

Mosman COUNCIL

MOSPLAN review 20082012

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COMMUNITY ENVIRONMENTAL CONTRACT

An extract from the End of Term Report to the Mosman Community, Mosman Council – August 2012

ss406 & 428(2) Local Government Act 1993

The Local Government Act 1993 requires that all Councils report to their communities on progress and achievements at the end of each Council term. This extract from the report, presented to the last meeting of the current Council on 7 August 2012, responds to these legislative requirements. It contains an overview of the Community Environmental Contract works delivered over the past 12 years.

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Meeting our Commitments

Meeting our Commitments

The Community Environmental Contract

Included as part of this end of term report is a special report on the life of the Community Environmental Contract (CEC) – Council's commitment to delivering an extensive program of environmental initiatives over more than a decade.

Council has met this commitment by ensuring that more than $11million in projects have been delivered - not only through the relevant rate increase that commenced in 2000, but by sourcing more than $4 million in additional funds from external grant programs.

Full details of the Community Environmental Contract and projects delivered are provided on the following pages. A summary of achievements over the 12 year life of the CEC can also be found in the Community Summary publication appended to this report.



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Mosman's Community Environmental Contract 12 Years On...

1. Introduction

2012 celebrates twelve years since the Community Environmental Contract (CEC) commencement. The CEC is a comprehensive program of environmental management, rehabilitation, and remediation works, concentrating on improving stormwater quality, enhancing the ecological value of bushland and creek ecosystems and preventing coastal erosion. The CEC included a program of environmental projects, incorporating on-ground works, planning, and community education initiatives, to be implemented using an integrated catchment management approach, and funded by a rate increase of 5 percent over 12 years.

1.1 Background to the CEC

Council pursued creek rehabilitation and stormwater filtration opportunities during the 1990s but found the cost of conducting these environmental works, on a catchment management basis, to be financially unachievable without the additional funds from grants and a rate levy.

In 2000, the Department of Local Government approved a 5 per cent rate increase over 12 years to fund local environmental projects. Council developed the CEC as a commitment to residents that all money raised through the levy would be spent on specific, budgeted, environmental projects to improve Mosman's local natural environment.

The CEC focused on four key areas; Stormwater, Bushland, Seawalls and Creeks, and aimed to:

- Improve stormwater quality
- Restore natural creeklines
- Rebuild seawalls and improve intertidal habitat
- Improve bushland areas.

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Throughout the life of the CEC, Council has been highly successful in delivering integrated projects in recognition of the inter-related nature of environmental issues. These projects used a holistic approach, integrating more than one component such as stormwater quality, creek restoration, seawall redesign, bushland rehabilitation, as well as the construction of walking tracks to allow greater access to and appreciation of the natural environment.

These projects also included non-structural activities such as community education, water quality monitoring and environmental research to add value to projects and achieve a multitude of sustainability objectives.

Contributing to the success of the CEC's integrated projects was the expertise of a dedicated multi-disciplinary team.

In 2006, the CEC Program won the International City Managers Association (ICMA) Community Sustainability Award in recognition of the achievements of this program.

Implementation of the CEC has complemented environmental projects and activities identified in MOSPLAN and has put Mosman on the path towards ecological sustainability.

1.2 Report Structure

Each year an Annual Report is produced for the CEC, highlighting progress on CEC projects and providing financial statements. This report is the final CEC report.

This report is designed to give a broader overview of projects that have taken place over the life of the CEC. It focuses on key achievements and case studies across the key areas of stormwater, creeks, bushland, and seawalls, most of these elements being incorporated into integrated projects.

Additional information on CEC projects can be found in the Annual Reports, available on Council's website at www.mosman.nsw.gov.au

1.3 Summary of Key Achievements

The CEC program of works was designed to achieve ongoing environmental benefits consistent with the principles of ecologically sustainable development. Reflecting on the last 12 years, the CEC program has delivered the following environmental benefits as promised.

Stormwater Quality

- ☑ Improved water quality in Port Jackson North and Middle Harbour catchments
- ☑ Improved recreational amenity
- ☑ Improved aesthetic value
- ☑ Reduced adverse impacts on aquatic ecological systems from pollution and sedimentation

Creek Systems

- ☑ Improved habitat and ecological value
- ☑ Improved recreational amenity
- ☑ Improved aesthetic value
- ☑ Reduced adverse impacts on creek systems from erosion

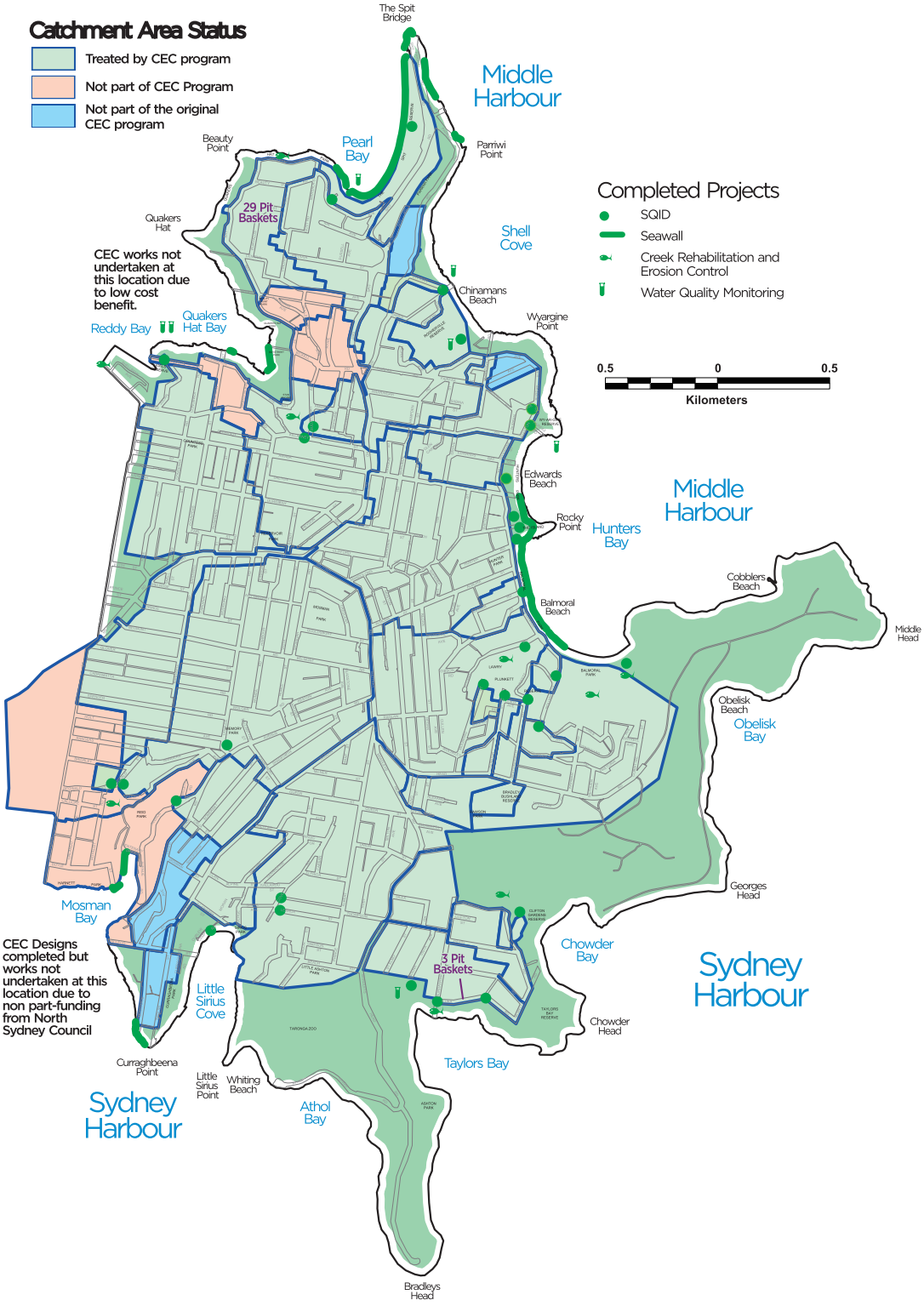
Bushland Management

- ☑ Conservation of biodiversity
- ☑ Improved recreational amenity
- ☑ Reduced adverse impacts on bushland from introduced species of flora and fauna
- ☑ Significant increase in 90% native vegetation cover type

Seawall works

- ☑ Reduced foreshore erosion
- ☑ Improved protection from storm events
- ☑ Improved protection from potential sea level rise
- ☑ Improved asset management of seawalls
- ☑ Increased intertidal habitat zones

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2. Administration and Auditing

CEC Objective

To manage the community environmental contract in an efficient and transparent manner.

Key Performance Indicator

Percentage of CEC expenditure externally funded = 31%

The following actions were promised in the delivery of the CEC program to manage the program in a transparent manner. These actions have all been implemented.

- ☑ Document guidelines, systems and procedures to ensure that the implementation of the CEC is undertaken in a controlled manner
- ☑ Establish dedicated project team
- ☑ Direct savings from infrastructure works (if any) to bushland maintenance
- ☑ Conduct an independent financial audit on an annual basis

2.1 Financials

The table below provides financial data, including the rate levy and grant expenditure over the life of the CEC.

Year	CEC Rate Levy Expenditure	CEC Grant Expenditure
2000/2001	$479,263	$2,061,096
2001/2002	$492,682	$336,327
2002/2003	$506,875	$204,715
2003/2004	$531,296	$61,889
2004/2005	$550,643	$35,500
2005/2006	$574,638	$254,300
2006/2007	$595,325	$42,500
2007/2008	$615,491	$124,659
2008/2009	$638,882	$227,570
2009/2010	$661,243	$685,644
2010/2011	$678,435	$96,250
2011/2012	$697,431	$0
Total	$7,022,204	$ 4,130,449

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2.2 Supplementary Grant Funding

Council has also been highly successful in securing grant funding for CEC projects, having received a total of $4,130,449 over the life of the CEC. Grants received are in the table below.

Project	Grant Funding
Stormwater	
Quakers Hat Bay Stormwater Pollution Program	$372,250
Little Sirius Cove Stormwater Pollution Program	$229,250
Mosman Bay East	$411,611
Mosman Bay West	$207,465
Taylors Bay Stormwater Project	$85,680
Beauty Point Foreshore Project	$75,000
Balmoral Stormwater Project Stage 2	$431,520

3. Stormwater

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10 Year Objective

To have a water cycle which is managed in a sustainable manner, which protects natural flow regimes, ecological processes and enhances water quality.

CEC Objective

Implement infrastructure management options identified in the Port Jackson North and Middle Harbour Stormwater Management Plan implementation schedules.

Key Performance Indicators

Percentage of LGA treated by the SQIDs = 90%
Tonnes of pollutants removed from SQIDs over 12 years = 2,975 tonnes

3.1 Stormwater Quality Improvement Devices

A Stormwater Quality Improvement Device (SQID) is a trap which captures gross pollutants (litter, debris), as well as sediments and organic matter and removes these pollutants from stormwater prior to it entering receiving waters of the Harbour. Council has installed various types and brands of SQIDs across the Local Government Area, including CDS, Rocla, Baramy, Ecosol and Nettech devices. The primary SQIDs are the CDS and the nettech. The CDS is a cylindrical chamber installed underground on the stormwater line to capture and treat the stormwater flow. The water flows into the SQID moves around the filter system in a clockwise direction forcing the pollutants to the bottom of the sump whilst the cleaner water flows out of the SQID downstream of the device. The se SQIDs are cleaned out based on a cleaning frequency schedule. The nettech is a simple net attached to the end of a stormwater pipe to capture pollutants.

Stormwater flowing from urban areas can carry a range of pollutants including litter, sediments, organic matter, nutrients, garden chemicals, and oils and greases. At the commencement of the CEC in 2000, Mosman had only 5 SQIDs located at Balmoral (2 SQIDs), Avenue Road (2 SQIDs), and Cowles Road (1 SQID). This meant that a large volume of potentially polluted runoff was still draining directly into the Harbour.

Thanks to the CEC, Mosman now has an additional 27 SQIDs, making that 32 SQIDs in total which filter 90 per cent of the catchment before it reaches the harbour. Since installation, these SQIDs have captured approximately 2,975 tonnes of gross pollutants, which would have otherwise ended up in our waterways.



3.2 Water Quality Monitoring Program

A Water Quality Monitoring Program was designed as a component of the CEC to gain an indication of the water quality of Mosman's receiving waters for ecosystem health, and to evaluate the performance of the SQIDs in improving water quality downstream of the device. The Monitoring Program was designed in 2002 and implemented until 2010.

The monitoring program involved the following:

- Monitoring of a reference site quarterly over a 12 month period (Edwards Beach)
- Baseline monitoring of 8 receiving waters over a 4 week period (Balmoral Beach, Edwards Beach, Clifton Gardens, Chinamans Beach, Taylors Bay, Quakers Hat Bay, Pearl Bay, and Little Sirius Cove).
- Pre-SQID monitoring of 3 sites prior to installation, representative of the catchment.
- Post-SQID monitoring of 3 sites, upstream and downstream of the SQIDs during wet weather events.

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Overall results indicated that the reference site and receiving waters maintained good water quality. Monitoring of the SQIDs indicated that they were efficient in removing gross pollutants, and also reduced pollutant concentrations of nutrients, heavy metals and hydrocarbons downstream of the device. All parameters sampled were found to be within recommended guideline levels for recreational water quality and ecosystem health, with the exception of nutrients Nitrogen and Phosphorus.

3.3 Stormwater Education Programs

Stormwater education campaigns were developed and implemented to raise awareness of pollutants such as nitrogen and phosphorus entering our waterways and encouraging residents to change behaviours to reduce household activities that have the potential to increase stormwater pollution, for example littering, sweeping organic matter into the gutters and washing the car on the road. The education campaigns included the development and distribution of water quality fact sheets and information on stormwater pollution, school education programs, drain stencilling, community events such as stalls, displays, and activities, and gardening workshops.

3.4 Stormwater Harvesting

Stormwater is a valuable resource, which can be used as an alternative water source. In an effort to reduce stormwater pollution and save potable water, the CEC has added stormwater harvesting to its list of achievements.

The Balmoral Stormwater Re-use Project, which was completed in 2009, involves capturing and filtering stormwater through a SQID in Botanic Rd and storing it in an underground storage tank at Lawry Plunkett Reserve. The stormwater is then used to irrigate Balmoral Oval.

The project has saved millions of litres of potable water each year and prevented tonnes of pollutants from ending up at the popular Balmoral Beach.

3.4 Key Achievements

- Installation of 27 additional SQIDs
- Filtering 90 per cent of the catchment before it reaches the harbour
- Collecting up to 300 tonnes of gross pollutants each year
- Collecting a total of 2,975 tonnes of gross pollutants over the life of the CEC
- Conducting stormwater education and awareness campaigns
- Saving millions of litres of potable water each year through stormwater harvesting and re-use
- Converting stormwater channels into systems that enhance ecological processes, have biodiversity value and are aesthetically pleasing
- Water quality monitoring of receiving waters
- Being the joint winner of the Local Government Excellence in the Environment Awards, in division B of the stormwater management category.

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3.5 Stormwater Project Highlights

Quakers Hat Bay (January 2001 – April 2010)

- Installation of 3 SQIDS in Bullecourt Avenue, Killarney Street and Julian Street to capture gross pollutants and reduce the volume of litter reaching Quakers Hat Bay
- Installation of natural rock stormwater channels
- Education campaign targeting residents, boatshed owners and marina operators
- Monitoring water quality at the Julian Street site to evaluate the effectiveness of SQID in capturing pollutants
- Little Sirius Cove (November 2000 – March 2003)
- Installation of 3 SQIDs to filter Sirius Cove East and West sub-catchments
- Monitoring of water quality, showing decreases in many major pollutants
- Education campaign targeting gardening practices in Mosman

Rosherville Reserve, Chowder Bay and Wyargine Point (2004/05)

- Installation of a SQID in Rosherville Reserve to filter Chinaman's Beach sub-catchment
- Installation of 2 SQIDs in Morella Rd to filter Chowder Bay sub-catchment
- Installation of 2 SQIDs at Edwards Beach to filter Wyargine Pt South sub-catchment

Taylors Bay (December 2001 – December 2003)

- Installation of three SQIDs within the Taylors Bay sub-catchment, at Burrawong Avenue, Buena Vista Avenue and Illuka Road
- Water Quality Monitoring
- Creek rehabilitation to reduce erosion from stormwater flows
- Intertidal discovery tours, interpretative bushwalks, community meetings and private property stormwater audits.

Balmoral

- Installation of 8 SQIDs at Balmoral to capture stormwater pollutants prior to stormwater entering the beach.
- Botanic Road Stormwater Reuse Scheme (November 2007 – June 2009) - The installation of a treatment train incorporating a Stormwater Quality Improvement Device (SQID) and a Stormwater Storage System commenced during 2008/09. Stormwater flowing from the Botanic Road sub-catchment now flows through the SQID where gross pollutants, organics and sediment are captured. The water then flows into the storage tank. The storage tank incorporates a filter system and a UV radiation system to treat the water to a suitable standard for reuse on the foreshore and Balmoral Oval. The storage tank has the effective capacity of 500 KL and can potentially provide 4 mega litres of water for irrigation use per annum.

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4. Bushland

10 Year Objective

To have the integrity and diversity of the indigenous flora and fauna of Mosman sustainably managed.

CEC Objective

Protect, restore and enhance existing remnant indigenous vegetation communities in Mosman.

Key Performance Indicators

Percentage of bushland affected by uncontrolled stormwater runoff = 14%
Percentage increase in bushland with >90% native vegetation cover = 58%



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4.1 Bushland Management

The Mosman peninsula contains approximately 147 hectares of bushland. Of this, Mosman Council controls 39 hectares, the Sydney Harbour Federation Trust controls 20 hectares and the other 88 hectares form part of Sydney Harbour National Park.

The small size of the bushland reserves controlled by Council and their proximity to urban areas, with high edge to area ratio, make these reserves vulnerable to problems including nutrification, stormwater damage, weed invasion, habitat fragmentation and changed fire regimes.

To overcome these problems long-term (10 year) bushland restoration contracts were introduced concurrently with the CEC. These contracts were innovative in regard to their duration, catchment based approach, and performance measurement criteria. The contracts were based on the delivery of outcomes rather than the number of hours worked at each site.

The bushland contracts have been highly successful in restoring Mosman's bushland. For example, at the start of the bushland contracts in 2001, 25% of bushland had > 90% native vegetation cover. This is now at 58%, which is significant considering the size, shape, location and constant pressures on our bushland sites.

4.2 Flora and Fauna

A Flora and Fauna Survey was undertaken in 2001 as part of the CEC. The results showed there to be 430 native plant species in Mosman, with nearly two thirds of these plant species being of conservation significance. Based on these findings new 10 year bushland restoration contracts were developed and commenced in October 2001.

Another flora and fauna survey was conducted in 2006/07. Results indicated that bushland management activities being undertaken were achieving the desired outcomes, with weed percentage cover decreasing and native vegetation cover increasing.

In fact, bushland management has been so successful in Mosman that bushland sites are considered sufficiently stable to be managed with Council's recurrent budget, requiring no further financial input from the CEC. This success also lead to the addition of two areas, namely Joel's Reserve and Mosman Bay Creek, to the bushland restoration contracts.

4.3 Key Achievements

- Increasing bushland areas under contract which have greater than 90 per cent native vegetation cover to 58% from a starting point of 25%
- Conducting a comprehensive flora and fauna survey
- Reducing the percentage of bushland affected by uncontrolled stormwater runoff from 60% to 14%
- Improving conditions for endangered native species Acacia terminalis terminalis
- Replanting degraded areas of open space

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4.4 Bushland Project Highlights

Bushland Restoration Contracts (October 2001, and 2011)

- Restoring, replanting, and managing Mosman's bushland reserves
- Establishing habitat for Mosman's wildlife
- Replanting degraded areas of open space
- Decreasing weed cover and increasing native vegetation cover around Mosman
- Sustainably managing core remnant areas of bushland

Bushcare Program

- Providing funding to establish additional bushcare groups in Mosman
- Increase in the total number of bushcare groups from 4 to 23
- Increase in the total number of bushcare volunteers from 32 to 97

Native Wildlife Habitat (2000 onwards)

- Managing and enhancing features in the landscape such as vegetation, tree hollows, rocks and creeks for wildlife habitat
- Restoring wildlife corridors
- Implementing fire management, weed control and stormwater management to improve conditions for the flora species Acacia terminalis terminalis (Sunshine Wattle), listed as an Endangered Species under the Environment Protection and Biodiversity Conservation Act 1999.

Weed and Feral Animal Control

- Controlling weeds in Mosman's bushland and replanting native tubestock
- Implementing protocols to prevent the spread of phytophthora, a soil borne water mould, commencing in July 2003.
- Implementing a fox and rabbit control program

Balmoral Project Case Study (2009- June 2010)

Part grant funding from the Estuary Management Program, was utilised to complete remediation and restoration works in the south western corner of Balmoral Oval, which had been fenced off to the public as a contaminated site. The decision was made to revert the site to a natural setting, with the area incorporating an informal loop walk, a bridge and large boulders for informal seating, to encourage passive recreational use of the area.

The site was capped with crushed sandstone and stormwater channels were formalised into creeks using sandstone and concrete. To improve the biodiversity outcome, several habitat features were incorporated for the local fauna. Ponds built into the stormwater channels were designed to receive gradual flows of water and were planted with local native aquatic species to provide shelter and water filtration. These ponds have provided a new habitat

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with frogs being spotted. The area was revegetated with native plant species which are growing well, rock piles and logs were scattered around the area to act as homes for small reptile species, and all tree hollows observed in the surrounding dead trees were left in situ to continue to provide bird habitat. The endangered species Acacia terminalis terminalis has self seeded at the site, providing an extremely successful biodiversity outcome.



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5. Seawalls

10 Year Objective

To have a terrestrial environment which is managed consistently with the principles of Total Catchment Management and Ecologically Sustainable Development.

CEC Objective

Implement management options identified from Council's condition survey of all seawalls.

5.1 Seawall Restoration

The coastal boundaries of Mosman include over 3km of seawalls. Prior to the CEC, many of these century old walls were in poor condition after years of exposure to salt water and wave action.

CEC projects have repaired, restored and rebuilt Mosman's seawalls to protect our coastal environment. In keeping with the environmental objectives of the CEC, Council has placed emphasis on restoring seawalls in an ecologically sensitive manner.

Instead of building vertical seawalls, which provide limited habitat for intertidal organisms, CEC projects have tried to create natural rocky shorelines. This creates a range of habitat for intertidal organisms, including flat horizontal surfaces, overhangs, rockpools and crevices.

A number of seawall projects have also involved providing better access to the foreshore area and improved amenity. Terrestrial and aquatic plantings have added value to projects and provide an additional source of habitat for Mosman's wildlife.

5.2 Seawall Monitoring

Council has been monitoring the recolonisation of intertidal organisms on Mosman's seawalls in partnership with Sydney University's Research Centre for the Ecological Impacts of Coastal Cities. Results have shown that recolonisation of the intertidal area is occurring but is slower than expected. A number of factors could influence the recolonisation including wave action, water quality, the species present and their biology and reproductive rates.

5.3 Key Achievements

- Repairing damaged sections of Mosman's seawalls
- Redesigning and rebuilding Mosman's seawalls to create a natural rocky shoreline and provide habitat for intertidal organisms
- Establishing a salt marsh at the Spit West seawall – an endangered ecological community in NSW
- Improving access to the foreshore
- Planting native species adjacent to seawalls to improve amenity and provide habitat
- Partnering with the Centre for the Ecological Impacts of Coastal Cities to monitor the recolonisation of Mosman's seawalls by intertidal species.

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5.4 Seawall Project Highlights

Balmoral Seawall

- Repair and replacement of corroded reinforcement
- Repair of splintered areas of concrete
- Rendering to match colour and texture of original concrete work
- Application of a protective coating to ensure the wall stays in good condition

Mosman Bay Seawall (2003/04)

- Rebuilding degraded areas of the seawall
- Installing a non-woven geotextile fabric behind the wall to prevent erosion
- Planting native trees, shrubs and ground covers behind the seawall
- Establishing pedestrian access along the top of the seawall

Parriwi Point Seawall

- Restoration of structural integrity
- Provision of recesses in the mortar between blocks to allow for habitat
- Formalisation of existing rubble in front of the wall into a tidal habitat pool

Spit West Reserve Seawall (08/09 – 2010)

- Rebuilding the seawall to create habitat for intertidal organisms
- Establishing a salt marsh community, bringing back an ecological endangered community to Mosman
- Terrestrial plantings, new seating and a viewing platform
- Improving foreshore access with a parallel pedestrian and bike path

Quakers Hat South Seawall (2003/2004)

Council worked with the Centre for Ecological Impacts on Coastal Cities (CEICC) to redesign the Seawall to provide intertidal habitat. The old seawall was a vertical face, whilst the new seawall was redesigned as a boulder field with a gradual gradient to create crevices and horizontal surfaces as habitat for intertidal organisms. The seawall has been monitored by the CEICC to identify the intertidal organisms and calculate the rate of recolonisation.

Bushland regeneration was undertaken at the site to remove weed growth and the site was also revegetated with native species. A walking track including steps up to the top of the site were constructed to provide better access through the bush to the foreshore. Dinghy racks were also installed to provide access to boat users.

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6. Creeks

10 Year Objective

To have the integrity and diversity of the indigenous flora, fauna and aquatic environment of Mosman sustainably managed.

CEC Objective

Undertake creek rehabilitation management options from the Port Jackson North and Middle Harbour Stormwater Management Plans implementation schedule.



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6.1 Pressures on Our Creeks

Mosman has few remaining natural creeks, as much of the area's catchment has been changed through urban development. Those creeks that do remain are under pressure from stormwater pollution, weed invasion, nutrification, habitat loss and encroaching development.

The topography of Mosman gives rise to steep bushland slopes below residential streets. Stormwater often runs through these bushland areas as unformalised creeklines. This leads to erosion, the spread of unwanted nutrients which favour weed growth, the spread of pollutants from road catchments which can be harmful to flora and fauna and the spread of plant pathogens, such as phytophthora.

6.2 Creek Restoration

CEC projects have aimed to restore and rehabilitate Mosman's creeks. Projects have reduced uncontrolled stormwater runoff through bushland by redirecting stormwater flows into restored creek lines. Since the commencement of the CEC the percentage of bushland affected by uncontrolled stormwater runoff has decreased from 60 per cent to 14 per cent.

Erosion has been reduced in creek areas by using rock "armour" over woven matting. The matting retains the soil in place and the armour protects against erosion. Some projects have incorporated formalised planted pond areas, which provide a natural way to reduce nutrients whilst providing habitat. All materials used, for example the sandstone boulders, have matched existing geology to emulate the natural environment.

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6.3 Key Achievements

- Using rock armour and woven matting to reduce erosion around creeklines
- Containing stormwater runoff
- Removing weeds and preventing the spread of plant pathogens
- Reducing the percentage of bushland affected by uncontrolled stormwater runoff from 60 per cent to 14 per cent
- Planting native vegetation
- Restoring riparian habitat for native flora and fauna
- Redefining creek beds and providing habitat ponds.

6.4 Creek Project Highlights

Balmoral Creek

- Channelling stormwater flows into the creek system
- Reducing runoff and erosion
- Capping adjacent contaminated areas
- Creating frog ponds and riparian habitat
- Construction of a path and footbridge to allow greater public access

Lawry Plunkett Reserve (May 2002 – March 2003)

- Armouring creek beds with sandstone blocks to reduce soil erosion and channel stormwater flow
- Replanting native species to improve bank stabilisation and provide habitat

Beauty Point Foreshore (2003/04)

- Armouring of 4 creeks flowing from Delecta Avenue through bushland to the bay. Armoured with sandstone boulders and designed to reduce the velocity of flow.
- Replanting around the creeklines
- Upgrading the walking track to improve foreshore access
- Installation of 29 Pit Baskets to capture gross pollutants
- Drain stencilling in the catchment

Mosman Bay Creek (2010/2011)

During 2010/11 works were undertaken at Mosman Bay Creek to return the weed infested banks to healthy riparian zones. Rock sourced from the creek itself were shaped and moved by hand to form 'armoured' creek banks and a clear central channel. Habitat ponds were also established within the creek line. The slopes within the creek were covered by woven geotextile material to prevent soil being washed away improving bank stabilisation whilst still allowing natural seepage into the soil. Part of the creek area was treated for weed growth and 'jute' matting was laid down and planted with 1000 indigenous fern and riparian species to further stabilise the creek banks and provide habitat.



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7. Integrated Projects

10 Year Objectives

- To have a water cycle, which is managed in a sustainable manner, which protects natural flow regimes, ecological processes and enhances water quality
- To have the integrity and diversity of the indigenous flora and fauna of Mosman sustainably managed
- To have a terrestrial environment which is managed consistently with the principles of Total Catchment Management and Ecologically Sustainable Development
- To have the integrity and diversity of the indigenous flora, fauna and aquatic environment of Mosman sustainably managed.

7.1 The Key to Success

Council has been one of the most successful in NSW for obtaining external grant funding for environmental projects from State and Federal Government Departments. Our secret to this success has been to expand and add value to single issue projects to achieve a multitude of sustainability objectives. These projects are termed integrated projects.

These projects cover multiple areas such as stormwater quality, creek rehabilitation, bushland restoration, seawall works and the construction of walking tracks to improve foreshore access, and where possible also include non-structural activities such as community education, water quality monitoring, heritage conservation, and intertidal habitat research.

Integrated projects have added substantial value to the CEC and ultimately the community and our environment.

7.2 Key Achievements

- Reconstructing creeks to channel stormwater, reduce erosion, minimise weed dispersal and prevent other negative impacts on bushland
- Redesigning seawalls to reduce effects of wave action and create intertidal habitat
- Significant bushland improvements, providing improved habitat areas for our flora and fauna
- Involving the community through catchment based education programs and the Bush friendly neighbour campaign
- Conserving heritage items and developing interpretive walks
- Providing safe public access to foreshore and bushland areas through the establishment of walking tracks
- Contributing expertise of a dedicated multi-disciplinary team
- Winner of the 2006 ICMA Community Sustainability Award

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7.3 Integrated Project Case Studies

Lawry Plunkett Environment & Heritage Project (May 2002-March 2003)

Prior to project commencement Lawry Plunkett Reserve was not accessible to the community, it was highly degraded, covered in weeds, and stormwater runoff flowed through the site causing erosion problems. This integrated project incorporated stormwater quality improvement, creek works, bushland restoration, heritage interpretation, community access and a large community education program. This integrated project was extremely successful in creating an accessible bushland area for the community and enhancing the biodiversity value of the site, and as such is a showcase of the CEC.

Up to 500 metres of formalised creeks were constructed to channel the stormwater runoff and minimise erosion at the end of Mulbring Street, Gordon Street and Botanic Road. The creeks were armoured with sandstone boulders and incorporated drop structures and pools to prevent the build up of sediment and create habitat. To improve stormwater quality entering the creeks SQIDs were installed to capture stormwater pollutants.

The weeds were cleared from the site and the area laid with crushed sandstone. Approximately 7000 native grasses, shrubs, sedges and trees were planted on the site to restore the bushland area. A bush walking track of crushed sandstone was constructed meandering through the site from The Esplanade/Botanic Road to Mulbring Street providing a bushwalking experience and accessibility to Balmoral Beach.

The historical values of Lawry Plunkett Reserve were highlighted throughout this project. The old tramway cutting was cleared of vegetation and Council worked with the Sydney Tramway Museum to install physical items at the tram cutting including tram tracks, wheels, brakes and the overhead cable to showcase the heritage of the site. Interpretive signage was also installed at the tram cutting and along the walking trail to raise awareness of the heritage and natural values of Lawry Plunkett Reserve.

Throughout this project a community education program was undertaken to raise community awareness of stormwater impacts on the local environment. A community survey was developed to determine community knowledge of the Balmoral catchment and



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environmental concerns. Community consultation evenings were hosted to engage and involve the community in the project and the Balmoral Environment Network (BEN) was established for interested residents. The education campaign also involved the distribution of stormwater brochures and factsheets, drain stencilling, a school stormwater program, and community events including stalls, marine displays, activities, and interpretive walks.

Beauty Point Foreshore (2003/04)

This project integrated stormwater quality, creek rehabilitation, the construction of walking tracks and an education campaign to raise awareness of stormwater quality issues and enhance community appreciation of the area.

Four creeks flowing from Delecta Avenue through the bushland to the bay were formalised to channel the stormwater runoff through appropriate channels to reduce impacts on bushland such as erosion. The creeks were armoured with sandstone boulders, and were designed to reduce the velocity of flow.

To improve the quality of the stormwater entering the creeks 29 pit baskets were installed in the street drains to capture gross pollutants and sediments. As part of a community stormwater education campaign, drain stencilling was undertaken to highlight to residents and visitors to the area that stormwater from households and the streets in that sub-catchment area drained to the bay. A bush friendly neighbour campaign was also implemented educating on stormwater pollution and weed invasion into bushland.

The walking track through the bushland area was improved to enable ease of access to the foreshore, and interpretive bushwalks were undertaken for the community to enhance their appreciation of the area.

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COMMUNITY ENVIRONMENTAL CONTRACT

Pearl Bay/Spit Reserve (08/09-2010)

Works were undertaken on the seawall at the Spit, to improve its design, taking into consideration wave action, sea level rise, and biodiversity. The seawall was designed with the assistance of the University of Sydney (Centre for Ecological Impacts of Coastal Cities) to become an ecological habitat for intertidal species. A boulder field toe provides habitat for fauna in the tidal zone and more closely mimic a natural shoreline. A 110m length of boulder field toe at the northern end was partially constructed using sandstone blocks excavated from the Drill Hall Common site. The sandstone wall at the southern end has been repaired to maintain its original historic value. A rock habitat pool installed within an existing alcove at this wall provides greater intertidal habitat.

In the central section of the concrete wall, the existing beach area is being supplemented to increase access to the foreshore through the tidal cycle. Stairs built here include a boatslide to allow the launching of kayaks and other small craft. Beach nourishment was also incorporated to establish a new beach area for recreational purposes.

A saltmarsh habitat was established, reintroducing an endangered ecological community to Mosman. The saltmarsh is comprised of salt tolerant succulent herbs and low succulent scrubs, rushes and sedges. A viewing platform including interpretational signage was constructed over the saltmarsh area and seawall to engage and inform visitors.

A terrestrial planting strip at the landward side of the wall, incorporates salt resistant native rushes to protect the seawall crest from wave erosion during storm events and to provide an aesthetically pleasing edge to the newly installed footpath and bicycle path which was constructed from a percentage of recycled materials. Seven coastal fig trees planted in the central reserve area between the paths and the playing fields, match the existing line of figs at the northern end of the reserve. New benches, picnic tables and bike racks were also installed.



8. Conclusion

The CEC has been a success. Over the past 12 years the CEC has achieved great environmental outcomes.

Together, through the CEC, we have restored bushland areas, improved stormwater quality, redesigned seawalls, redeveloped creek lines, created new habitat areas for fauna and intertidal organisms, established walking tracks and recreational areas and improved community access to Mosman's foreshore.

The outcomes of the CEC programs will continue to benefit the local environment and the community over the long-term.