Cooks River Alliance

# Management Plan

Cooks River Alliance

Ashfield
Bankstown
Canterbury
City of Sydney
Hurstville
Marrickville
Rockdale
Strathfield

The Cooks River Alliance is an alliance of councils who will use the combined resources, experience, knowledge and skills within the councils and the community to address the complex environmental problems of the Cooks River Catchment.

# Contents

# 1. Introduction

The Cooks River Alliance (Alliance) was established on 3 May 2011 with the signing of a Memorandum of Understanding (MoU) by the eight founding member councils - Ashfield, Bankstown, Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale and Strathfield. The MoU outlines the financial and organisational commitments from each member council for the period between July 2011 to June 2014. The MoU is supported by an agreed Terms of Reference, which sets out the roles and responsibilities of the Alliance Board, Working Group and Alliance Staff.

The Alliance builds upon previous Cooks River council partnerships and projects and evolves from the Cooks River Foreshores Working Group (1998 – 2011) and its most successful and ambitious project – OurRiver Cooks River Sustainability Initiative (2007 – 2011).

## Challenges for the Cooks River and the Alliance

A number of major issues contribute to the physical degradation of the river:

- The catchment is densely populated and is highly urbanised
- Natural areas have been replaced and fragmented
- There are high levels of imperviousness and urban development
- The stormwater system focussed solely on drainage and flood control – stormwater carries pollution, impacts stream flow regimes, and degrades aquatic habitats
- Degraded stormwater and sewer infrastructure
- Sediments and banks hold a history of dangerous industrial pollutants and which prevent natural processes that filter out pollutants and temper flow
- Sewer overflows which are released into the river during intense or prolonged rainfall events
- Fit for purpose water use is not extensive in the catchment
- The catchment crosses multiple jurisdictional boundaries across an ultra-urban landscape and requires common vision to allow optimal use of combined resources and manage competing priorities
- Low levels of capacity for sustainable urban water and catchment management – history of poor integration and a mono-disciplinary approach to issues, lack of evidence based collaborative decision making, solutions not tailored to the local context – social, physical or organisational

**“The people of Ashfield think about the future and hope and want to improve the quality of life of present and future generations. The people of Ashfield understand the impacts of human activities on the environment and sustainable living has become a way of life.**

*- Extract from Our Place Our Future Vision Ashfield Community Strategic Plan 2022.*

# 2. Alliance Management Plan

This Alliance Management Plan has been created to guide the work of the Cooks River Alliance. The primary purpose of Cooks River Alliance Management Plan is to set high level and strategic directions for the Cooks River Alliance Board, Staff and Working Group.

The Management Plan is supported by the Alliance Action Plan which provides details of Priority Programs and associated Work Plans. The Alliance Action Plan will be reviewed annually by the working group and Alliance staff.

The Alliance will provide management and leadership and will partner with others to achieve a healthy catchment.

## Alliance Mission and Focus Areas

***"Councils working together with their communities for a healthy Cooks River catchment".***

The mission statement recognises that councils have a key role in the management of stormwater on public and private lands, can harness the collective action of communities, have regulatory relationships with the NSW State Government and are well placed to collaborate with stakeholders to implement change at the household, streetscape, neighbourhood and regional scale.

The Alliance will achieve this mission by addressing six focus areas:

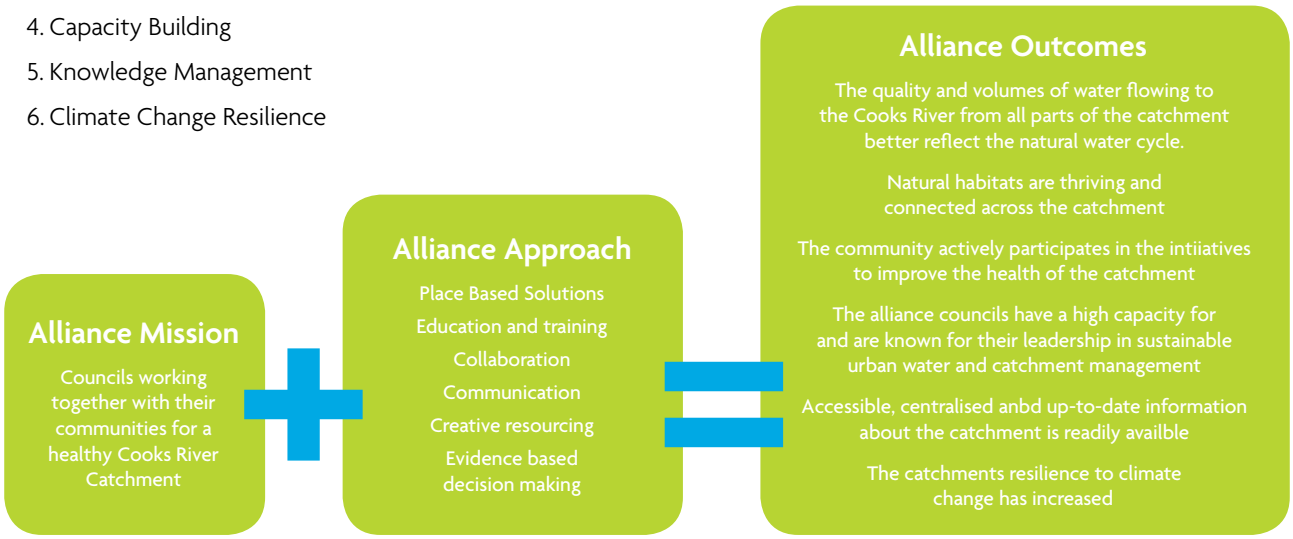
1. Sustainable Urban Water Management
2. Biodiversity
3. Community Action
4. Capacity Building
5. Knowledge Management
6. Climate Change Resilience

## Alliance Long-term Outcomes

The Alliance recognises that the restoration of this river system requires knowledge, innovation, cooperation and collaboration. The Alliance and the Cooks River community will see success when the following outcomes are realised:

1. The quality and volumes of water flowing to the Cooks River from all parts of the catchment better reflect the natural water cycle
2. Natural habitats are thriving and connected across the catchment
3. The community actively participates in initiatives to improve the health of the catchment
4. The Alliance councils have a high capacity for and are known for their leadership in sustainable urban water and catchment management
5. Accessible, centralised and up-to-date information about the catchment is readily available
6. The catchments resilience to climate change has increased

**This diagram represents the mission + approach = outcomes**



## Alliance Partners

The Alliance has a number of important stakeholders who will be important partners in tackling the challenges:

- 13 Local Councils ( Table 1)
- 500,000+ residents living and/or working in the catchment
- 20+ environmental community groups
- Users of the Cooks River cycleway and other recreational facilities along the foreshores
- 5+ Regional Council Groups
- Various State Departments, Agencies and Corporations (most relevant are Sydney Metropolitan Catchment Management Authority, Office of Environment and Heritage, Environmental Protection Authority and Sydney Water).
- 2 Federal Agencies

***Table 1: Councils in the Cooks River Catchment***

| Council | % of LGA in Cooks River Catchment | % of Catchment in the LGA |
|---|---|---|
| Ashfield* | 3 | 1 |
| Auburn | 3 | 1 |
| Bankstown* | 13 | 9 |
| Botany Bay | 24 | 5 |
| Burwood | 31 | 2 |
| Canterbury* | 81 | 24 |
| City of Sydney* | 43 | 10 |
| Hurstville* | 36 | 9 |
| Kogarah | 3 | 1 |
| Marrickville* | 74 | 12 |
| Randwick | 4 | 1 |
| Rockdale* | 66 | 20 |
| Strathfield* | 53 | 7 |

*Alliance member

## Alliance Approach

**Alliance Approach**

The Alliance Board, Working Group, and staff have adopted a sustainable governance model to achieve the long term outcomes. To demonstrate sustainable governance the following approaches will be used:

**Place Based solutions**

The Alliance will work at a community scale to implement locally appropriate solutions to catchment issues contributing to catchment-wide improvements

**Education and Training**

The Alliance will focus on education and training for staff in member councils and the community on issues across the six focus areas

**Collaboration**

The Alliance will facilitate collaboration between member councils, professional disciplines, within communities, and between agencies to build capacity and deliver on-ground improvements

**Communication**

The Alliance will be transparent and open with its communications and it will share and exchange information with all stakeholders

**Creative Resourcing**

The Alliance will allocate its annual resources according to the adopted Management and Action Plans and will actively seek support and additional resources to implement catchment projects

**Evidence based decision making**

The Alliance will gather data and information across the six focus areas to guide future planning and management

> **"Focus on becoming a sustainable city by incorporation of Water Sensitive Urban Design into streetscape**
>
> *- Extract from Rockdale Community Strategic Plan 2025*

## Alliance Structure

With an emphasis on sustainable governance and an approach of collaboration, the Alliance will review its structure to ensure it is flexible enough to allow for growth and development.

## Alliance Functions

The Alliance has a number of core activities that will be carried out each year independent of other projects:

1. Develop Management Plan, Action Plan and Annual Report
2. Coordinate meetings and provide administrative support for the Alliance Board, Executive and Working Group and coordinate information flows between member councils
3. Manage and report on Alliance budget
4. Collaborate on project design and delivery and establish multi-stakeholder committees as required to support specific projects or programs
5. Develop and maintain the Alliance website
6. Seek additional resources and funds through grants, partnerships and sponsorships

## Alliance reporting and review

The Alliance Management Plan will be fully reviewed at the end of the first term (July 2014). The Alliance Action Plan will be reviewed annually by the Working Group and Alliance Staff. A report on the year's activites and acheivements will be reported to the Alliance Board annually.

> **"The River represents Canterbury will be a modern, active community with quality, transport infrastructure, clean waterways, pristine bushland and great community spaces and parks, the City will be Green and a leader in the sustainability of its energy and water resources.**
>
> *- Extract from Canterbury Community Strategic Plan 2021*

**The current governance structure of the Alliance is represented in this diagram**

# 3. State of the Cooks River Catchment Environment

## Catchment and river system

The Cooks River is a highly urbanised catchment located in the inner south western suburbs of Sydney, flowing 23 kilometres from Graf Park in Bankstown and emptying into Botany Bay at Kyeemagh. The River is joined by a number of tributaries along its course listed below from the upper to lower catchment:

- Greenacre Creek
- Cox's Creek
- Cup and Saucer Creek
- Bardwell / Wolli Creeks
- Muddy Creek
- Sheas Creek/Alexandra Canal.

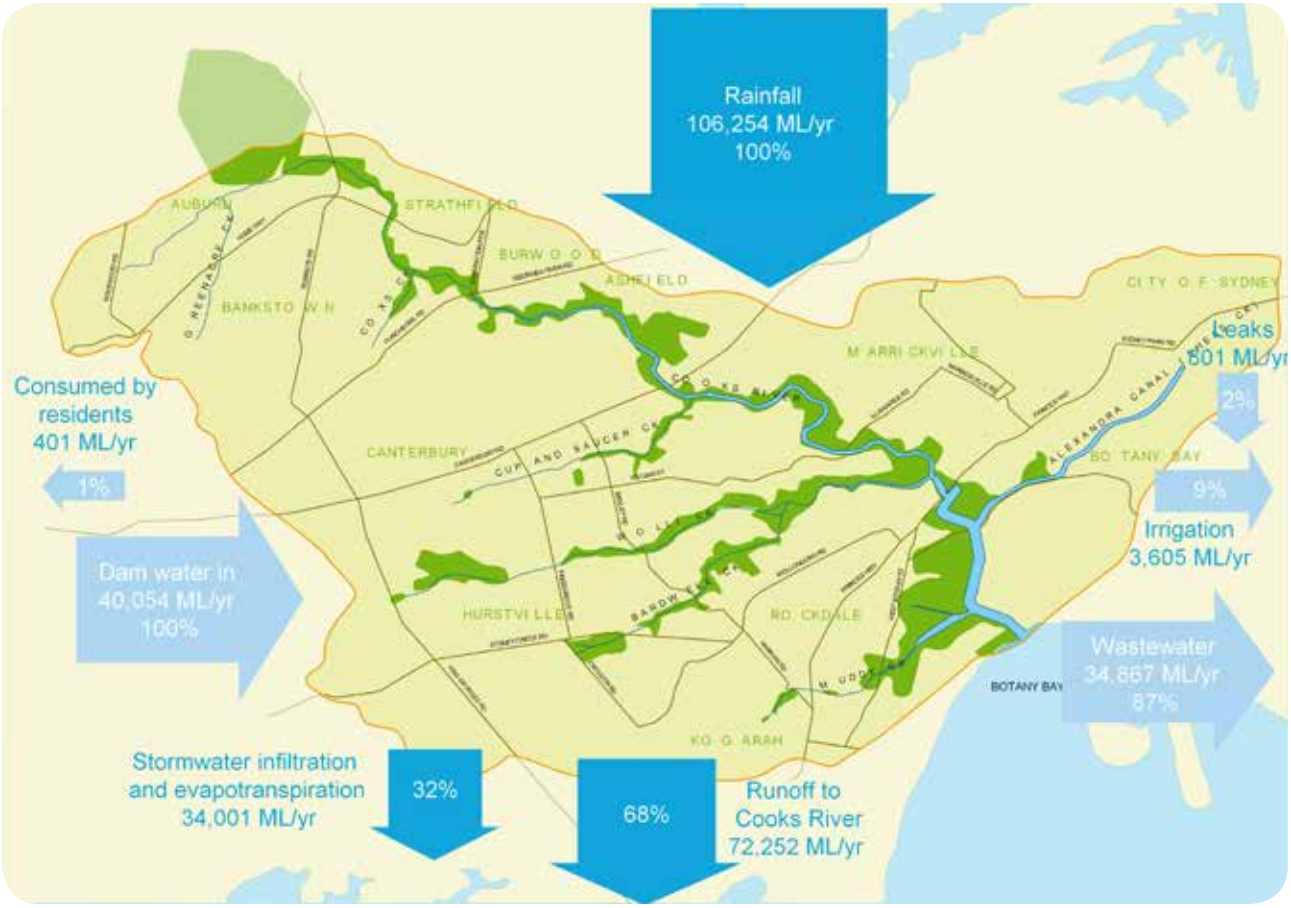
## Cooks River water cycle

The water cycle for the Cooks River catchment is shown in the figure below. It displays the extent of the stormwater problem and also highlights potential solutions.

The two main sources of water flowing into the catchment are rainfall and water imported from Warragamba Dam. However, rainfall delivers more than twice as much water to the Cooks River catchment as is imported from Warragamba Dam.

In a natural catchment, the majority of rainfall soaks into the ground and is used by vegetation. However, the Cooks River catchment is highly urbanised and there is a high proportion of impervious surface.

The urbanisation of the catchment has two prominent effects. First, the inability of water to soak into the ground means that rather than a relatively constant



moderate flow, the Cooks River experiences very low flows during dry periods and very high flows after storms, causing erosion and flooding. Secondly, the stormwater run-off pollutes the river with litter, petroleum derivatives, excess nutrients and other pollutants. Thus, in the current stormwater management regime, there is wastage of significant water resources and increased erosion, flooding, and pollution problems.

## River Health

The health of the Cooks River is measured by water quality, vegetation and macroinvertebrates.

Water quality is an important factor to maintaining a healthy ecosystem. Monitoring water quality in streams, wetlands and estuaries provides a better understanding of how urbanisation and changed land use practices affect the health of the river and estuarine ecosystems.

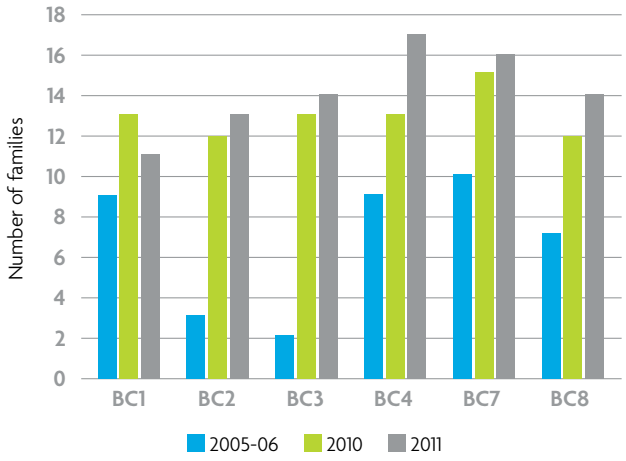
Healthy vegetation communities are important for maintaining a functioning ecosystem. Vegetation plays a major role in providing habitat, nutrient recycling, regulation of temperature and filtration of urban runoff.

Macroinvertebrates are small animals without a backbone, such as snails, worms and dragonfly nymphs. They live in all freshwater creeks and streams and are particularly sensitive to changes in water quality and environmental pressures.

The quality of water of the Cooks River is considered unfit for secondary contact by humans. However, insufficient data has been collected about the ecological health of the river and catchment such as vegetation and macroinvertebrates.

Marrickville, Canterbury and Rockdale councils have been gathering data on the ecological health of the estuary since 2006 through RiverScience. The 2011 RiverScience data shows the types and numbers of benthic invertebrates has increased at most sites, compared to past years. Importantly, a large proportion of this increase is due to the increase in the types and numbers of bristle worms (Polychaeta), which are indicative of polluted

***Figure 1: Benthic Invertebrate Family Richness***




*2011 data shows the types and numbers (richness) of benthic invertebrates has increased at most sites, compared to past years. Importantly, a large proportion of this increase is due to the increase in the types and numbers of bristleworms (Polychaeta), which are indicative of polluted waterways. RiverScience ecological monitoring program*

**"The community is engaged with council in guiding a sustainable future and to have liveable neighbourhoods and strong connectivity where Strathfield's natural environment is protected and enhanced and the infrastructure is integrated planned and sustainable.**

*- Extract from Strathfield Community Strategic Plan 'Strathfield 2025*

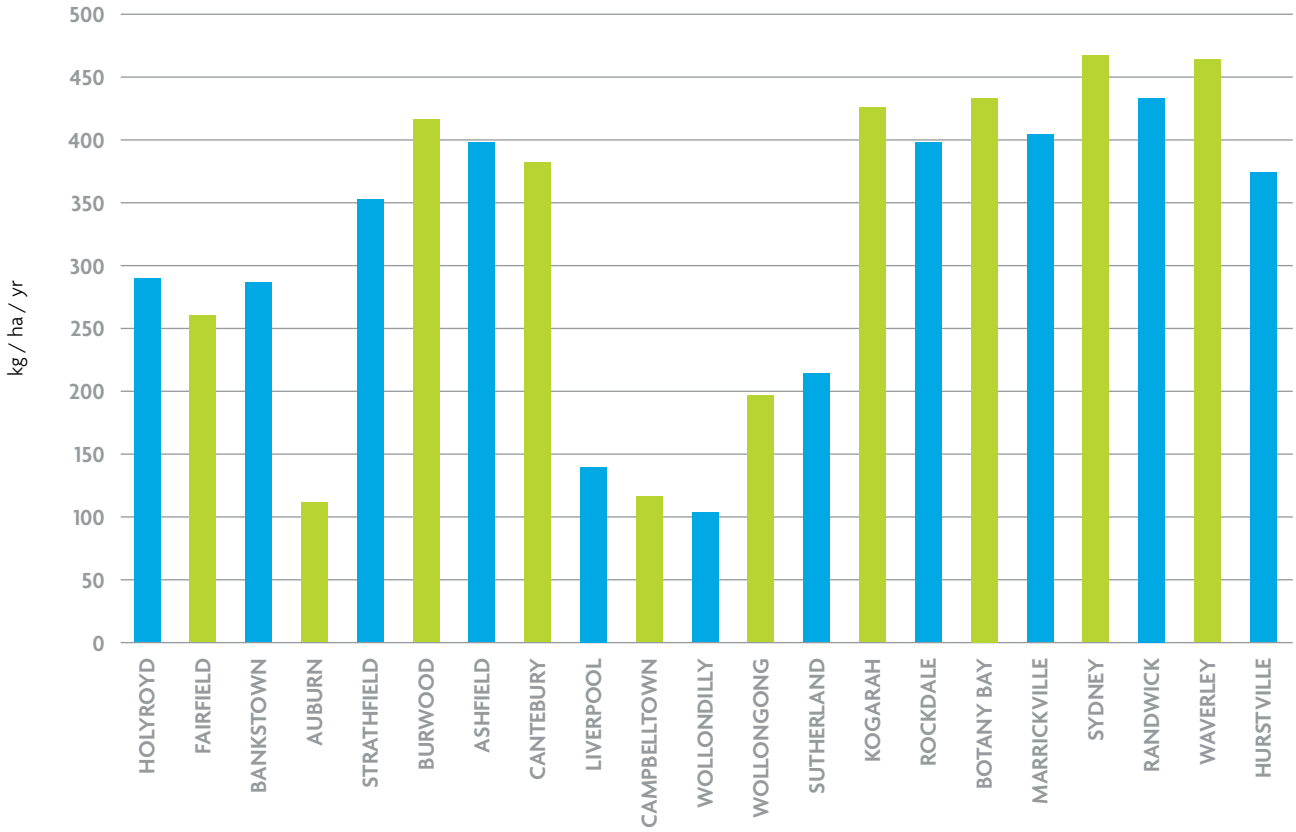
waterways.

## Sediments and Pollutant Loads

Twenty one different local government areas drain into Botany Bay. As per the graph below obtained from the Sydney Metropolitan Catchment Management Authority Botany Bay Water Quality Improvement Program, the maximum pollutants are generated by the Cooks River Catchment councils due to the catchment area being highly urbanised (SMCMA 2009).

> **"An evolving city which promotes a sustainable and safe community that connects people and places and celebrates diversity.**
>
> *- Extract from Hurstville Community Strategic Plan.*

**Total Suspended solids rates per council area**



## Land Use

Land use in the catchment ranges from industrial to open space. Urban (residential) land use is the predominant zoning (graph to the right). A corridor of open space fringing the Cooks River, Cox's Creek, Wolli Creek, Bardwell Creek and Freshwater Creek has survived development pressures and, although narrow in many parts, constitutes a significant portion of the open space in the catchment.

The foreshores of Muddy Creek, Alexandra Canal/Shea's Creek and Cup and Saucer Creek are more developed with less open space. A portion of this significant open space corridor is owned by State authorities, including Sydney Water, NSW Land and Housing Corporation, NSW Department of Education and Communities, RailCorp and the Roads and Maritime Services.

The Cooks River catchment contains some major national and state highways, railway corridors and Sydney's airport. Major roads in the catchment include the Hume Highway, Princes Highway, the M5 and General Holmes Drive. There are four rail lines within the catchment area - East Hills, Bankstown, Illawarra and Botany - and three major rail service areas. Sydney (Kingsford-Smith) Airport, which covers approximately 457 hectares of reclaimed land, also lies within the catchment.

The small proportion of park and bushland and the high proportion of urban, industrial and commercial areas in the Cooks River Catchment indicate large paved areas (graph to the right). This results in high volumes of stormwater run-off since rainwater cannot soak into the ground (source: Cooks River Alliance Discussion Paper 2011).

**Cooks River land use area (ha)**

| | |
|---|---|
| Urban | 8,141 |
| Parkland | 1,025 |
| Industrial | 901 |
| Airport | 457 |
| Commercial | 266 |
| Water body | 130 |
| Bushland* | 0 |
| **Total** | **10,920** |

** Fragmented bushland – too small to scale*

**"A Water Sensitive City where children can swim in the river and play in the dirt, and native plants and animals including frogs, bees and ants are thriving. The community is resilient to climate change and works together to minimise its ecological footprint and live sustainably**

*- Extract from 'Our Place Our Vision' Marrickville Community Strategic Plan 2021.*

# 4. History of Cooks River Activity

## Past administration

The governance of urban catchments is crucial to the success or failure of efforts to improve the health of waterways. For the Cooks River there are multiple stakeholders with an interest in the regulation and management of the river and catchment. Historically management regimes were primarily influenced for property protection from floods.

The structure and functions of many of these stakeholders is single-disciplinary however in recent times management of catchments and urban water ways have become a shared responsibility and many stakeholders are now attempting to work together to achieve more water sensitive urban areas.

These past and current complex governance arrangements are the reason collective action involving councils and communities at a local scale is important for the Cooks River.

Councils, while largely dominated by a more traditional approach to water management, have long been collaborating on the health of the Cooks River and catchment. The history of Cooks River Activity gives an overview of many of the initiatives and impacts on the river and catchment since the early 1990s.

The more recent and most significant changes for the catchment from the perspective of local government administration were the Cooks River Foreshores Working Group and its OurRiver - Cooks River Sustainability Initiative.

## The Cooks River Foreshores Working Group (CRFWG) 1997 - 2011

In 1997, a working party consisting of Marrickville, Strathfield, and Canterbury councils, the Cooks River Catchment Management Committee, the Environment Protection Authority, Greening Australia and the Department of Land and Water Conservation commissioned and published the Cooks River Foreshores Strategic Plan which – a management tool for all councils along the river foreshores, as well as meeting the aspirations of state government bodies and community groups.

Following the completion of the Strategy, the CRFWG was formed. The group played a significant role in increasing communication between member councils and state government agencies and successfully initiated and coordinated the submission of Numerous grant applications. It established a more integrated and strategic approach to the improvement and management of the Cooks River, its foreshores and catchment environment.

Over 12 years it grew from a membership of four to eight councils and inspired increased community action and financial investment from state agencies.

## Our River - Cooks River Sustainability Initiative 2007 - 2011

In 2007, the CRFWG obtained a three-year $2m grant through the NSW Environmental Trust for OurRiver – Cooks River Sustainability Initiative, a project focused on sustainable urban water management with eight partner councils (Ashfield, Bankstown, Canterbury, Sydney City, Hurstville, Marrickville, Rockdale, Strathfield).

OurRiver trialled an innovative planning model based on the award-winning Urban Stormwater Integrated Management (USWIM) project in six subcatchments (figure on page 14) and eight local government areas (LGAs).

The project aimed to:

1. Establish the Cooks River Catchment as a leader in best practice urban water management
2. Improve council capacity for Sustainable Urban Water Management (SUWM)
3. Increase community capacity, pride and ownership
4. Improve river health

The project addressed the following 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
4. fragmented governance

OurRiver achieved its objectives and produced significant outcomes related to water conservation and river health improvement, council and community capacity building, informed decision making and regional governance. Some

of the key achievements:

- Six subcatchment management plans (covering 15% of the Cooks River Catchment) were developed collaboratively by ~500 individuals from councils and subcatchment communities
- Local communities creased six visions for water in their local areas, and developed the subcatchment plans alongside council staff, state government agencies and land owners to achieve these visions
- 100 concept designs for WSUD construction projects such as raingardens and swales were developed
- The capacity of partner councils to implement SUWM was improved and ~1,100 council staff was engaged in SUWM related activities over the three years of the project – many for the first time
- There was increased awareness and understanding of SUWM in subcatchment communities and involved community stakeholders in local planning at a level not seen before in many LGAs
- Ten WSUD projects were constructed including raingardens and stormwater harvesting systems that now treat runoff from ~5.5 hectares (~31,000 KL/year), and save ~10,000 KL/year
- A new model for regional governance was developed and financial commitment from eight partner councils was secured to form the Cooks River Alliance in 2011

## Development of the Alliance

After twelve years of experience and work completed through the OurRiver Initiative, the CRFWG clearly identified a number of changes needed to achieve sustainable urban water and catchment management:

- greater resourcing and resource sharing
- greater community involvement
- increased capacity of councils to collaborate with communities and plan for SUWM
- improved data and information management
- stronger focus on water management as a key to addressing a wide range of natural resource and catchment issues such as biodiversity, soil health, river bank integrity

### Table of Cooks River Activity from 1990s

**1991 -** NSW Minister for Land and Water Conservation establishes the Cooks River Catchment Management Committee

**1993 -** Sydney Water begins restoration works at Eve Street Wetlands in Arncliffe. Other restoration works commence in partnership with communities e.g. Marrickville Landcare and Bankstown Bushland Society

**1998 -** Chullora Freshwater Wetlands constructed, first large scale water quality improvement project

**1998 -** Cooks River Foreshores Working Group was formed

**1999 -** Preparation of the Cooks River Stormwater Management Plan by an Association of Councils in the Cooks River

**2000 -** State government replaces the Catchment Management Committees with Catchment Management Boards that cover larger areas

**2004 -** State government match funds for the Cooks River Foreshores Improvement Program, which led to 36 regional, council and community projects

**2005 -** State government replaces Catchment Management Boards with Catchment Management Authorities with expanded areas

**2006 -** State government begins replacing failing steel sheet piling with more natural river banks

**2007 -** OurRiver project funded by the Environmental Trust

**2008 -** Federal Government funds the Cooks River Urban Water Imitative and works through the SMCMA to implement $2M worth of on-ground works

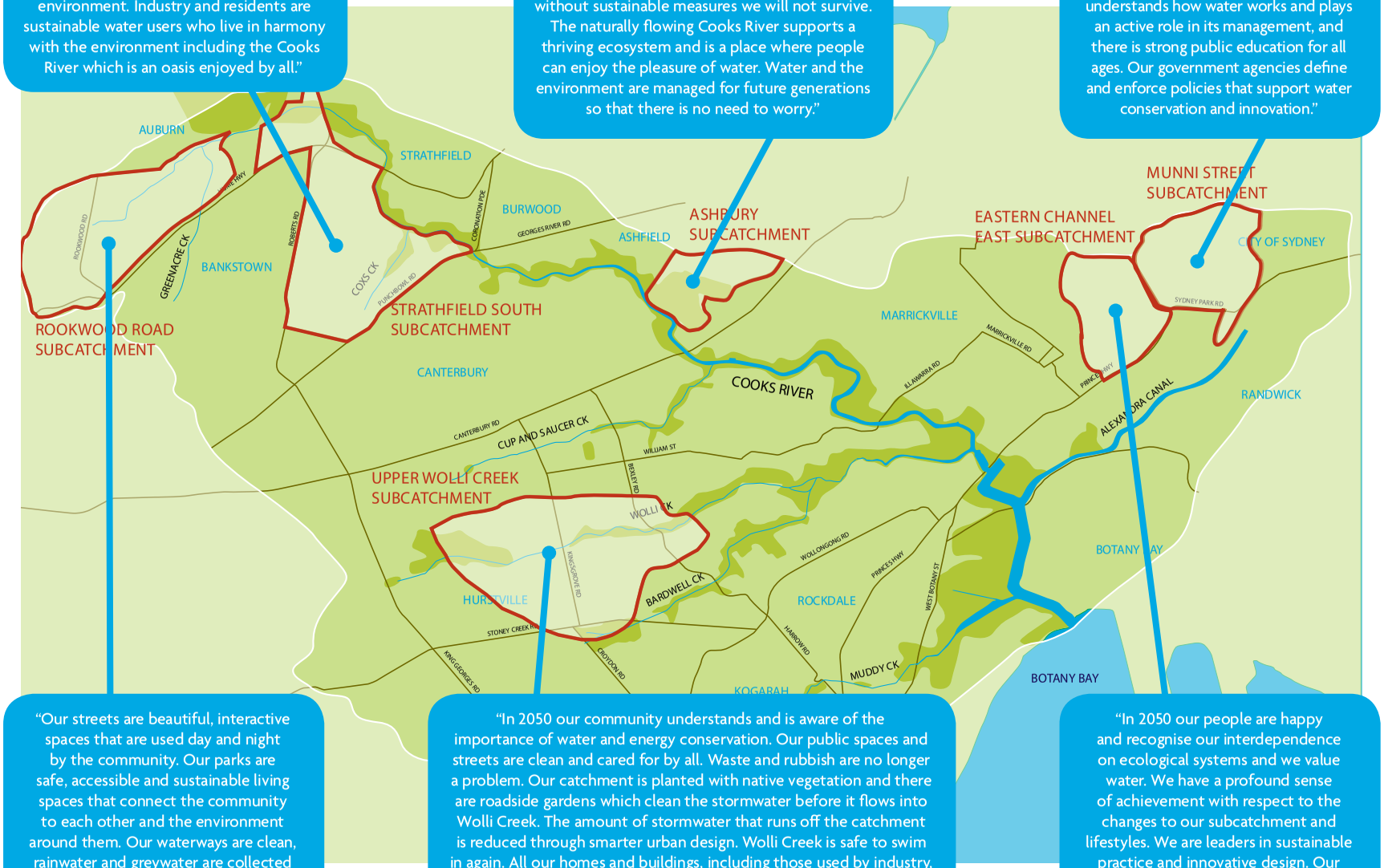
**2011 -** Cooks River Alliance formed and eight councils commit to a three-year MoU

*Source - A Cooks River Alliance – Draft Discussion Paper March 2011*

"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."

"In 2050 people live in harmony as part of the environment with the knowledge that water is precious, everything is connected and that without sustainable measures we will not survive. 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."

"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. Our government agencies define and enforce policies that support water conservation and innovation."




"Our streets are beautiful, interactive spaces that are used day and night by the community. Our parks are safe, accessible and sustainable living spaces that connect the community to each other and the environment around them. 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."

"In 2050 our community understands and is aware of the importance of water and energy conservation. Our public spaces and streets are clean and cared for by all. Waste and rubbish are no longer a problem. Our catchment is planted with native vegetation and there are roadside gardens which clean the stormwater before it flows into Wolli Creek. The amount of stormwater that runs off the catchment is reduced through smarter urban design. Wolli Creek is safe to swim in again. All our homes and buildings, including those used by industry, are sustainable and designed to capture, treat, store and reuse all water sources. Energy is generated locally from renewable resources to meet our communities demand."

"In 2050 our people are happy and recognise our interdependence on ecological systems and we value water. We have a profound sense of achievement with respect to the changes to our subcatchment and lifestyles. We are leaders in sustainable practice and innovative design. Our society is active and engaged, and collaborative processes have influence beyond the subcatchment."

# 5. Focus Areas

The focus areas have been developed based on learnings, experience and outcomes from previous initiatives. The Alliance will concentrate its resources on these focus areas:

1. Sustainable Urban Water Management
2. Biodiversity
3. Community Action
4. Capacity Building
5. Knowledge Management
6. Climate Change Resilience

## Sustainable Urban Water Management

Sustainable Urban Water Management (SUWM) encompasses both philosophical and technical aspects of water management. The technical aspects of SUWM involves the "total water cycle" and includes:

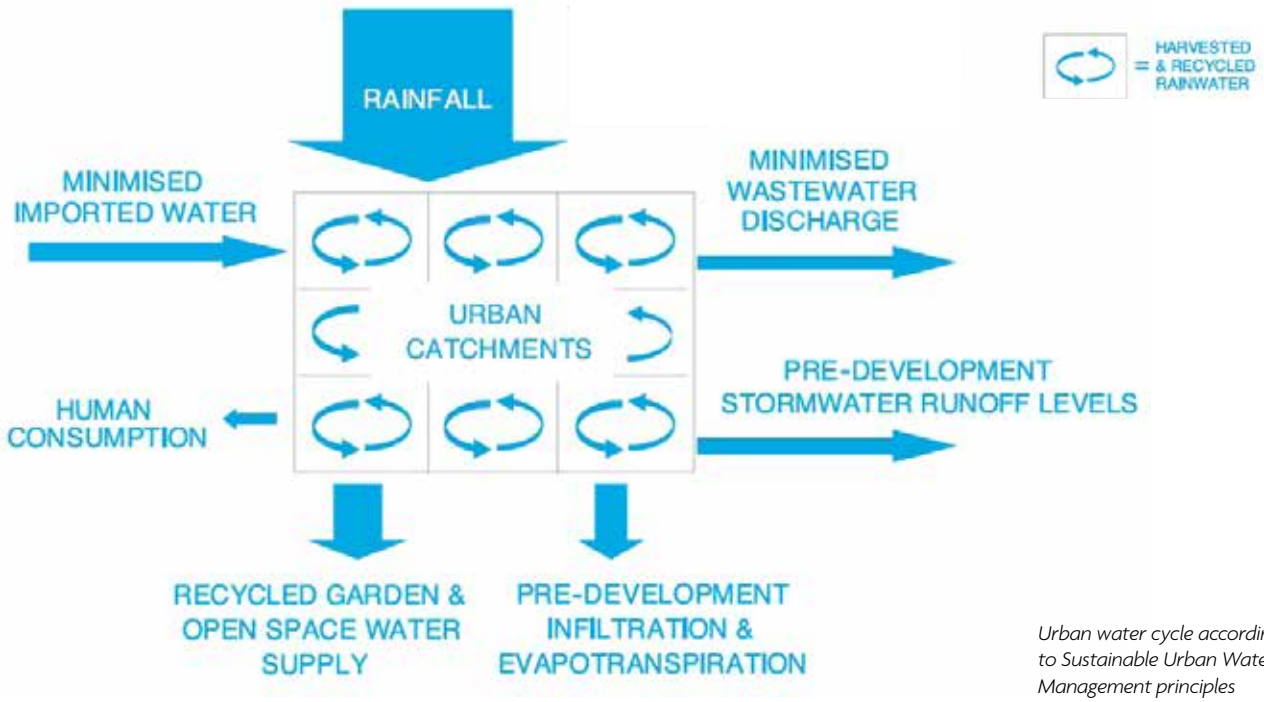
- Reducing reliance on imported potable water
- Reducing the impact of stormwater on waterways
- Reducing the volume of wastewater leaving the catchment

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

SUWM concepts have been incorporated into a variety of plans and strategies in Australia and abroad (eg Australian National Water Initiative objectives, community planning principles in the 2010 Metropolitan Water Plan for Sydney). However, successful implementation of SUWM 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 plans being produced but minimal shift to SUWM in on-ground practices (Brown et al., 2005).

The Alliance aims to build capacity within member councils to address issues previously identified as hindering SUWM implementation including planning on too large a scale, lack of involvement by multi-disciplinary staff, insufficient community involvement and fragmented governance (Brown, 2003; Brown, 2005; Brown et al., 2005).

> **"Sustainability, renewal and hope, for the future of our city, our environment and future generations**
>
> *- Extract from Bankstown Community Strategic Plan 2021*




*Urban water cycle according to Sustainable Urban Water Management principles*

## Biodiversity

Due to the highly developed nature of the catchment, the remnant bushland and surrounding modified areas are regionally important. They support diversity and a number of native fauna species. Major areas of bushland are found in the Wolli Creek Regional Park, Bardwell Valley Parklands and Stotts Reserve, Campsie Remnant Bushland and the Freshwater Creek Bushland at Chullora. These contain valuable areas of good and potentially good bushland. For most of its length the river is flanked by parkland and open space, which is unusual among urban watercourses.

The remaining bushland and foreshore vegetation remnants are considered to be of high ecological value and important for conservation of biodiversity within the region.

The Cooks River catchment contains a number of wetlands that are considered to be regionally significant owing to their limited distribution and fragmented state. These wetlands offer locally valuable habitat for native fauna including birds, mammals, fish, reptiles, amphibians, insects and other invertebrates. The notable wetlands within the Cooks River Catchment are:

- Eve Street (Arncliffe) – remnant
- Wolli Creek (Wolli Creek) – remnant
- Chullora – constructed
- Cup and Saucer Creek (Cantebury) – constructed
- Gough Whitlam Park (Earlwood) – constructed
- Steel Park (Marrickville) – constructed
- Tempe Reserve (Tempe) – constructed
- Coolibah Reserve (Bardwell Valley) - constructed

## Community Action

The Cooks River catchment has a particularly strong history of community leadership in the catchment, dating back to the creation by concerned residents of the Cooks River Improvement League in 1925, which later grew into the Cooks River Valley Association (CRVA).

Their first major action was to publish the Our Ocean to Ocean Opportunity (Sawkins, 1929) designed to arouse public anger and which demanded that the Government take action to clean up the river. From this effort, the Cooks River Valley Association was founded in the 1950's and continues to operate today. Currently, there are over 20 different community groups in the Cooks River Catchment that focus on local environmental issues.

The community values the Cooks River as a significant asset and places high value on healthy waterways. This value is reflected in other communities across Australia and has been driving the change towards more water sensitive urban land management.

*The Mudcrabs have over 400 volunteers who do regular rubbish removal and bush regeneration along the Cooks River. Between 2005 and 2009, the Mudcrabs planted 7,000 native trees and shrubs at bush restoration sites and removed more than 3,000 bags of litter and 550 bags of weeds from the Cooks River (CRVA 2010)*

In 2008, OurRiver conducted a community survey in areas that cover about one-sixth of the total Catchment area. The survey results indicate that residents strongly value local waterways, would consider a diverse range of water sources and are willing to change their behaviour to reduce water usage. The majority of respondents (71%) agreed that "most people want to help improve the health of the waterway environment."

The social responsibility for councils to respond to the community's concerns is being emphasised with the NSW Government's framework for Integrated Planning and Reporting that requires that a Community Strategic Plan be the long-term driver for shorter-term operational plans.

All Cooks River communities have expressed a desire for more sustainable and liveable communities through their community strategic plans.

More specifically the Cooks River community has requested that governments take a lead in this area – the six subcatchment communities who worked with Alliance Councils on OurRiver articulated their visions for the future during the development of subcatchment plans over 2009 – 2010 (figure on page 14).

It is clear that residents of the Cooks River Catchment see healthy local waterways as a common and uniting aspiration. When residents were asked what major improvements to the environment they wanted to see in the next twenty years, the most popular responses were related to water management or waterway health (source: Cooks River Alliance Discussion Paper 2011).

> **"To be Green Global and Connected, the City will be Green by example and green by reputation where bold ideas and good governance will result in better outcomes for current and future communities.**
>
> *- Extract from Sydney 2030 City of Sydney Community Strategic Plan*

## Capacity Building

Addressing the problems facing urban catchments like the Cooks River requires a holistic assessment of the problem. Sustainable urban water management targets complex, multi-stakeholder problems, and is highly dependent on actions that are relevant to the local area.

In order to appropriately target actions, it is necessary to understand not only the physical and social characteristics but also the organisational capacity and influences. Understanding the local context is also likely to result in more success of on-ground implementation and better utilisation of resources.

The Alliance member councils all reviewed their capacity for sustainable urban water and catchment management as part of the OurRiver project. The main areas of organisational capacity addressed within this study were:

1. **Intra-organisational capacity**
   The essential internal elements that define the organisation's capacity for SUWM. These elements consist of:

a) Aspirations: A mission, vision, and commitment by different hierarchical levels within the organisation towards SUWM, which collectively articulate its common sense of purpose and direction

b) Strategy: The coherent set of actions and programs aimed at fulfilling the organisation's overarching goals regarding SUWM

c) Organisational capabilities: The sum of the organisation's capabilities for SUWM, including such things (among others) as performance measurement, operation planning, and inter-organisational collaboration

d) Human Resources: The collective skills, experiences, and potential of staff for SUWM

e) Systems and Infrastructure: The organisation's systems such as planning and knowledge management, as well as the physical and technological assets that support SUWM within the organisation

f) Organisational Structure: The combination of organisational design and inter-functional coordination that shapes the organisation's structure

g) Culture: The connective tissue that binds together the organisation to achieve a more sustainable manner in which urban water is managed

2. **Inter-organisational capacity**
   The essential elements that facilitate productive cooperation between catchment stakeholders for SUWM, such as effective inter-agency collaboration and organisational value and skill for community participation. This profile also identifies the main stakeholders for SUWM within the Cooks River Catchment.

3. **External rules and incentives**
   The broader policy and incentive instruments that enable or deter SUWM development within the Cooks River Catchment

Data was gathered through in-house surveys of staff from all eight councils and from across all work areas. More than 2000 surveys were completed.

Brown's (2008) five phase continuum of organisational development was used for analysing the data. The five phases within this continuum span from a very basic level of capacity (Project) to a very high level of capacity (Integrated) for SUWM.

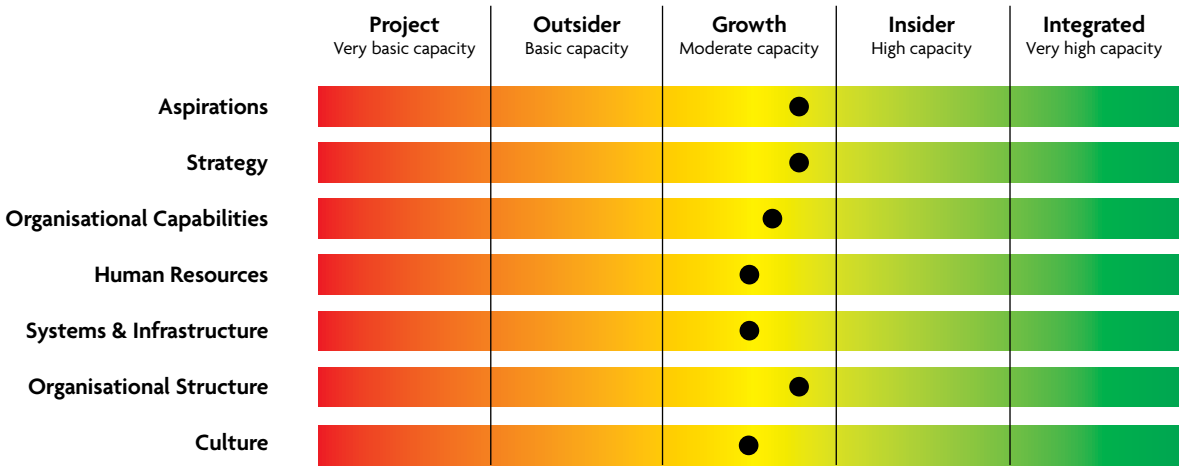
As a group the eight partner councils in the OurRiver project were found to have a basic to moderate capacity for sustainable urban water and catchment management.

## Knowledge Management

Information on the Cooks River is held in varied formats and multiple locations including text, archives, websites, blogs, wikis and maps held and hosted by local, state and federal government as well as community organisations such as Wolli Creek Preservation Society, the Cooks River Valley Association, Greenway: Cooks River to Iron Cove and the Bankstown Bushland Society.

Each member Council has information on their own websites with varying details about the Cooks River and catchment and the programs that have been delivered. Information is held on CooksNet, a web portal hosted by Canterbury Council, which contains archives including historical information and former Cooks River project documents.

The Cooks River Alliance aims to develop an online environment that will provide opportunity to consolidate information in accessible format for the general community.



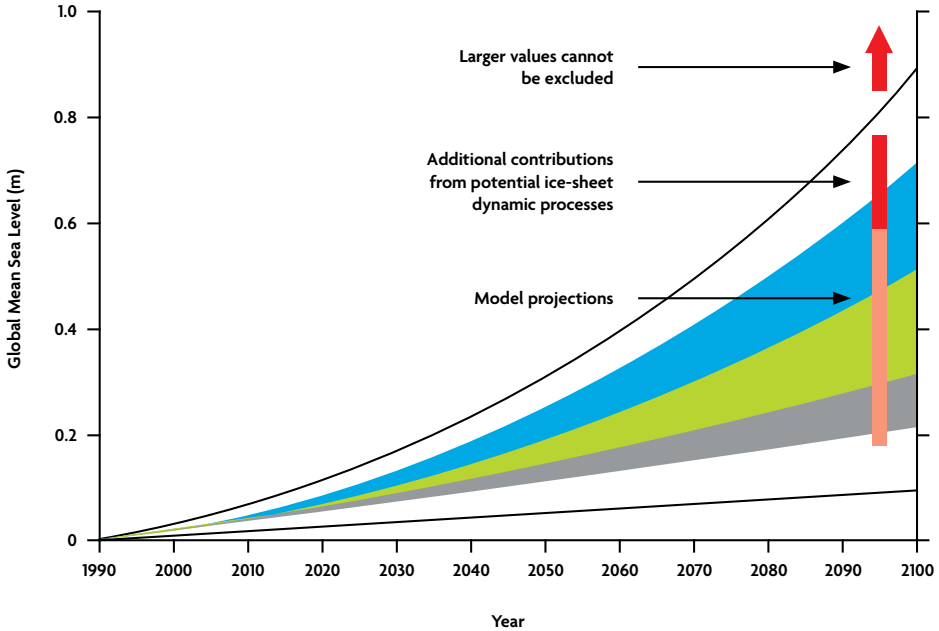

*Example of the five phases of organisational development (Brown, 2008).*

## Climate Change Resilience

Measurements from the last 100 years tell us that the Earth's surface is warming along with rising levels of greenhouse gases, and that this warming is leading to other environmental changes. Environmental changes and predictions by the Intergovernmental Panel on Climate Change (IPCC) for the year 2030 are:

- Rising Temperatures - Temperatures are likely to be half a degree or more higher than 1990 temperatures and the frequency of hot days and nights will have increased (Hennessy, K et al 2007 and Hennessy, K et al 2006). Currently in eastern Sydney, there are about 3 days above 35 degrees Celsius per year. By 2030 this is projected to increase to 4-5 days per year (CSIRO and BOM 2007). This will lead to more heat related deaths, such as the February 2009 heatwave in Melbourne which caused 320 deaths.
- Rising Sea Levels - Sea levels are expected to be about 15cm higher (IPCC, 2007). Rising sea levels will threaten riverine infrastructure and the corridors of open space and habitat that exist along the current estuarine reaches of the Cooks River and its tributaries. The inability of many species to migrate as a result development and habitat fragmentation will mean that biodiversity is likely to decline overall (Howden, S. et al 2003).
- Rainfall is likely to change. The magnitude of the change in extreme rainfall events is currently quite uncertain. The prediction is that the change will be -3% to 12% for Sydney Metropolitan catchments including the Cooks River (CSIRO, 2007). Increasing intensity of storm events will result in increased flooding and property damage. At the same time reductions in rainfall over the next 50 years will restrict community's ability to extract water from Warragamba Dam at the current rate.

*Projected range of Global sea-level rise (IPCC 2007)*



# 6. References and further reading


Bos, A. 2010 OurRiver – Organisational Capacity Report. Monash University

Brown, R. R. 2003 Institutionalisation of integrated urban stormwater management: Multiple case analysis of local management reform across Metropolitan Sydney. School of Civil and Environmental Engineering. PhD Thesis, University of New South Wales, Sydney.

Brown, R. R. 2005 Impediments to Integrated Urban Stormwater Management: The Need for Institutional Reform. Environmental Management, Vol 36 (3), pp 455-468.

Clouston (Firm) & Cooks River Regional Working Party, 1997 Cooks River Foreshores Strategic Plan Clouston, Leichhardt, NSW.

Contribution of Working Group I to the Fourth Assessment Report of Intergovernmental Panel on Climate Change (Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Avery, K., Tignor, M., and Miller, H.L., Eds). 2007 Climate Change 2007: The Physical Basis. Cambridge university Press, Cambridge.

CookNet 2010 Cooks River and history. The Cooks River Portal. Accessed on 10 Mar 2010 at: http://www.canterbury.nsw.gov.au/www/html/170-cooknet---the-cooks-river-portal.asp

Cooks River Foreshores Working Group, CRFWG Annual Report 2004 – 2010/11

Cooks River Foreshores Working Group Cooks River Sustainability Initiative – OurRiver Discussion Paper 2011

Cooks River Foreshores Working Group, RiverScience – Cooks River Ecological Monitoring Program – Report and Report Cards 2005 – 2011

Cooks River Foreshores Working Group, 2011 Subcatchment Management Plans

- Munni St Subcatchment, City of Sydney;
- Eastern Channel East Subcatchment – Marrickville;
- Upper Wolli Creek Subcatchment – Rockdale, Hurstville, Canterbury;
- Ashbury Subcatchment – Ashfield, Canterbury;
- Strathfield South Subcatchment – Strathfield;
- Rookwood Road Subcatchment – Bankstown.

Cooks River Total Catchment Management Committee, 1991 Cooks River draft total catchment management action plan / Cooks River TCM Committee Soil Conservation Service of N.S.W., Sydney, NSW.

Cooks River Catchment Management Committee, 1997 Cooks River Catchment pollution source inventory: a summary of identified pollution sources in the Cooks River catchment and a preliminary estimate of pollutant loads from each Cooks River Catchment Management Committee, Sydney, NSW.

CRVA (Cooks River Valley Association), 2010 The Mudcrabs - Cooks River Eco Volunteers. Accessed on 10 Mar 2010 at: http://www.crva.org.au/index.php?option=com_content&task=view&id=21&Itemid=36

CSIRO 2007. Climate Change in NSW Catchments Series – Sydney Metropolitan Catchments. Prepared for the NSW Government.

CSIRO and BOM 2007. Climate Change in Asutralia: Technical Report. CSIRO and Commonwealth of Australia. Retrieved from http://www.climatechangeinaustralia.gov.au/technical_report.php

CWP 1992. Pollutant loadings into the waterways of Sydney and Illawarra regions: Preliminary assessment. Clean Waterways Programme, Water Board, Sydney.

DECCW (Department of Environment, Climate Change and Water NSW), 2010 Who Cares about the Environment in 2009 A survey of NSW people's environmental knowledge, attitudes and behaviors. Available at: http://www.environment.nsw.gov.au/community/whocares2009.htm

Engineers Australia. 2003 2003 NSW infrastructure report card. Engineers Australia, Barton, Australian Capitol Territory.

Hennessy, K., Fitzharris, B., Bates, B.C., Harvey, N., Howden, S.M., Hughes, L., Salinger, J., and Warrick, R 2007. Australia and new Zealand in Climate Change 2007: The Physical Science Basis Contribution of Working Group I to the Fourth Assessment Report of Intergovernmental Panel on Climate Change (Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt K., Tignor, M., and Miller, H.L., Eds), Cambridge university Press, Cambridge.

Howden, M., Hughes, L., Dunlop, M., Zethoven, I., Hilbert., D and Chilcott, C. 2003. Climate change impacts on biodiversity in Australia, CSIRO Sustainable Ecosystems.

Junor, R. 1999 A case for the formation of a Cooks River Catchment Management Trust The Association of Councils Cooks River Catchment, Sydney, NSW

Junor, R.W, 2000 Reclaiming Cooks River as a valued community asset (Brochure) The Association of Councils Cooks River Catchment, Sydney, NSW.

Marrickville Council, 2007 Subcatchment Planning for SUWM – Guidelines for Councils

Millennium Ecosystem Assessment, 2005, Ecosystems and human well-being: Wetland and Water Synthesis, World Resources Institute, Washington, DC.

O'Loughlin, G. 1994 Pollution Prevention and Politics - The Recent Experience in Sydney. Water Science and Technology, Vol 30, pp 13-22.

PPK Environment & Infrastructure Pty Ltd and Webb, McKeown & Associates Pty Ltd, 1999 Cooks River Stormwater Management Plan Cooks River Catchment Association of Councils, Sydney, NSW.

Sawkins, H.W., 1929 Our Ocean to Ocean Opportunity : an account of Cooks River past and present, it's unbounded future possibilities for commerce, industry and recreation Cook's River Improvement League, Sydney, NSW.

Sharpin, M. 1996 Managing urban stormwater: Strategic framework (draft). State Stormwater Coordinating Committee, NSW Environment Protection Agency, Sydney.

Sydney Metropolitan Catchment Management Authority, Botany Bay Coastal Catchments Initiative, 2007, Environmental Values – Background Paper, Sydney Metropolitan Catchment Management Authority, Sydney.

Sydney Metropolitan Catchment Management Authority) 2009. Interim Water Quality Improvement Plan. Sydney: Botany Bay Water Quality Improvement Program (BBWQIP)

Sydney Metropolitan Catchment Management Authority (2008). Modelling the Catchments of Botany Bay. Council Pollutant Loads E2 Modelling Results. Sydney: Botany Bay Coastal Catchments Initiative (BBCCI)

USTPF (Urban Stormwater Pollution Taskforce), 1993 Report on the Stormwater Forum 1993. NSW Environmental Protection Agency, Sydney.