollution reduction measures required to meet best practice pollutant reduction targets.

- Organisational profiling

  - Identified key decision makers including all water user groups (residential, commercial and other), community groups, schools, state government agencies and major land users.
  - Analysed each council's current capacity to implement SUWM through comprehensive staff surveys and group interviews, and provided recommendations for overcoming barriers to SUWM. This included looking at what councils were already doing (e.g., constructing bioretention basins, GPTs, working with community groups).

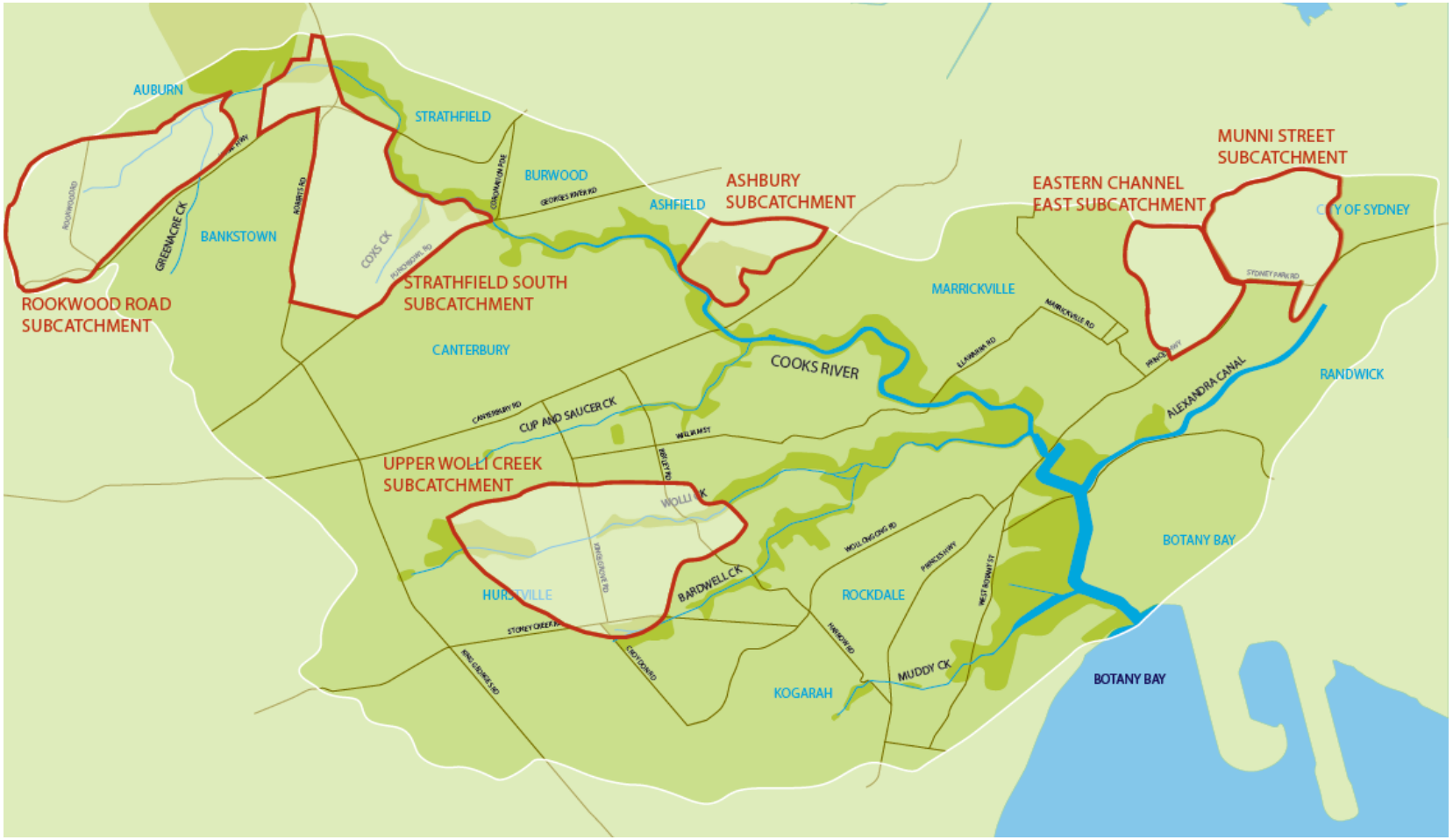

Figure 1 - Approximate location of the six OurRiver subcatchments (marked with red lines). Cooks River Catchment boundary is marked by the darker shade of green.

Table 1 – Characteristics of the OurRiver Subcatchments.

Subcatchment name	Physical profile				Social profile			Organisational profile		
	Area (ha)	Main land use	Impervious area (%)	Waterways in subcatchment	Residential population	Tenure (% rental households)	% of community survey respondents that knew where water in street drains goes (nearest waterway)	Council(s) name	LGA size (ha)	Total income for continuing operations (from original 2009 Council budget)
Ashbury	103	Residential	43 %	Section of the Cooks River	2,329	16 %	75 %	Ashfield, Canterbury	829 3,357	$26,786,000 $85,950,000
Eastern Channel East	131	Residential	81 %	None	7,661	18 %	64 %	Marrickville	1,656	$76,661,000
Munni Street	217	Residential	78 %	Concrete lined Munni Street Channel	14,484	53 %	54 %	City of Sydney	2,615	$423,900,000
Rookwood Road	377	Industrial	68 %	Freshwater Creek Wetlands	2,265	27 %	63 %	Bankstown	7,700	$122,184,000
Strathfield South	417	Industrial	71 %	Section of the Cooks River	2,989	36 %	56 %	Strathfield	1,389	$23,383,000
Upper Wolli Creek	385	Residential	67 %	Concrete lined section of Wolli Creek	10,175	22 %	54 %	Canterbury, Hurstville, Rockdale	3,357 2,300 3,011	$85,950,000 $68,517,000 $69,523,000

Working on the subcatchment scale allowed for detailed characterisation of each area in a relatively short timeframe. The resulting information was used in a variety of ways. For example, the social data was used to understand who the audience was for community engagement activities. The community water survey provided further insight on how well residents understood the water cycle and their concerns/aspirations related to water and the environment. The physical research also allowed the OurRiver project officers to become very familiar with the subcatchment so that they were able to converse knowledgably with community members during collaborative planning and were also able to quickly identify potential sites for on-ground works.

Working at the subcatchment scale also provided flexibility. Communications with residents were able to be somewhat less formal than those addressed to the entire LGA. The smaller number of residents simplified logistics so that face-to-face meetings could be hosted or targeted letter-drops could be performed. Working at the subcatchment scale may also encourage greater community participation as the discussion is focused on a very local area. The size of subcatchments was determined taking into consideration the desire to work on small local scales to ensure a high level of community engagement balanced with the level of council resources available for working on multiple small scale areas.

In some instances, a disadvantage of working on the subcatchment scale is that there is limited space for on-ground works. As part of the OurRiver project, on-ground works were proposed in each subcatchment. Areas of open space were a major target area for these works since they are places that councils own and manage. In some of the subcatchments, there are few areas of public open space, and in some cases, the open space areas are at the top of the subcatchment where it is difficult to locate stormwater harvesting or filtration devices. An additional challenge of working on the subcatchment scale was the need to educate the community on the concept of a subcatchment and how subcatchment boundaries differ from suburb or LGA boundaries. Some residents relate strongly to a particular suburb or area within a subcatchment so may not feel a connection to and/or ownership of the subcatchment as a whole.

B. Working with Multi-disciplinary Teams

An integrated approach to urban water management where staff from a variety of disciplines are involved is desirable for a number of reasons. It makes environmental outcomes more achievable and ensures projects address multiple issues, e.g., stormwater quality, amenity, and flooding. It minimises cost since early involvement of multi-disciplinary staff leads to the early identification and prevention of potential problems that at best could be costly to address at a later date or at worst could stop a project altogether after considerable time and resources have been invested. Multi-disciplinary involvement in planning stages raises awareness and leads to maximising opportunities like scheduled road or park upgrades, which are cost-effective times to install water conservation or stormwater filtration devices.

OurRiver has had a high level of success gaining participation by a range of council staff (~1,100 staff have participated); however, in some cases, the absence of particular positions within a council or the strain on a given staff's time caused delays on the project. Council staff willingness to participate has been affected by a number of things, often related to existing internal council relationships, which can develop into roadblocks, quickly impede willing staff and affect interdepartmental and external relationships.

Key factors affecting un/willingness of staff:

- Scope of the person's role/position, e.g., sustainability vs. water/catchments coordinator.
- Familiarity with the project – the less familiar, the less willing staff are to help.
- Instability (e.g., departmental restructure or other changes within council, especially if they create a sense of uncertainty amongst staff).

- Desire not to rock the boat, stand out or be a leader, which can be due to staff relationships, personality or council culture.
- Time/resource availability – this often relates to the scope of a person's role; smaller councils typically have little resources to dedicate towards projects that are seen to be outside of core business.
- The nature of a staff member's contract, permanent vs. temporary.
- Sense that project is/is not producing valuable deliverables.

At the project outset, gaining participation of multi-disciplinary staff was identified as a challenge to overcome in order for OurRiver to succeed. In order to engage multi-disciplinary staff, OurRiver kept staff informed on the project, integrated staff into the process early on, and provided hands-on learning opportunities. A critical factor for getting staff involved was effectively communicating the purpose of the project and how staff could participate. At the beginning of the project, presentations were delivered to a variety of staff across departments and hierarchies at partner councils. These presentations gave a project overview including a background to the problems associated with traditional stormwater management and how the OurRiver project aimed to address these. These presentations helped to make council staff familiar with the project so that they would be more receptive when contacted at a later date by the OurRiver team and/or the OurRiver Steering Committee member and required to take some action (e.g., participate in organisational profiling surveys or in site selection for OurRiver funded on-ground works).

OurRiver's primary point of contact for each council is the OurRiver steering committee member. In addition to the project steering committee, OurRiver has a technical working group, a communications committee, and an executive champions committee all made up of staff from each council. These committees increase the visibility of the project within councils. Having the support of executive level staff has also assisted in getting some of the higher level management and political aspects of the project done. An additional tool that was effective in increasing project visibility and reinforcing the purpose and relevancy of the project to councils was a bi-monthly project newsletter, which steering committee members were asked to distribute to staff at their council.

During the early stages of the project, OurRiver invited a variety of council staff to vision sessions and planning forums along with community members and other stakeholders. This was met with mixed results – some planning forums were well attended by staff from planning, parks, sustainability and engineering, while at others, only sustainability/environment staff attended. At two councils, the OurRiver team also ran vision sessions where council staff considered the future of the Cooks River and of catchment management generally. These sessions provided staff with a greater insight into the visioning process and helped foster support for the vision statements developed with the community. At one council where a staff vision session was held, staff attendance at the community planning forum was very high.

The OurRiver project budget included allocations of $60,000 per partner council to support initial implementation of the subcatchment management plans developed through OurRiver. In most cases, this funding went to the construction of on-ground WSUD works. The opportunity to work on a "real life example" was very beneficial to engaging a variety of council staff. OurRiver sought participation by relevant staff from different departments (engineering, parks, environmental services, etc.) to discuss what type of works would be constructed and potential site locations. Most staff members were happy to provide input at this stage of the project and most engineering staff were enthusiastic when it came to developing designs in-house for the works. At one council where the design and construction of a raingarden was undertaken for the first time in-house, staff were eager to learn the new skills and knowledge required despite experiencing the usual difficulties associated with doing something for the first time. In a few cases, engineering staff volunteered to participate in community engagement activities related to the on-ground projects – attending a community

planting day for a completed raingarden and actively participating in a community information day for upcoming works.

Another strategy that OurRiver used to encourage participation by staff was to circulate information on upcoming workshops and trainings (particularly related to WSUD) and to offer subsidies for registration fees. The extra incentive of having all or part of the registration paid for helped to get council staff to trainings where they learned more about innovative solutions to urban water management problems, hence providing better understanding of the premise behind the OurRiver project. Again, having real life examples of WSUD works being built in their LGA helped encourage participation in trainings as the knowledge gained could be readily applied. The registration subsidies also helped to reinforce the idea that the project should be a resource for partner councils rather than a burden.

Of the six councils who are building WSUD works using OurRiver funding, five are undertaking the detailed design internally, with the support of mentoring and/or design review by an experienced professional. The sixth council, absent an appropriate engineer from its staff, used a consultant to complete detailed design in a highly consultative process with a number of key council staff. Three of the six councils decided to perform construction in-house since they had the available resourcing and saw the staff capacity building and cost benefits as valuable opportunities.

The keys to successfully engaging varied staff were finding champions that were interested in the project, building relationships, and targeting communications to specific audiences. The success of the invested effort is demonstrated by the large number of staff who have participated in the project (~1,100) and by the relatively high profile of the project. Because of the project's multi-disciplinary approach it has reached a greater number of council staff than other more single issue projects undertaken by the CRPWG since its inception in 1998.

C. Working Collaboratively with the Community

Research in metropolitan Sydney has indicated the importance of effective community engagement for successful implementation of SUWM (Brown, 2003; Dahlenburg & Morison, 2009). Community engagement is important for several reasons. Engagement often leads to community support, which facilitates councils' ability to develop on-ground projects, particularly in open space areas where WSUD projects are often built. As WSUD works such as raingardens or stormwater harvesting systems can have potential safety and/or cost concerns, it is essential that the community understands the benefits of these projects and the problems they combat. In addition, stormwater is greatly impacted on by behavior, so engaging the community is important to ensure people understand this and change their behavior if necessary. In NSW, councils have the opportunity to raise a stormwater charge (typically ~$25/household). Councils that raise the stormwater charge are responsible for detailed reporting of how the stormwater charge funds are spent and rely on community and councillor support to continue raising the charge. Thus, it is essential that the community understands the importance of the problem being addressed in order to value the related expenditures.

Engaging with the community in a collaborative manner from the early stages of the planning process has been one of the innovative components of OurRiver. To date, over 3,000 residents, businesses and landholders within the subcatchments have been involved in OurRiver activities (Table 2). Involving local residents and other stakeholders across the six OurRiver subcatchments has provided councils with an opportunity to utilise valuable local knowledge and produce outcomes that are more likely to be accepted by the community. OurRiver has used a variety of engagement tools and been flexible to allow for the varying needs and resources of each partner council, as well as differing knowledge and participation levels within each subcatchment community.

Table 2: OurRiver Community Engagement Activities

OurRiver Community Engagement Activity	Subcatchment	Numbers engaged
Community Water Survey	All	2,465
Business Water Survey	All	200
Vision Sessions	All except Rookwood Road[1]	181
Planning Forums	All	176
Subcatchment community meetings and information and planting days associated with on ground works completed to date	All	343
Water Wise Tours	Ashbury, Rookwood Road, Strathfield South & Upper Wolli Creek	60
Total	**All**	**3,425**

A community water survey was distributed to all subcatchment households and was the first opportunity to communicate directly with residents about the project. The survey results provided insight into residents' current knowledge, behavior and attitudes towards water and the environment including their receptivity to reusing rainwater and greywater. The survey results were used to inform the vision sessions and planning forums that formed the foundation of the collaborative planning process used to develop subcatchment management plans. The survey results were also used to inform the implementation of subcatchment management plans and other planning undertaken by councils. The survey included a prize draw to encourage participation and the prize slip included an option for residents to sign up to the OurRiver mailing list. The contacts made through the prize draw have been a valuable resource throughout the project. These contacts were invited to attend the collaborative planning sessions where up to 90% of attendees were prize draw contacts. A similar survey of subcatchment businesses was completed at a later date. Contacts made via the residential and business surveys receive the bi-monthly OurRiver newsletter and other subcatchment specific correspondence. The surveys can be repeated by the councils in the future to track changes in the community.

Stand alone vision sessions held in five of the six subcatchments provided an opportunity for residents to visualise how they would like to see water and the environment in their local area in 20 or 30 years time. In the sixth subcatchment, questions related to water were incorporated into ongoing Local Area Planning Sessions, and vision statements were developed based on the answers to these questions. To enable all participants to meaningfully contribute, information booklets containing results of the physical, social and organisational profiling were distributed to attendees before the sessions. Large maps were also used that allowed participants to identify where they lived, major landmarks, the Cooks River and any local tributaries (Figure 2).

[1] Rookwood Road numbers not included since these were run as part of ongoing Local Area Planning Sessions rather than specific OurRiver events.

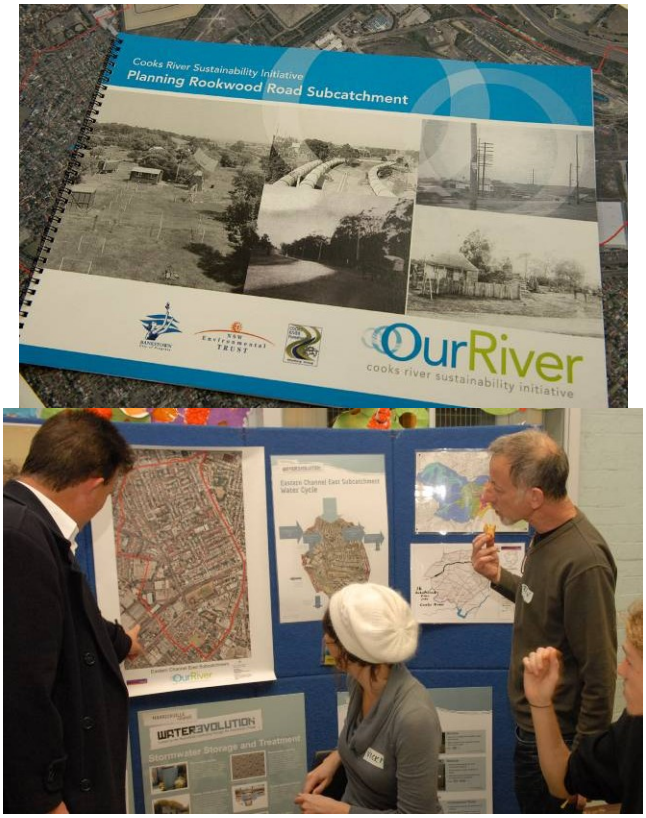

Figure 2: Resources used at the OurRiver visioning sessions and planning forums

The subcatchment vision statements (Table 3) were the basis for discussing potential solutions for sustainable water management at the planning forums. Residents, council staff, state government agencies and other stakeholders worked together to identify long and short terms goals as well as actions that would guide both councils and communities to achieve their future vision. The vision statements, goals and actions form the basis of subcatchment management plans, which the OurRiver team developed following the engagement sessions. On-ground works that will contribute to the achievement of the vision were investigated by the OurRiver team and OurRiver funding was made available to each council to implement actions identified in the plans. Throughout the collaborative planning process, feedback has been solicited to ensure the participants' views and words are accurately represented. Various communication methods have been utilised including letters, e-mails and face to face meetings. Community input has been an important part of the on-ground works. Information days have been held to gain feedback on concept designs and community planting days have been held for raingarden and swale projects.

Table 3: Excerpts from the community vision statements developed as part of the OurRiver project.

Subcatchment	Vision Statement
Ashbury	"In 2050 the naturally flowing Cooks River supports a thriving ecosystem and is a place where people can enjoy the pleasure of water. Water and the environment are managed for future generations so that there is no need to worry."
Eastern Channel East	"In 2050 our people are happy and recognise our interdependence on ecological systems and we value water. Our society is active and engaged, and collaborative processes have influence beyond the subcatchment."

Munni Street	"Our waterways are clean and are used as a community resource for recreation and community gardens. Our community understands how water works and plays an active role in its management, and there is strong public education for all ages."
Rookwood Road	"Our streets are beautiful, interactive spaces that are used day and night by the community. Our waterways are clean, rainwater and greywater are collected for reuse, and the community and other stakeholders work together to promote water conservation and recycling."
Strathfield South	"Our community is well educated in sustainability and individuals are aware of their responsibility to care for the environment. Industry and residents are sustainable water users who live in harmony with the environment including the Cooks River which is an oasis enjoyed by all."
Upper Wolli Creek	"In 2050 our community understands and is aware of the importance of water and energy conservation. Our catchment is planted with native vegetation and there are roadside gardens which clean the stormwater before it flows into Wolli Creek. Wolli Creek is safe to swim in again."

The level of community engagement attempted by the OurRiver team has varied between subcatchments based on the predicted level of interest (due to population demographics, existing culture of community action, and response to previous OurRiver activities) and the willingness of council staff. In some councils, community engagement is approached with trepidation whereas other councils encourage it. In most instances, where council officers were apprehensive, they were pleasantly surprised by the community's level of interest and ability to provide valuable feedback. For example, when considering a stormwater harvesting project in an OurRiver subcatchment, residents attested to how frequently water could be heard in the particular stormwater drain and therefore help to confirm flows available for harvest. Evaluation forms have been provided at OurRiver community events and feedback has been overwhelmingly positive. For two of the subcatchment management plans, residents involved in the collaborative planning process wrote a letter of support to Council when the plans were up for Council endorsement.

Working on a subcatchment scale with multi-disciplinary teams and using collaborative planning in all six subcatchments resulted in a management plan for each subcatchment. The purpose of the subcatchment management plans is to provide a guide, based on the subcatchment's specific characteristics, for implementing SUWM.

Subcatchment management plans were written using plain English and designed to be user friendly for a range of stakeholders that make decisions related to water, including council staff from various disciplines, state government agencies, community groups, residents, businesses, and other land users. The subcatchment management plans include the following:

- Statement of the plan's purpose.
- Summary of the current problems related to water supply and pollution.
- How the plan fits with existing federal, state and local government policy and how it will be implemented by the relevant council.
- Overview of the subcatchment's physical and social characteristics including a water budget.
- List of subcatchment stakeholders and their role in local water management.
- Description of collaborative planning process and the resulting the visions, goals and actions.
- Actions that council, residents, businesses, etc. can take to achieve the visions.
- Specific on-ground works investigated by the OurRiver team.
- Details of the actions funded and implemented as part of the OurRiver project.

The subcatchment management plans are intended to be holistic documents that bring together subcatchment specific background information and collaborative planning results. OurRiver is initiating the implementation of the subcatchment management plans by providing resources for education initiatives and construction projects.

D. Addressing Regional Governance Issues

In order to address fragmented governance as a barrier to SUWM, OurRiver researched past and current governance in the Cooks River Catchment and facilitated discussions with officers and executive staff from eight councils. Set in a dense urban landscape, the Cooks River Catchment encompasses a large number of organisations that regulate the provision of water services and related infrastructure and the care of the natural environment and of public and private land. These activities impact the quantity and quality of water that reaches the Cooks River and the health of the riparian environment including the river's foreshores. Groups that make decisions related to water and the environment in the Cooks River Catchment include over 20 community groups, 13 councils, 10 state departments, seven state agencies or corporations, six regional groups, two federal agencies, and hundreds of thousands of business and residential water users. The large number of stakeholders involved leads to jurisdictional and institutional fragmentation resulting in overlapping and often undefined responsibilities between organisations. Related to this fragmentation is a lack of political support, often due to no single organisation feeling that they are responsible for the problem. Since 1998, the CRFWG has played a significant role in increasing communication between stakeholders in order to highlight the collective responsibility for the River's issues and the duplication of effort in some cases and gaps in others. However, the CRFWG's relevance is limited by the fact that it is an officer-level group that is relatively low profile and that operates on an ad-hoc basis largely reliant on grant funding.

Since its inception the CRFWG, has facilitated coordination between councils, state government agencies and the local community and has successfully undertaken a range of regional projects made possible through short term grants. The Sydney Metropolitan Catchment Management Authority including the 'WSUD in Sydney' program have also contributed to regional coordination and helped to promote and support best practice water management in the Cooks River Catchment. Nevertheless, OurRiver research found that a lack of a well-resourced Cooks River Catchment-scale organisation with high level council and political support was a limiting factor to achieving best practice management practices across the catchment (OurRiver, 2010).

Based on group discussions with representatives from the eight OurRiver partner councils, it was decided that the most effective way to address this was to develop a Cooks River Alliance. The Cooks River Alliance would replace the CRFWG, building on its historical coordination role and adding critical new aspects such as involvement of political and senior staff, ongoing funding from participating councils, expanding the focus beyond the foreshore, developing projects funded by external partners, and additional staff with key technical skills. The Cooks River Alliance would be an association of Councillors that implements a strategic plan for the Cooks River Catchment, supported by an Alliance Working Group consisting of Cooks River Alliance staff and council and state agency staff. The fundamental objective of the Cooks River Alliance is to define catchment standards for natural resource and water management and to aid member councils to achieve those standards by providing technical support, building council staff capacity, actively seeking external funding for projects, and coordinating activities within the catchment.

OurRiver is currently coordinating the development of the Cooks River Alliance. This process is being carried out in a highly collaborative process, whereby feedback on the proposal from council officers, executives, and Councillors is continually sought and incorporated. The aim of using such an iterative process is similar to that for involving stakeholders in the collaborative planning process: issues are identified early and addressed or avoided. To advance the proposal for the Cooks River Alliance, OurRiver prepared a Discussion Paper outlining

the rationale for a Cooks River Alliance, its basic functions, and anticipated costs. In March 2010, a meeting of Cooks River Catchment Mayors (attended by Mayors or Councillors from eight councils) endorsed in-principle the establishment of a Cooks River Alliance and asked that a report with further information be developed. A report including a draft constitution, proposed projects for the first few years and a proposed funding model was developed in June 2010.

The Cooks River Alliance is not anticipated to be established until late 2010 when a Memorandum of Understanding would be signed by member councils. Though the success of this part of the project remains to be seen, the level of interest in the Alliance and the fact that it is being discussed at executive and political levels within council suggests that the method used to develop the Alliance has been effective. Involving all levels of council staff (officer, executive, political) has resulted in a proposal that is grounded in the specific economic and political situation of the Cooks River.

3. Conclusion

The OurRiver project has successfully taken lessons from SUWM research and applied them to a variety of situations. The project has demonstrated that change can be achieved by addressing barriers identified in research. When asked about the benefits of the OurRiver project, partner council staff focused on three key points:

- The formation and/or strengthening of relationships across council departments and across catchment councils,
- The building of council capacity for WSUD design and construction, and
- The demonstration of how proactive community engagement can be implemented, leading to positive outcomes.

Following involvement in the project, several councils are incorporating aspects and/or lessons learnt as part of the OurRiver process in their future planning and operations. The continued implementation of the OurRiver process speaks volumes to the success of the project and to how a limited trial funded by external grants can spur significant internal change. The increased community and council staff capacity, the relationships established, and the six management plans developed, provide a road map and the tools necessary for councils and communities to further improve stormwater quality and reduce water consumption. Implementation of the plans over the coming years will result in significant stormwater quality improvements and water savings.

4. References

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