

SYDNEY COASTAL COUNCILS GROUP Inc.  
C/- City of Sydney Council  
Level 14, 456 Kent Street  
GPO Box 1591, SYDNEY NSW 2001  
Phone: (02) 9246 7791  
Facsimile: (02) 9265 9660  
Email: [info@sydneycoastalcouncils.com.au](mailto:info@sydneycoastalcouncils.com.au)  
Internet: [www.sydneycoastalcouncils.com.au](http://www.sydneycoastalcouncils.com.au)  
ABN: 39 638 876 538



CM017-10

The Committee Manager  
Standing Committee on Natural Resource Management (Climate Change)  
Parliament House  
Macquarie Street  
Sydney NSW 2000

Dear Committee Manager

17 March 2010

**Re: Standing Committee on Natural Resource Management (Climate Change)  
Water Management Inquiry February 2010**

The Sydney Coastal Councils Group (SCCG) would like to take this opportunity to provide a submission to the Standing Committee on Natural Resource Management (Climate Change) Water Management Inquiry. Combined with population growth, climate change will have a significant impact on the way coastal communities collect, store and utilise water resources. Building the resilience of the NSW water supply to climate change will require considerable planning and investment in strategies and actions that:

- reduce demand on potable water supplies;
- store and transport stormwater more efficiently; and
- identify water recycling opportunities.

Addressing these issues will require the application of integrated water cycle management and a whole of Government approach to identify, assess and implement the necessary solutions. To address these issues within the Inquiry Terms of Reference, this submission has been structured in the following manner.

1. Introduction
2. The likely impact of climate change on the availability of water resources under different climatic scenarios
3. Approaches to the management of water resources by all water users
4. Best practice in water conservation and management
5. Conclusion and Recommendations

I trust the information provided in this submission will receive the appropriate attention. If you wish to clarify any matter in this correspondence or require further information, please contact SCCG Senior Coastal Projects Officer, Craig Morrison on (02) 9246 7702 or [craig@sydneycoastalcouncils.com.au](mailto:craig@sydneycoastalcouncils.com.au)

Yours sincerely,

Clr. Wendy McMurdo  
**Chairperson**

## 1. Introduction

The Sydney Coastal Councils Group (SCCG) has a long history in identifying and advocating integrated water cycle management and sustainable water solutions for the Sydney coastal region. Additionally, the Group is working closely with its Member Councils, research organisations including the CSIRO and the relevant NSW and Australian Government Departments to build the adaptive capacity of coastal councils and their communities in response to climate change.

To ensure that the water supply of NSW is resilient to the impacts of climate change will require:

- a) coordination of governments, residents and business;
- b) frameworks and tools that assist in identifying suitable management options as well as assess their viability; and
- c) funding and technical support.

This submission aims to identify key areas of activity and actions that will assist coastal councils in NSW to provide their communities with a water supply that is safe and resilient to the impacts of climate change. Issues and actions that need to be addressed to build the resilience of the water supply of NSW but do not fall directly into the inquiries terms of reference include:

### **Infrastructure maintenance and renewal**

The stormwater and sewer infrastructure in urban coastal environments such as Sydney is in need of renewal and often operating beyond its intended capacity. The likely increase in extreme events such as rainfall and storm surge combined with increased commercial, residential and tourism pressures will place future pressure on councils to maintain or replace the associated infrastructure assets.

To assist with identifying the necessary key infrastructure maintenance and upgrades a state, regional and local inventory of existing essential water infrastructure is required. Such an inventory would identify key infrastructure likely to be adversely impacted by climate change and population change as well as assist in prioritising spending on the necessary maintenance and replacement works. Additionally, it could be used to establish common methods for:

- Data collection and storage in water infrastructure;
- Assessing vulnerability; and
- Setting investment priorities.

It is important that the inquiry recognise that ongoing support for maintenance and renewal of infrastructure would significantly reduce the likelihood of sewer overflows and flooding when the capacity of infrastructure is exceeded. Therefore, greatly reducing the risk of pollution to public waterways and damage to private property,

Councils have limited financial capacity to respond to the increased pressures on the existing infrastructure posed by population growth and climate change. Therefore the SCCG recommends the NSW Government investigate opportunities, including new funding streams to provide financial assistance to councils. Such assistance could be used to undertake annual renewal and maintenance works for essential infrastructure of regional significance that may be adversely affected by the impacts of climate change and population change.

In November 2009 the Australian Government House of Representatives Climate Change, Water, Environment and the Arts Committee has released its inquiry report, *Managing our Coastal Zone in a Changing Climate: the Time to Act is Now*. Recommendation 39 was

*“The Committee recommends that the Australian Government give consideration to establishing a separate funding program for infrastructure enhancement in coastal areas vulnerable to climate change. Such funding should be provided according to a*

*formula requiring contributions, either financial or in-kind, from state governments and relevant local government authorities.” (Australian Government House of Representatives Climate Change, Water, Environment and the Arts Committee 2009)*

To complement this recommendation the NSW Government should establish a separate funding program for the enhancement of stormwater and sewer infrastructure vulnerable to climate change in NSW. The SCCG strongly urges the inquiry to recognise that preventative expenditure on infrastructure renewal and maintenance will result in significant future cost savings to the public.

**Recommendations:**

1. The NSW Government establish an essential water infrastructure funding program for the enhancement of water related infrastructure, including stormwater and sewer infrastructure, vulnerable to climate change in NSW.
2. The NSW Government in consultation with councils undertake an inventory of key infrastructure likely to be adversely impacted by climate change and establish common methods for:
  - Data collection and storage in water infrastructure;
  - Assessing vulnerability; and
  - Setting investment priorities.
3. The inquiry recognise that preventative expenditure on infrastructure renewal and maintenance will result in significant future cost savings to the public.

**Pricing**

Adapting to climate change offers a unique opportunity to rethink how government, community and industry interact and do business. SCCG believes greater incentives and rewards need to be offered to residents and industry in NSW for saving water. At present there is no financial incentive or reward for saving water. A saving of 1,000 litres represents a \$1 saving on a residential water bill. Therefore SCCG recommends the investigation of opportunities for ongoing rebates, incentives and rewards for water saving activities. Such new approaches to policy could include:

- The introduction of pricing mechanisms that reflect the true value of water resources with appropriate incentives to conserve resources and encourage higher levels of self sufficiency including rate rebates, reduced service charges as well as other incentives and rewards for water saving activities; and
- Increased long term investment in existing and new infrastructure, particularly large scale water recycling.

**Recommendation**

4. The NSW Government continue to investigate opportunities for ongoing rate rebates, reduced service charges as well as other incentives and rewards for water saving activities.

**Groundwater Management in NSW**

Changing climatic conditions combined with a greater demand on water resources from an increasing population, have focused the attention of land managers on ensuring all water resources are managed holistically and sustainably. Traditionally, very little has been understood about the dynamics of groundwater and its sustainable management. Therefore there is a need to build the understanding and capacity of all stakeholders to understand and manage groundwater resources sustainably. The sustainable the management of groundwater in NSW would be assisted through the provision of the following resources:

- Mapping of groundwater aquifer systems;
- Standard access to groundwater licensing information; and

- The development of standard Environmental Planning Instrument provisions for groundwater management.

**Recommendation**

5. The NSW Government deliver the following resources to assist with the sustainable groundwater management in NSW:
- Mapping of groundwater aquifer systems;
  - Standard access to groundwater licensing information; and
  - The development of standard Environmental Planning Instrument provisions for groundwater management.

**2. The likely impact of climate change on the availability of water resources under different climatic scenarios**

The SCCG recently completed a project titled *Systems Approach to Regional Climate Adaptation Strategies in Metropolises*. This project undertook research on regional systems approaches to managing climate vulnerability in the Sydney region and made 48 recommendations aimed at building the capacity of coastal communities to adapt to the impacts of climate change.

Recommendations relevant to understanding the likely impact of climate change on the availability of water resources under different climatic scenarios included:

- Acquire state-of-the art climate change information and projections at the local scale (including down-scaling) to maximise resolution and decision-making utility; and
- Identify particularly vulnerable areas, subpopulations, infrastructure and/or assets. This requires assessment of exposure to climate change, as well as assessments of sensitivity and adaptive capacity.

The SCCG recommends that the NSW Government undertake both of these actions with a focus on the impact of climate change on the availability of water resources. With the information acquired from these actions the capacity of all stakeholders to identify the localised impacts of climate change on water resources and mitigate the impacts on vulnerable communities and infrastructure would be greatly increased.

At present the extent of climate change impacts on the water supply of NSW remain uncertain. However, it is certain that water resources in metropolitan and regional NSW will experience an increased demand for an already limited resource. To address this will require the identification of methods for reducing the use of potable water for domestic, industrial, commercial and agricultural purposes. Opportunities to achieve this are discussed in more detail below.

**Recommendation**

6. The NSW Government acquire state-of-the art climate change information and identify communities and infrastructure with a focus on the impact of climate change on the availability of water resources.

**3. Approaches to the management of water resources by all water users**

Building the resilience of all communities in NSW to the impacts of climate change will require the identification of solutions, an assessment of their viability and community acceptance of the adopted solutions. Traditionally, the suite of options recommended in plans that identify strategies for water provision to communities in NSW, such as the Sydney Metropolitan Water Plan, have been dominated by major infrastructure projects. Further consideration must be given to recycling and demand management options and less emphasis on major infrastructure solutions.

Methods for reducing the use of potable water in an integrated manner that do not rely on major infrastructure solutions include:

- Demand management strategies;
- Recycling and re-use options at varying scales;
- Stormwater capture and use; and
- Development of “fit for use” guidelines and strategies.

Each of these options has benefits and limitations. However, as less than 2% of total water used in Sydney is recycled and Sydney has reduced water consumption by more than 10% since the introduction of water restrictions, SCCG believes the viability of recycling and demand management options needs to be meaningfully assessed and compared across NSW. (PENGOs 2004, NSW Government, 2004)

The biggest gains in reducing use of potable water can be made through the application of a combination of strategies outlined above and implemented at varying scales. For example;

- In Sydney, 17% of all households have converted to water efficient products saving 4.5 billion litres of water per year (NSW Government, 2004). If this figure were to rise to 50% of households an estimated 13.20 billion litres could be saved per year. This is the equivalent of the volume of water produced by a 125ML capacity Desalination Plant in 100 days.
- Sydney currently recycles 15 billion litres of treated waste water per year. Traditionally community acceptance of recycled water has been low. However due to increased community awareness on the need for sustainable water management, this is changing. With increased acceptance of recycled water to potable and non potable quality the potential to increase the level of water recycled beyond 3% of total water used is great and would significantly assist in providing Sydney with a sustainable long - term source of water (PENGOs 2004).
- In 2006 the National Resource Management Ministerial Council (NRMMC) released National Guidelines for Water Recycling. Formal adoption of these guidelines by the NSW Government would assist Local Government, Industry and the Community to implement “fit for use” recycling strategies that would significantly reduce the demand on the potable water supply.

SCCG recommends a combination of methods be investigated to reduce the demand on potable water supply in NSW. The ongoing application of desalination as the solution is likely to prove to be environmentally and financially costly and possibly unnecessary if a combination of alternative solutions is applied to provide a sustainable water source for communities in NSW.

Ongoing public education must also remain an essential component of managing limited water resources. Through a combination of public education and regulation Sydney's water use was 10% lower than the 10-year average use when mandatory water restrictions were accompanied by an awareness raising campaign. Further investment in public education in NSW would assist the implementation and improve the effectiveness of demand management options and acceptance of alternative supply solutions.

Recommendation 40 of the *Managing our Coastal Zone in a Changing Climate: the Time to Act is Now* report was:

*“The Committee recommends that the Australian Government undertake an awareness campaign to alert coastal communities to the key challenges facing the coastal zone and the value of community engagement in addressing these challenges. The campaign should aim to build understanding and awareness of*

*coastal management issues to encourage the continued membership and support of volunteer networks in the coastal zone.” (Australian Government House of Representatives Climate Change, Water, Environment and the Arts Committee 2009)*

Action like this at the Federal scale should be underpinned by a NSW Government initiative to alert residents in NSW to the key challenges faced by the state in ensuring its water supply is resilient to the impacts of climate change. Such an initiative could focus on:

- Awareness raising and highlighting the value of community involvement in addressing the challenges faced by NSW; and
- Promotion of the safety and appropriate application of local and regional sewer recycling or stormwater re-use projects.

### **Recommendation**

7. The NSW Government, in consultation with IPART, consider alternative criteria for assessing the price of potable water and the viability of sewer recycling or stormwater re-use projects to take into account the positive social and environmental outcomes.
8. The NSW Government continue to alert residents in NSW to the key challenges faced by the state in ensuring its water supply is resilient to the impacts of climate change with a focus :
  - Awareness raising and highlighting the value of community involvement in addressing the challenges faced by NSW; and
  - Promotion of the safety and appropriate application of local and regional sewer recycling or stormwater re-use projects.

### **3. Best practice in water conservation and management**

Achieving best practice in water conservation and management will require the meaningful application of integrated water cycle management across all spheres of government and the communities they serve. It will also require ongoing investment and the encouragement of innovative solutions. To assist achieve integrated water cycle management the following principles must be applied by all spheres of government at the strategic planning stage:

- Consideration of all water sources (including waste water) in water planning
- The sustainable and equitable use of all water sources
- Consideration of all water users
- Integration of water use and natural water processes
- A whole of catchment integration of natural resource use and management

In practice the application of these principles and the achievement of best practice in water conservation and management is often prevented by issues relating to data, limited financial and technical resources and effective monitoring and evaluation.

### **Data**

Designing integrated water cycle management and conservation projects requires the collection of data including, but not limited to, historic and current flow usage of surface and groundwater sources, water quality of these sources, water demand and performance of water and sewerage treatment systems as well as future water demand. At present the collection of this information is done inconsistently and in a piecemeal fashion or not at all. To address this NSW Government, through the NSW Office of Water, must:

- Establish standard process for collecting the necessary information to design and implement integrated water cycle management and conservation projects; and
- Develop manuals and training to assist consistent and ongoing collection of the necessary information to design and implement integrated water cycle management and conservation projects.

### **Recommendation**

9. NSW Government, through the NSW Office of Water, must:

- Establish standard process for collecting the necessary information to design and implement integrated water cycle management and conservation projects; and
- Develop manuals and training to assist consistent and ongoing collection of the necessary information to design and implement integrated water cycle management and conservation projects.

### **Limited technical resources and expertise**

Local Government implements a diverse range of water recycling and saving actions. Further, as Local Government is often best placed to communicate to diverse communities and is responsible for the majority of planning decisions it is in a position to play an integral role in identifying and implementing best practice in water conservation and management.

The experience and resources of coastal councils in Sydney in designing and implement integrated water cycle management and conservation projects varies considerably. The SCCG understands that such variability in experience and capacity also exists throughout NSW. Therefore increased technical guidance, training and capacity building activities are required from the NSW Government. Therefore it is recommended that the NSW Government deliver increased funding and tools aimed at building the capacity of councils in NSW to provide their communities with a water supply that is safe and resilient to the impacts of climate change.

Such funding and tools could include:

- The provision of integrated asset management systems and tools;
- A commitment to ongoing partnership funding of stormwater re-use and sewer recycling projects; delivered by councils;
- Technical guidance on the design of stormwater re-use and sewer recycling infrastructure
- Strategies to minimise social environmental and economic risks of stormwater re-use and sewer recycling projects;
- Standard project specifications for stormwater re-use and sewer recycling projects;
- Criteria for the maintenance and renewal of stormwater infrastructure in light of climate change;
- Standard strategies and processes for assessing the viability of alternative water sources such as groundwater;
- Monitoring and evaluation protocols, strategies and resources; and
- Standard community education and awareness raising tools.

### **Recommendation**

10. The NSW Government deliver increased funding and tools aimed at building the capacity of councils in NSW to provide their communities with a water supply that is safe and resilient to the impacts of climate change. Such funding and tools could include:

- The provision of integrated asset management systems and tools;
- A commitment to ongoing funding of stormwater re-use and sewer recycling projects; delivered by councils;
- Technical guidance on the design of stormwater re-use and sewer recycling infrastructure
- Strategies to minimise social, environmental and economic risks of stormwater re-use and sewer recycling projects;
- Standard project specifications for stormwater re-use and sewer recycling projects;
- Criteria for the maintenance and renewal of stormwater infrastructure in light of climate change;
- Standard strategies and processes for assessing the viability of alternative water sources such as groundwater;
- Monitoring and evaluation protocols and strategies; and
- Standard community education and awareness raising tools.

## **Effective monitoring and evaluation**

The responsibility of monitoring and evaluating water saving and recycling projects falls to broad range of stakeholders implementing these projects. As a result the cumulative benefit of the range of water saving and recycling activities undertaken at regional or catchment scales is often not completely understood.

The challenge in relation to water management is to ensure that these monitoring and evaluation efforts are undertaken in a coordinated and consistent manner. To ensure that there is an efficient system of reporting progress towards achieving water saving and re-use targets requires:

- Development of standard indicators for the monitoring and evaluation of integrated water cycle management and conservation projects that takes social and environmental outcomes into account;
- Development and standard registers for recording the existence and maintenance of water related infrastructure.

Therefore the SCCG recommend the NSW Government develop standard indicators and processes for the monitoring and evaluation of integrated water cycle management and conservation projects.

### **Recommendation**

11. The NSW Government develop standard indicators and processes for the monitoring and evaluation of integrated water cycle management and conservation projects.

## **4. Conclusions and recommendations**

The NSW Government, councils and communities face a number of significant challenges in building the resilience of the NSW Water Supply to climate change. To address these, the SCCG recommends the following actions be prioritised:

1. The NSW Government establish an essential water infrastructure funding program for the enhancement of water related infrastructure, including stormwater and sewer infrastructure, vulnerable to climate change in NSW.
2. The NSW Government in consultation with councils undertake an inventory of key infrastructure likely to be adversely impacted by climate change and establish common methods for:
  - Data collection and storage in water infrastructure;
  - Assessing vulnerability; and
  - Setting investment priorities.
3. The inquiry recognise that preventative expenditure on infrastructure renewal and maintenance will result in significant future cost savings to the public.
4. The NSW Government continue to investigate opportunities for ongoing rate rebates, reduced service charges as well as other incentives and rewards for water saving activities.
5. The NSW Government deliver the following resources to assist with the sustainable groundwater management in NSW:
  - Mapping of groundwater aquifer systems;
  - Standard access to groundwater licensing information; and
  - The development of standard Environmental Planning Instrument provisions for groundwater management.



6. The NSW Government acquire state-of-the art climate change information and identify communities and infrastructure with a focus on the impact of climate change on the availability of water resources.
7. The NSW Government, in consultation with IPART, consider alternative criteria for assessing the price of potable water and the viability of sewer recycling or stormwater re-use projects to take into account the positive social and environmental outcomes.
8. The NSW Government continue to alert residents in NSW to the key challenges faced by the state in ensuring its water supply is resilient to the impacts of climate change with a focus :
  - Awareness raising and highlighting the value of community involvement in addressing the challenges faced by NSW; and
  - Promotion of the safety and appropriate application of local and regional sewer recycling or stormwater re-use projects.
9. NSW Government, through the NSW Office of Water, must:
  - Establish standard process for collecting the necessary information to design and implement integrated water cycle management and conservation projects; and
  - Develop manuals and training to assist consistent and ongoing collection of the necessary information to design and implement integrated water cycle management and conservation projects.
10. The NSW Government deliver increased funding and tools aimed at building the capacity of councils in NSW to provide their communities with a water supply that is safe and resilient to the impacts of climate change. Such funding and tools could include:
  - The provision of integrated asset management systems and tools;
  - A commitment to ongoing funding of stormwater re-use and sewer recycling projects; delivered by councils;
  - Technical guidance on the design of stormwater re-use and sewer recycling infrastructure
  - Strategies to minimise social, environmental and economic risks of stormwater re-use and sewer recycling projects;
  - Standard project specifications for stormwater re-use and sewer recycling projects;
  - Criteria for the maintenance and renewal of stormwater infrastructure in light of climate change;
  - Standard strategies and processes for assessing the viability of alternative water sources such as groundwater;
  - Monitoring and evaluation protocols and strategies; and
  - Standard community education and awareness raising tools.
11. The NSW Government develop standard indicators and processes for the monitoring and evaluation of integrated water cycle management and conservation projects.

I trust the information provided in this submission will receive the appropriate attention. If you wish to clarify any matter in this correspondence or require further information, please contact SCCG Senior Coastal Projects Officer, Craig Morrison on (02) 9246 7702 or [craig@sydneycoastalcouncils.com.au](mailto:craig@sydneycoastalcouncils.com.au)