



**LOCAL GOVERNMENT and  
SHIRES ASSOCIATIONS of NSW**

## **ESD Information Guide**

### **Case Studies**

July, 2002

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# **Case Study 1 - Hornsby Shire Council**

## **“Creating a Living Environment”**

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## Overview of Project & Rationale

Hornsby Shire Council is the second largest Local Government in the Sydney metropolitan area with an estimated population of 147,185. The Shire, bounded by the Hawkesbury River to the north is 510km<sup>2</sup> in area and contains 35,397 hectares of natural bushland preserved by National Parks and 5,750 hectares of Council managed bushland reserves.

Council has a strong partnership with its Hornsby Earthwise Local Agenda 21 Committee. This partnership supports Council's commitment to the pursuit of sustainability in all its dimensions - social, economic and ecological. In 1999 the Local Agenda 21 Committee resolved to measure what residents treasure through a Community Sustainability Indicators Project (CSIP). The CSIP helped to generate measurable indicators, which Council can use to monitor its progress toward sustainability.

Council realises that a sustainable future is a challenge to us all, but it is this challenge, which drives Council to achieve its intent of 'Creating a living environment.' Council recognises that without a partnership with the community it will not be able to achieve its intent. It is the incorporation of the significant contribution the community has made through the CSIP and the 'whole of Council' management focus on sustainability, that makes Council's Management Plan, State of the Environment Report and approach to sustainability unique.

The objectives of "Creating a living environment..." were:

- To create a partnership between the community and Council in achieving a sustainable Shire.
- To enhance key performance indicators through the inclusion of sustainability indicators developed by the community.
- To provide a management tool which aligns Council's strategic intent with its operational activities.
- To develop a sustainable outcomes focused holistic management tool.

Council's 2001/2002 - 2003/2004 Management Plan provides a clear line of sight from its strategic intent, 'Creating a living environment ..' through to its operational activities. The Management Plan is not structured or driven by organisational structure, its focus is the pursuit of sustainability. This 'whole of council' approach ensures that Council's drive towards sustainability is the focus of strategic and day-to-day operational activities. Council has

determined the following set of elements to ensure its intent becomes a reality:

- 0. Engaging the community in the future of the Shire.
- 0. Protecting the natural environment.
- 0. Conserving resources.
- 0. Facilitating increased social well being.
- 0. Aligning service provision to meet changing needs.
- 0. Integrating land use and transport planning.
- 0. Facilitating a diverse local economy.
- 0. Achieving financial sustainability.

For each of these eight elements Council has developed outcomes and indicators. The indicators were chosen as measures which will reflect a positive movement towards the achievement of the outcomes.

Six of the twenty-three indicators were adopted from the themes developed by the community through the Community Sustainability Indicators Project (CSIP). The CSIP was an initiative of Council's Local Agenda 21 Committee and involved extensive consultation with the community. Consultation with the community is still continuing as the numerous proposed indicators developed are refined and distilled.

In addition, community "Hornsby Earthwise" groups have been established to help promote the developed indicators to the Hornsby community. It is envisaged that further indicators will be incorporated in Council's Management Plan in late 2002.

## **Making it Happen**

### **Hornsby Earthwise Local Agenda 21 Committee**

Hornsby Shire Council's Local Agenda 21 Committee has been working on a range of projects for the past 5 years, helping Council to fulfill its commitment to sustainability. Membership of this Committee now includes over twenty community members, two Councillors and is supported by Council staff. Council has allocated an annual budget of approximately \$50,000 to fund the Committee's Projects.

Since its inception the LA21 Committee has tried to act as a bridge between Council and the community - one committee members named its work "*the sustainability conscience of Council*". However the Committee had been

carrying out several small projects which overall seemed relatively ineffective. The Committee reassessed its role and decided to focus upon a few more substantial and strategically focused projects. One of which was the Community Sustainability Indicators Project (CSIP) In March 2000 funds were allocated to the Local Agenda 21 Committee to develop a this Project. Consultants were engaged to run visualisation and *Technology of Participation Techniques* to generate a community vision and indicators. An extensive advertising campaign began in August 2000 to ensure the whole Shire was invited to attend the CSIP workshops. Overall six community workshops were held bringing together over 150 volunteer community members. The workshops involved a substantial time commitment for the volunteers: attendance at two six hour workshop and preparation work. The next step was to hold a Synthesis Workshop that drew on the information from the workshops to generate a set of indicators covering ecological, economic and social issues.

These indicators were then reviewed by an Expert Panel in order to ensure they were robust, viable and practical. The Panel suggested ten “headline” and twenty “supporting” indicators. Council has approved a set of “first generation” indicators, six of which are reported on as performance indicators in Council’s Management Plan.

In March 2002 Council appointed a Local Agenda 21 Officer to coordinate the CSIP. This position is currently coordinating the public exhibition of the CSIP vision, theme and indicators through a number of innovative public activities and information campaigns. In order to take the indicators out to the public at the broadest level Council realised that traditional methods such as placing documents on public exhibition would not be effective. A public relation firm was hired to prepare a comprehensive communications strategy that would focus on the following questions:

- What are the targeted audiences in the Shire?
- What is the best way to communicate with them?
- How can the indicators be characterised in a way they can relate to them?
- How can broad consensus on directions be created?
- How can the media be enlisted to help?
- Since changes have been made during the process, how can these be conveyed to the public?

Prior to the adoption and integration of the community indicators with the existing eight elements in Council’s Management Plan, which is anticipated to occur in late 2002, the eight community themes that will go on public

exhibition with their corresponding indicators. The eight community sustainability themes are as follows:

0. Planning and development decisions based on sustainable values.
0. Preserve and enhance bushland and biodiversity.
0. Reduce, reuse, recycle and renew resources.
0. Environmentally friendly and integrated transport modes and networks.
0. Informed community action on sustainability.
0. Healthy and interactive community relationships.
0. A clean environment without pollution.
0. Vibrant and more self-sufficient regional economy.

In addition, community Hornsby Earthwise groups have been established to promote the sustainability themes / indicators at the launch called Hornsby Earthwise Day, in September 2002.

Local Agenda 21 Committee members were asked at the start of the project by the consultants *“What will you need to see at the end of the project for you consider it to be a success?”* The answers give a real indication of what the Committee was trying to achieve with this its main project, this included: meaningful measurement, increased action on sustainability, an inspired community, sustainable outcomes, a change in community attitudes and that *“Council walks the talk”*.

## **Management Plan 2001/2002 – 2003/2004**

In March, 2001 a draft Management Plan was developed which aligned operational activities with Council’s intent of ‘Creating a living environment.’. Stage 1 of this process involved the senior management team identifying the relationship between operational activities and Council’s eight strategic elements.

At the same stage, the executive team developed key organisational outcomes for each of Council’s strategic elements. These outcomes were selected to reflect the Councillors and community’s needs identified in the Strategic Plan.

Stage 2 involved the identification of indicators which would monitor Council’s and the community’s progress towards the achievement of the outcomes. Six of the twenty-three indicators were adopted from the themes developed by the community through the Community Sustainability Indicators Project.

Following the identification of outcomes and indicators for each of the strategic elements senior management and Councillors identified new initiatives to be implemented over the next three years, which would ensure that Council continued in a positive direction towards its identified outcomes. These new initiatives were in some instances, enhancements of key outcomes achieved in 2000-2001. Key achievements for 2000-2001 are noted for each element in the Management Plan which highlights the importance of the “rolling” nature of Council’s progress towards ‘Creating a living environment..’.

The community and interested stakeholders were invited to comment on Council’s draft Management Plan during its public exhibition. Comments and concerns received during the public exhibition of the Plan were considered by Council prior to the adoption of the Plan in June, 2001.

## **State of the Environment Report 2000/2001**

The 2000/2001 State of the Environment Report (SoE) follows a similar format to that used by the NSW Environment Protection Agency (EPA) in the NSW state of the Environment 2000 Report. It is a supplementary SoE, based upon the sectors Air, Biodiversity, Heritage, Land, Noise, Social, Water and Waste. It describes the state of the environment in the Hornsby Shire and the pressures faced in our Shire. The Report also details the responses to these pressures by detailing programs undertaken by Council.

Fourteen indicators were reported on in this Report. Six of these indicators have featured in previous SoE’s, one was developed through the Management Plan process and the remaining seven have been developed as part of Council’s Community Sustainability Indicators Project (CSIP). The seven CSIP indicators included in this year’s SoE are as follows:

- Tonnage of carbon dioxide reduction achieved in Council’s Greenhouse Gas Reduction Strategy implementation for its own operations.
- Area of bushland (hectares) in the active care of community and Council.
- Area of bushland (hectares) on private land lost to development.
- Proportion of businesses participating in environmental management programs and the proportion achieving improvement in environmental management practice.
- Number of volunteers participating in sustainability activities and related education.

- Percentage of domestic material by weight collected by Council going to landfill.
- Percentage of monitored healthy streams / waterways within the Shire.

## Challenges to Date and How They Have Been Met

Some of the challenges in implementing Council's sustainability initiatives have been:

- Engaging involvement from the youth, business and non-English speaking background sectors. This has been difficult but continuing attempts have been made to overcome this by creating special youth groups that meet during school hours that report to main Local Agenda 21 Committee, and liaising closer with the Chamber of Commerce and NESB Associations.
- Not having a central person in Council responsible for sustainable initiatives being implemented. This has been overcome by appointing a permanent Local Agenda 21 Officer.
- Difficulty in communicating to the wider community. This is currently being overcome by increasing the profile of sustainability initiatives in press releases; holding more community events and distributing materials such as calendars via rate notices.

## Issues to Consider

Below is an outline of issues that need to be considered in order to successfully put ESD into action:

- Engage the commitment and involvement of Councillors.
- Engage the commitment and involvement of the community, in particular from the youth, business and non-English speaking background sectors.
- Engage the commitment and involvement of staff other than environmental officers.
- Do not expect that initiatives will be implemented within short time frames.
- Always report progress of initiatives to Council meetings regularly.

- Ensure that you have a very proactive Local Agenda 21 Committee in place to drive initiatives within Council.
- Appoint a permanent Local Agenda 21 Officer.
- Put systems in place in Council so that the work is not person dependent.
- Make it all as simple as possible.
- Engage communications or public relations experts in getting the message across to the wider community.
- Engage the data gatherers and the decision-makers at each and every stage.
- Invite the General Manager to launch key events.
- Employ a variety of strategies to engage all aspects of the community – one method will not work for all.

## Outcomes to Date

The innovative approach to Council's Management Plan has ensured that Council's strategic intent is the focus of all of Council's operations. This ensures that Council is strategically resourcing and monitoring its performance in its drive towards sustainability. Hence, it provides a clear foundation for evaluating, and prioritising future projects, new initiatives and resources. This adds value to the decision making process.

Clearly defining the strategic intent and future direction of Council in its Management Plan allows the wider community the opportunity to input their ideas. Indeed, the incorporation of indicators developed by the community into Council's Management Plan demonstrates how this contribution is valued. Council recognises that its drive towards sustainability will only be achieved in partnership with the community.

Key achievements / outcomes for each of Council's eight strategic elements are identified in the Management Plan. The Plan identifies both new initiatives for 2001 -2004 and key achievements for 2000 - 2001. The following examples demonstrate some of the key outcomes Council has already achieved in its pursuit of sustainability:

### Community Sustainable Indicators Project

As stated earlier the Community Sustainability Indicators Project was an initiative of the Local Agenda 21 Committee. The aim of the CSIP was to identify what people treasure about the Hornsby Shire, and what their visions

and ideals were for the future. The Local Agenda 21 Committee wanted input from the wider community on its vision of a sustainable future for the Shire. This process would identify whether or not the Committee and Council had identified issues that the community felt strongly about and whether there were issues overlooked. Through this process 'community sustainability indicators' were developed which would monitor whether these treasures were being preserved. It is hoped that they will inspire change on a community level towards a more sustainable future.

Efforts have been made to encompass all sectors of the community to generate a set of common goals and aspirations. After all – this type of holistic approach is what sustainability and Local Agenda 21 is all about.

## **Achieving Sustainable Businesses**

The Environmental Management Program – Achieving Sustainable Businesses is a key sustainability program within Council. The main objectives of the program are to promote sustainable business operations throughout the Shire. The program essentially comprises of environmental education and awareness raising strategies, integrated with environmental reviews.

To date over 500 industrial and commercial businesses have been reviewed which has reduced the number of poor performing businesses and hence, the pressure placed on the health of the local natural environment. A recent evaluation of these reviews indicated that over 90% of businesses had a positive response to the program and over 50% of businesses felt the program benefited both the environment and their business.

## **Landcom Sites Dedicated to Community as Public Open Space**

Vacant Crown land sites at Hornsby Heights and Berowra that were previously earmarked for urban development by Landcom have been successfully conserved for inclusion in the Berowra Valley Regional Park. Instead of 600 additional allotments being created in these areas, they have been reduced to approximately 60 lots enabling the balance to be conserved as bushland for future generations.

## **Greenhouse Gas Reduction**

At the instigation of the Local Agenda 21 Committee, Council joined the Cities for Climate Protection program in 1999. Key achievements in 2000/2001 have been the adoption of Council's Greenhouse Gas Reduction Strategy and becoming one of the first councils in NSW to achieve Milestones three and four of the CCP program. Council is also well on the way to completing the last milestone, Milestone 5.

Council is currently implementing Australia's most comprehensive local government Energy Performance Contract throughout all of its buildings and parks. This will contribute considerably towards Council reaching its greenhouse gas reduction goal of 20% for its corporate activities. In addition, cogeneration technology is currently being investigated as an alternative energy source for Hornsby Central Library.

## **ESD Review of Planning Instruments**

In April, 2000 Council commenced a Sustainability Review of its Hornsby Shire Local Environmental Plan (HSLEP) and Development Control Plans (DCP's) to gauge the consistency of these Plans with the principles of sustainable development. Stage 1 of the project was undertaken by the Institute of Sustainable Futures (UTS) and involved an independent desktop review of Council's planning controls. This final report comments on current best practices for sustainability and identifies opportunities to improve Council's planning controls to address sustainability issues.

Stage 2 of this project involves the implementation in late 2002 of the actions and strategies identified in the adopted Stage 1 report.

## **Sustainable Purchasing Policy**

Council developed in February, 2001 a Sustainable Purchasing Policy to form a basis for its Sustainable Purchasing Management System. Other components of the Sustainable Purchasing Management System are; a Waste Reduction and Procurement Plan (WRAPP), sustainable purchasing procedures, the NSW Government Procurement Guidelines, a supplier environmental questionnaire, ESD Guidelines checklist, Council's Tendering Policy and Procedures, and Council's Greenhouse Gas Reduction Strategy.

## **Quality & Environmental Certification**

Council has developed a documented Integrated Management System (IMS) that meets the certification requirements of ISO 9001:2000 the Quality Systems Standard and ISO 14001:1996 the Environmental Management Systems Standard. The overall IMS structure is fully integrated into each service area's operational documentation and therefore requires very limited additional effort by operational staff. This means that certifications are exceptionally robust, easily retaining certification and delivering the maximum return on investment.

Following independent third party assessment through NATA Certification Services International (NCSI), to date several sectors of Council have been certified as meeting best practice in quality and environmental management principles.

## **Integrated Land Use & Transport Plan**

To achieve movement sustainability in an area within the Shire, Council commissioned a study which had the following broad objectives:

- To develop a sustainable transport system by increasing the proportion of trips made by public transport, walking and cycling, and in shared rides.
- Restraining the growth of peak travel demand by reducing predominance of single vehicle travel, eliminating unnecessary trips and sharing the traffic load around the network to make the most of the existing system.
- Providing sufficient road capacity by planning to meet moderated traffic demand and accommodate traffic growth in the suburb.
- Investigate accessibility and frequency of public transport in the study area.

The completed study has provided Council with a model framework for developing and implementing integrated local transport strategies in the Shire. The numerous recommended strategies and actions identified in the Plan are being implemented, and will continue to be implemented over many years with the development of a Shire-wide Integrated Land Use and Transport Plan that has recently been initiated.

## What We Would Do Differently if We Were Starting Again

If Council had an opportunity to implement the vision of “Creating a living environment...” again we would do the following differently:

- Try to integrate / align Council’s corporate strategic intent with the communities input at an earlier stage within Council’s Management Plan and State of the Environment Report.
- Appoint a permanent Local Agenda 21 Officer at an earlier stage to coordinate committee and its initiatives.

## Why Do it?

The CSIP has generated great benefits to the Council and in particular the LA21 Committee. Many members reported that the project had been a most satisfying experience because had enabled them to work with the community in ways that had never been achieved before. A by-product has been an increase in number of community members joining the Committee, a sign of the success of the project. Finally, one cannot ignore the fact that the project drew its powers from the elected leaders and senior managers. Despite the heavy demand on time, their commitment and wealth of experience created an environment that was likely to engender success. They also realised that the need to engage the broad public is an ongoing concern requiring new strategies, continual reappraisal and a long-term monitoring system to see if awareness is being raised and behaviour being changed. As one Committee member stressed, the challenge is “putting those indicators into place in the community in a way that is in itself sustainable and people will continue to work with, relate to, revise and grow so that it is a living thing as a progress towards a more sustainable community.”

## References and Other Essential Reading

Commonwealth of Australia (1999) 'Our Community Our future - A Guide to Local Agenda 21', Environment Australia, Canberra ACT.

Environs Australia (2000) 'Local Government Sustainability Survey 2000', Environs Australia, Canberra ACT.

Hornsby Shire Council (2000) 'Strategic Plan 2000-2010', Hornsby Shire Council, Hornsby NSW.

Hornsby Shire Council (2000) 'Greenhouse Gas Reduction Strategy', Hornsby Shire Council, Hornsby NSW.

Hornsby Shire Council (2001) 'Management Plan - Hornsby Shire Council 2001/2002 - 2003/2004' Hornsby Shire Council, Hornsby NSW.

Hornsby Shire Council (2001) 'Sustainable Hornsby - State of the Environment Report 2000/2001' Hornsby Shire Council, Hornsby NSW.

## **Case Study 2 - Manly Council**

### **“Community Scientific Advisory Panel”**

**prepared by:**

**Skye Addison  
ESD Planner**

## Overview of Project

Under the Manly Conservation Strategy (recently renamed the Manly Sustainability Strategy), Council established a 12 member Community Scientific Advisory Panel. Believed to be a first for local government in Australia, the Panel is established as an official Sub-Committee of Council to:

- Provide expert advice in the implementation of the Manly Conservation Strategy;
- Provide expert advice for other Council projects, such as the SoE report, when required;
- Support & encourage Council in its environmental initiatives;
- Act as a “check” to ensure that Council’s practices continue to be sustainable.

The community members have volunteered their services, having professional lives in universities, research institutions, State agencies and the private sector. The Panel members have extensive knowledge of the Manly environment, and have advised on over 70 matters. The Panel can operate individually, as a team, or whole Panel.

## Rationale

Council had already established informal links with various scientists. It was decided to extend this initiative to officially recognise each member, and further identify other professionals in the community with specialist skills in varying scientific disciplines.

Further, the Panel allows Council access to priceless information that would probably not be sought if Council really had to pay for it!

## Benefits

1998 - 1999: 36 projects = \$32,500 (@ \$100/hr).

1998 - 2002: 100+ projects = ? (not yet determined).

## Real costs

\$1000 meeting dinners (two per year) (5 to date)

Nil travel expenses claimed

ESD Planner coordination time (5% of wage)

## Making It Happen (Methodology)

0. A report to Council proposing the initiative was endorsed in 1998, following the adoption of the Manly Conservation Strategy.
0. An Expression of Interest was advertised in the local paper (15 received applications received).
0. A personal invitation was sent to three of Council's existing informal advisers.
0. The Manly Conservation Strategy Management Group reviewed the submissions, and selected 9 applicants from the EOI to join the three invitees, resulting in a 12 member Panel.
0. The proposed 12 member panel was adopted by Council in April 1998.

**Terms of Reference** were established, which all Panel members individually endorsed, covering issues such as:

- Confidentiality
- Potential conflicts of interest
- Travelling expenses
- Advice capacity only
- No decision making authority
- Council remains the decision maker and accepts liability.

**Communication procedures** were also prepared, outlining how staff seek SAP services, and lists SAP members and areas of expertise.

A **SAP Proforma** has been established to formalise the advice given to Council.

The **Servicing Officer** of the Panel is the ESD Planner, who is the main point of contact for all Panelists. The ESD Planner also initiates communication on behalf of Council in terms of potential projects, and also maintains a record of advice, and prepares a quarterly newsletter to keep SAP up to date.

A twice yearly **formal meeting** with 3 course dinner is held to:

- Thank members for their assistance
- Allow members to “touch base” with other SAP members and Council staff
- Discuss / workshop current issues
- Outline projects underway.

# Challenges To Date And How They Have Been Met

As it is a "first", both Council and SAP members have had to learn along the way. Provisions have been developed in response to problems when identified, such as the SAP Proforma, and Communication Procedures.

## Issues to Consider

0. Select the number of panel members you want following the Expressions of Interest. Council originally envisaged 5 members, and due to the high quality of submissions, resolved to adopt a Panel of 12.
0. Consider keeping the Panel member's details confidential. Council has had an instance where advice was given on a Development Application's environmental impacts. The Applicant reviewed the file, and obtained the SAP member's details, and consequently made contact with them and told them their advice was unsubstantiated!

For this reason, contact details and advice are now kept confidential, and Council "stands in front" of all advice, by choosing to accept or reject the advice.

## Outcomes To Date

Over 100 projects have had the assistance of SAP members, both as individuals, as a team, or whole panel. This has included projects such as:

- Review policies, EIS etc
- Inspection of possible contaminated sites
- Facilitation of workshops
- Staff workshops on stormwater awareness
- Informal advice and reference assistance.

Annually, they also informally monitor the implementation of the Manly Sustainability Strategy, and provide technical advice for the State of Environment report.

The benefits of the Panel are not all to Council, as Panelists believe that the relationship also benefits them through:

- Bringing current research to bear on real problems.
- Keeping up with the latest local "happenings"
- Direct links with Council.
- Networking with like minds - friendships & consortiums have been established.
- Practical student research tasks.
- Free dinner (!) and the "feel good" effect!

## **Councils Offering Similar Programs**

While similar formal initiatives are not known, there are many Councils who have informal links to scientists.

It is Council's understanding that other councils nationally and also in New Zealand have expressed interest in establishing such a Panel.

## **What We Would Do Differently If We Were Starting Again**

As it is a "first", both Council and SAP members have had to learn along the way. Provisions have been developed in response to problems when identified, such as the SAP Proforma, and Communication Procedures.

# **Case Study 3 - Gosford City Council**

## **“Developing a Whole of Council EMS”**

**prepared by:**

**Ann Stewart  
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## Overview of Project

Gosford City Council's decision to develop an Environmental Management System (EMS) as the main mechanism for implementing Council's Environmental Policy was made on 2<sup>nd</sup> March 1999. The objective of the Environmental Policy is to effectively integrate the principles of ecological sustainability into all council and community functions so as to achieve a clean, healthy and ecologically sustainable environment for the City of Gosford. The purpose of the EMS is to provide the framework to enable Council to undertake all its operations and activities in an environmentally responsible and ecologically sustainable manner. Council can then use its power of influence to lead the community by example. In leading by example Council will be encouraging businesses and the community to also undertake their operations in an environmentally responsible manner.

Gosford City Council resolved to implement an integrated sustainability based EMS as opposed to an operations or selected activities based approach. The integrated sustainability based approach recognizes the fact that along with the building and maintenance of infrastructure such as roads, drains and community facilities, Local Government also regulates, educates and provides health services, as well as advice on planning and building issues. Council also provides other community services including youth and unemployed group facilitation. The integrated sustainability based approach has therefore been designed to not only address the activities of the organization that have a high risk of direct environmental impact, but also the activities that have indirect impacts along with the activities that provide opportunities for influencing the community to think and act positively for the environment.

Council is staging the implementation of the EMS over a period of four years to the whole of Council. Council is currently progressing through stage one successfully and is concurrently preparing the ground for the integration of the Occupational Health and Safety System.

## Rationale

The City of Gosford is recognised as having a very rich and diverse natural environment. The importance of the environment and natural landscape attributes of the city is highlighted by the united appreciation of the natural beauty of the city by both residents and tourists alike.

Gosford City Council is the primary manager of Gosford's environment and it is our responsibility to ensure that the richness and diversity of the city is carefully managed so that it can be maintained for the benefit of both current and future generations.

How well Council protects and manages the environment and minimises environmental risk depends not only on its awareness of the extent of its impacts on the environment and having suitable plans and policies to address these impacts, but also on how well those plans and policies are implemented.

Council's Environmental Management System (EMS) is a tool that Council has developed to ensure that its plans and policies for environmental management come to fruition by offering a structured and integrated approach to environmental management across all of Council's operations.

The EMS is a process that Council is using to implement its environmental policy, assess whether the desired outcomes are being achieved, review whether changes are required to policy or direction and provide for continuous improvement in Council's environmental performance.

Council's EMS forms part of its overall corporate management system and operates on the basic principles of any management system – that is, objectives are set, plans are put in place, procedures are defined, checking is regularly carried out and improvements are made through revised objectives, plans and procedures.

## **Making it Happen**

As has been described the EMS is the main mechanism for implementing the Environmental Policy. In describing the methodology for the EMS it is necessary to include that of the Policy also.

Council commenced the process of developing its environmental policy by preparing a discussion paper in 1998 entitled '*Gosford's Environment – How will we protect it for future generations?*', which included a preliminary draft environmental policy. The document was distributed to sixty-four (64) community groups, including chambers of commerce and progress associations, as well as various Government organisations, with an invitation to comment.

Approximately thirty percent (30%) of the community groups/organisations responded to Council's invitation to comment on the discussion paper. All

but one of the submissions fully supported Council's intention to prepare an Environmental Policy together with an Environmental Management System for the City. A number of comments reinforced the need to establish and implement an Environmental Management System which embraced the principles of Ecological Sustainable Development (ESD). It is considered that this process permitted Council to achieve a clearer understanding of the community's values relating to the environment.

The next step was for Council to establish a working group of interested Councillors and staff to review the preliminary draft Environmental Policy taking into account the comments contained in the community submissions. The working group met on six occasions and undertook a detailed review of the community submissions. The submissions contained many constructive comments that resulted in substantial improvements being made to the draft policy.

When the revised draft policy was placed on public exhibition, a community workshop was held to provide a forum where community members could review the draft policy and have the opportunity to clarify issues and make suggestions. The suggestions made by participants at the workshop were carefully documented and were treated as a submission on the draft policy along with any other submissions lodged with Council as a result of the public exhibition.

Following the assessment of all the submissions the draft environmental policy was further amended and was adopted by Council on 2 March 1999.

Investigations then began as to the options available for the development and implementation of an EMS for Council as required by the policy. A discussion paper was prepared for consideration at a Strategy Policy forum titled '*Environmental Management System for Gosford City Council*' which discussed issues and offered preferred options. It was resolved at this forum that an EMS Project Steering Committee be formed to oversee the development and implementation of the EMS throughout the organisation. The EMS Project Steering Committee consists of the General Manager, Directors, Councillor representatives, Manager Environmental Control and Sustainability Officer (Project Coordinator).

One of the first tasks of the EMS Project Steering Committee was to develop a project plan. This project plan was to identify tasks, identify time frames, set responsibilities, and identify resourcing methods. The EMS Project Steering Committee accomplished this task by 8 March 2000. The Project Plan included approximately twelve months for the development stage (including tasks such as developing the basic systems manual, establishing a register for

aspects and impacts, developing a staff awareness program, developing EMS training programs, resource allocation and review methods) and four years for the implementation stage.

The EMS Project Steering Committee then critically analysed the whole of Council and its functions in preparation for the staging process. Council is currently progressing through implementation of the EMS with the first of the four stages.

## **Challenges to Date and How They Have Been Met**

Gosford City Council is a relatively large and diverse Council with over 1200 employees and as such, a great deal of planning has gone into the roll out or staging of the EMS to the whole organisation. As is the case with all Council's, Gosford is vulnerable to structural change every four years which can impact on all its functions and operations. Gosford City Council is currently in the process of undergoing one of its most rigorous structural changes in recent times and while the full impact of this change is unknown at this time, it will have an affect on the implementation of the EMS with respect to the staging and resourcing process.

As the planning of the EMS was well thought out and carefully structured it has met with success in the organisation and is working. As a result of this success Council has decided to integrate the Occupational Health and Safety (OHS) System with the EMS. This has come about as a result of changes to the OHS legislation requiring Council's to become more systematic in their approach to managing OHS. Integrating these systems has met with agreement throughout the organisation from the highest to the lowest structural level. The complications and considerations of this integration are outside the scope of this case study, however resources and contacts have been included to provide further information if required.

The changes in legislation that influence councils have given the environment a higher profile and have inspired momentum to act. The senior management at Gosford City Council have acted strongly by giving their support to the EMS and this support has been vital to the success of the project to date. Without senior management support and leadership the organisation as a whole would be unable to commit themselves and the EMS would be at risk of failure.

## Issues to Consider

There are numerous resources commercially available to anyone starting out developing an EMS which have identified common issues and pitfalls specific to Local Government (see references for one example).

Questions that Gosford City Council was posed with and sought answers to in the planning and development stage included:

- Why does Council want an EMS?
- What does Council intend that the EMS achieve?
- How does the EMS relate to Local Agenda 21?
- What factors are critical to the success of Council's EMS?
- What should be the scope of Council's EMS?
- Should Council seek certification to ISO 14001?
- What should be the administrative structure for the development of the EMS?

## Outcomes to Date

As has been introduced in various other sections of this case study, Gosford City Council is currently working at integrating their OHS System into the EMS framework. The organisation as a whole is looking forward to having a single system to deal with and can relate to the benefits of integration with respect to rationalisation of time taken to implement these systems.

Outcomes are difficult to measure at this time as Council is still in the early stages of implementation. It will be some time before Council will be able to measure the success of any outcomes in relation to environmental performance. Some of the areas where Council has been able to initiate change via the EMS include:

- Protection of the environment with respect to new practices and procedures relevant to the handling and storage of chemicals at both Council owned public swimming pools. Both pools have also reviewed

their EPA licences for discharging to stormwater and are working with the Water and Sewerage section of Council to develop plans for connection to sewer.

- Purchasing and Stores have developed a draft environmental purchasing policy for the purchasing of products and services from external service providers.
- Fleet Management have increased the number of LPG vehicles in their small vehicle fleet, have introduced the use of bio-diesel in several of the large plant vehicles for a trial period, and have purchased two electric/petrol vehicles in the small vehicle fleet.

## **Councils Offering Similar Programs**

Gosford City Council began their investigations into the options for the development of the EMS in Manningham Council, Victoria. Both the Manager Environmental Control and the Sustainability Officer visited Manningham Council for an intensive learning opportunity and training program offered by Manningham. Gosford chose Manningham as it was the first Australian Council to achieve accreditation to ISO 14001 for the whole of Council, and Gosford was taking a whole of Council approach to their EMS.

Other Council's that have supported Gosford in their EMS include Marrickville Council, Hornsby Council and Ku-ring-gai Council. There have never been any barriers to sharing information from any of these councils with all councils focussing on the need to gain good environmental outcomes.

One extremely valuable experience that the EMS Project coordinating officer experienced was the attendance at an environmental auditors training course. This would be a valuable experience for anyone setting out to develop and implement an EMS regardless of whether they are choosing to reach the certification standard. This type of course allows for an 'outside looking in' frame of mind.

## **What We Would do Differently if Starting Again**

It has been recognised from the outset at Gosford City Council that there is no one single correct way to develop and implement an environmental

management system. The ISO 14001 standard offers a solid framework that has been tried and tested, however it cannot offer guidance to success.

So far there has been no reason to fault the EMS as it exists nor the planning stages for development and implementation. The extensive community consultation that was undertaken by Council was very time consuming, however it was necessary to identify the community expectations and direction. To develop and implement a whole of Council EMS is an enormous task and will take a considerable investment of resources, it is therefore vital to consult the community to assess whether this type of investment meets their needs.

As time goes on and the EMS has had the opportunity to effect environmental change or not, it will become more obvious as to where Council should have done things differently. Being so young in the implementation stage doesn't

## References and Essential Other Reading

ALGA (1996) *Managing the Environment - A Practical Guide for Local Government to Environmental Management Systems and ISO 14001I*, Australian Local Government Association

Gosford City Council (1998) *Gosford's Environment - How will we protect it for future generations?*, Gosford City Council.

Gosford City Council (1999) *Environmental Policy E5.08*, Gosford City Council.

Gosford City Council (1999) *Environmental Management System for Gosford City Council - a discussion paper for Council's strategy policy forum*, Gosford City Council.

Gosford City Council (2000) *Gosford City Council Environmental Management System Information Handbook*, Gosford City Council.

# **Case Study 4 - Sutherland Shire Council**

## **“Developing Effective Policies”**

**prepared by:**

**Dr Garry Smith  
Principal Environmental Scientist**

## Overview of Project

Sutherland Shire Council has developed a detailed program in sustainability/Local Agenda 21, with a strong emphasis on innovation and community partnering.

The program is based upon a community launch in 1995, which initially focused attention on ecologically sustainable development and secured commitments from all sectors of the community to adopt sustainability initiatives.

The program emphasised ecological sustainability, based on several key research projects, leading to integrated policy development in water, biodiversity, air and land issues. A long-term environmental trend indicator recording process is well established, providing a sound basis for state of the environment-reporting, target setting and auditing.

A major community visioning and partnering process was undertaken to define sustainable social, economic and environmental risk assessment and social/financial cost benefit analyses. This has resulted in publication of a comprehensive strategic plan for our Shire.

Policy development and implementation are fundamental in government because policy sets directions for change, define the goals to be achieved, and initiates the communication process with the public which is vital to successful government. It is also an indicator of Council direction and aptitude.

## Rationale

Community and organisational comment have emphasised the need to approach the Local Agenda 21 on a broad basis, including all aspects of environment protection, with particular emphasis on development of sustainable planning approaches and of incorporating environmental management systems into Council works and business activities. Renewed emphasis for such an approach resulted from Council's survey of community attitudes as part of the strategic planning process, where protection of the environment received the highest community endorsement.

The urgency for local government environment management was reinforced by the New South Wales Government passage in 1993 of the Local Government Act to incorporate the principles of Ecologically Sustainable

Development (ESD) into the Act, including a definition of ESD, modification of State of the Environment reporting to provide for Local Government environmental improvement program recording, and incorporation of sustainability indicators in reports to ratepayers.

Agenda 21 is a process by which local government can offer the local community some control of its own destiny. In this respect, Council has a clear leadership responsibility which will impact for many generations on the quality of life within Sutherland Shire.

## **Making It Happen (Methodology)**

Limits to growth identified with the respect to sustaining the natural environment, define several fundamental policy areas for attention. These include:

0. Air quality
0. Biodiversity
0. Land management
0. Water quality
0. Transport
0. Waste management

A variety of smaller scale policy areas are also important. At many councils, for example, subjects such as contaminated land and cell phone base station siting have been considered worthy of policy development.

### **Air Quality**

The main issues that a council's air quality policy should include are:

- Regional Integration
- Education, Information and Public Participation
- Energy Efficiency
- Landuse & Transport Planning
- Source Controls and,
- Landscaping and Vegetation Management.

## **Biodiversity**

Local government biodiversity policy should consider the management of biodiversity in five key areas:

0. Habitat protection
0. Habitat corridors
0. Threatened species
0. Management and control of exotic species, and
0. Bushfire management

Our policy recognised that these areas overlap, are complementary and must be integrated to achieve the goals of biodiversity conservation.

There are three key local government roles in managing biodiversity resources:

0. Manager of land under its care, control and management,
0. Approval authority, and
0. Educator and information provider for the community.

## **Land Management**

Land Management is complex in light of the high value placed on land, both socially and economically.

Successive state governments in Australia implemented urban consolidation policies in the 1990s and afterwards. The approach, which was also being promoted overseas, dominates local government policy frameworks.

In states such as NSW there was a major public reaction against the urban consolidation policies. The public appeared to expect population control to be exercised as a way of avoiding both urban sprawl and urban consolidation. Several options are open to local and higher levels of government in dealing with this problem. These include:

- Engaging the community in informal discussion
- Understanding the role of transport and accessibility issues.

## **Water Quality**

Water policy reflects the urgency of urban water quality improvement needs, in light of health and recreational considerations.

A useful objective for water protection is successful development of a water policy accompanied by a water management plan.

A plan identifies areas where urgent action is required. These include: control of the quality and quantity of urban runoff; further incorporation of water protection requirements in development and building controls; and mapping and water monitoring of sensitive bays, creeks, wetlands and groundwater.

Adoption of a water management plan can lead to the effective and efficient management of the local government area's water resources and achieve the objectives of the water policy evidenced by an improvement in water quality in several high risk urban subcatchments.

## **Transport**

In 1997 Sutherland Shire Council adopted an Integrated Transport Policy.

In light of these trends, Council initiated a two-step approach to enhancing public transport use in Sutherland Shire and minimising the need for car use. The approach included, as a first step, enhancement of existing of public transport infrastructure, notably bus and taxi use, and secondly, consideration of the potential for light rail and other alternative transport modes to be encouraged in Sutherland Shire.

Of all the environmental and planning issues encountered in local government, car parking which is the most difficult to manage despite the importance of the issue in land use planning and hence in environment protection.

Well informed and bold changes to the burgeoning policy of increased land for parking and roads is probably the key to our cities achieving a more sustainable form, and if we are to avoid not only worse air pollution but increased temperatures and costly car congestion.

## **Waste**

A common policy approach of Councils in NSW on waste management included:

- A service for kerbside recycling and investigation of a greenwaste (garden plant and kitchen vegetable) collection and compost service.
- A call for the NSW Government to undertake an economic analysis of the requirements for phasing out putrescible landfill by enhanced recycling and microbiological conversion of the putrescible waste stream [NOTE: the appropriate technologies are available to convert almost all disposed waste].

For Council policies to align with that of State Government strategy, Councils would need to agree to encourage regional groups, possibly SSROC, to prepare a waste plan, including disposal options.

## **Challenges To Date And How They Have Been Met**

A number of factors can prevent or slow procedures to improve environmental quality. These include:

- lack of information on the trends in environmental quality indicators;
- economic policies and accounting practices which favour short-term costing over long-term costings and include environmental impact;
- misunderstanding at organisational management level of each departmental locus of responsibility regarding the environment;
- localised community misunderstanding of regional and environmental implications of policy;
- lack of leadership in sustainable policy support;
- lack of accountability in government and the community (by way of audits and policy monitoring).

## Opportunities

Work practices and community consultation processes within Council provided a basis for establishing a sustainable environmental approach. Activities which help to address the challenges include:

1. Community Partnering
2. Integrated Environmental Planning.
3. Education
4. Organisational Change

## Issues to Consider

Your policies would benefit from being practical in light of the following basic steps towards developing a Local Agenda 21:-

<b>How do we create a Local Agenda 21?</b>	
<b>STEP 1</b>	<b>Getting started</b>
<b>STEP 2</b>	<b>Creating a climate of support</b>
<b>STEP 3</b>	<b>A council-community partnership</b>
<b>STEP 4</b>	<b>Focus on the future</b>
<b>STEP 5</b>	<b>Implementation</b>
<b>STEP 6</b>	<b>Reporting</b>
<b>STEP 7</b>	<b>Standing back</b>

*Source: The Local Government Environment Network*

## Outcomes to Date

The program initially emphasised ecological sustainability, based on several key research projects, leading to integrated policy development in water, biodiversity, air and land issues. A long-term environmental trend indicator

recording process has been implemented and is a basis for the annual State of the Environment Report.

A major community visioning and partnering process has been completed to define sustainable social, economic and environmental strategies and planning options, based on recent environmental risk assessment and social/financial cost benefit analyses.

Practical implementation of sustainability initiatives has been undertaken by inclusion of urgent actions in the current Corporate Management Plan, by development of a residential design DCP, and by development-monitoring and auditing projects.

At the regional level, council has effectively implemented the SSROC greenhouse policy, and initiated the development of reporting and target-setting projects for Botany Bay.

## **Councils Offering Similar Programs**

Hornsby Shire Council  
Manly City Council

## **What We Would Do Differently If We Were Starting Again**

The most effective early step was to build several committees to improve and fully integrate a local council approach to natural resource protection policies. This can take the form of a water and an air quality committee, for example, which puts on the agenda the key current issues in protecting these natural resources. It is vital that up to date information is made visible through the committee process, hence the great value of state of the environment reporting. There is nothing so powerful in government as good evidence of a problem!

But such publicity in government environment management is not enough. The advent of committees should signal the next step in development of environment management, the need to have policy and action management happen in an integrated way.

Ultimately committees are only a crude tool to effect good environment management.

Valuable subsequent steps include:

### **(i) Bringing the Environment into Core Business**

Line management bears a heavy responsibility for deciding how to protect natural resources in the absence of clear strategic and budgeting indications. In the end, the environmental components of the budget require strong management.

### **ii) Ecobudgeting**

Ecobudgeting is a concept to develop natural resource accounting in economic terms which the public and governments may better understand. It illustrates the economic value of natural resources, documents examples of natural resource over-use or demise, and contributes to a better basis for natural resource management.

The procedures involved in ecobudgeting include adapting ecological and financial indicators from existing and new sources of data, developing natural resource accounting as a political and administrative decision making tool, focusing on cumulative and net natural resource impacts, thereby equipping municipalities to determine priorities in developing environmental policies, and contributing towards formulation of sustainable strategies in local government.

### **(iv) Environmental Auditing**

Environmental management systems and audits are techniques for government or business to maximise consideration of environmental issues in pursuit of the organisational goal. They are alone not a recipe for broader proactive planning for environment preservation and enhancement. However, they are useful tools along the path to compatibility between development and the environment.

## References and Essential Other Reading

Dr Valerie A. Brown, July 1994 *“Acting Globally”– Supporting the changing role of local government in integrated environmental management*, Environmental Resource Network.

Cotter, B and Hannan, K (Environs Australia) 1999 *“Our Community Our Future: A Guide to Local Agenda 21”*, Commonwealth of Australia, Canberra.

# **Case Study 5 - The Council of the Shire of Baulkham Hills**

**“Eco Accounting, What Does It Mean?”**

**prepared by:**

**Victoria Critchley  
Environmental Management Plan Coordinator**

## Overview of Project

In the last few years there has been a concerted attempt by government and academics to determine a method of valuing environmental assets. This has largely been a response to systems of management that emphasise economic outcomes and fail to adequately address environmental (or social) implications. A danger lies however in constructing a system based on establishing a financial (or 'market') value for ecological commodities as this approach often understates the potential, visual and intrinsic worth of natural systems.

International and national environmental accounting strategies have been reviewed and recommendations identified for the local environment. By utilising the best features of existing accounting systems, such as Ecobudgeting, a useful tool can be developed to monitor and manage the Shire's natural assets.

The Ecobudget concept originated in Europe and, rather than focusing on a monetary valuation of natural assets, is aimed at physically estimating and monitoring the level of natural capital in a municipality. By measuring the condition of the environment in metric terms and charting trends in key indicators, an Ecobudget is able to record progress towards identified sustainability performance targets.

Pilot Councils in Europe however, acknowledged that Ecobudget was not being used as a basis for decision-making as the financial costs involved in meeting sustainability targets were not addressed. In translating the framework for Australia, Sutherland and Baulkham Hills Shire Council, as pilot Councils, have established a link between physical and financial accounts.

The ultimate aim of the project is to determine whether the financial budgets of Baulkham Hills and Sutherland Shire Councils are consistent with their environmental policies. Aligning these two processes will hopefully ensure that future decision making is in keeping with stated sustainable policy commitments. Applying an Ecobudget approach will also identify whether sufficient policies and commitments are in place to ensure the protection and enhancement of natural capital.

Rather than apply Ecobudget to all of Council's environmental processes, the pilot project is directed at two key operational areas, waste management and energy conservation. With the pilot program running for one year, a decision to continue with Ecobudget will be based on a thorough assessment of whether the project meets stated objectives and outcomes.

# Rationale

The importance of local government involvement in environmental management is underlined by the concept of 'think globally act locally.' Local authorities must assume responsibility, within their own limits, for the management of local environmental assets. With Local governments increasingly, the lead agencies in achieving sustainable development at the local and grassroots levels, environmental accounting and budgeting programs are gaining popularity as a tool for new triple bottom line decision-making.

Until now, accounting and budgeting systems have largely failed to incorporate environmental concerns. Unfortunately, this has often left environmental issues in a poor second place. Indeed, as recognised by J.K. Galbraith, "if it is not counted, it tends not to be noticed" (in A. MacGillivray and S. Zadek, page 2). One of the major reasons that this imbalance has occurred is the difficulty in placing a definitive value on the benefits provided by ecological processes and a lack of certainty in respect to identifying short-term and long term environmental costs. Environmental Budgeting would provide a basis for developing policies to ensure that environmental resources are used in accordance with the principles of sustainability.

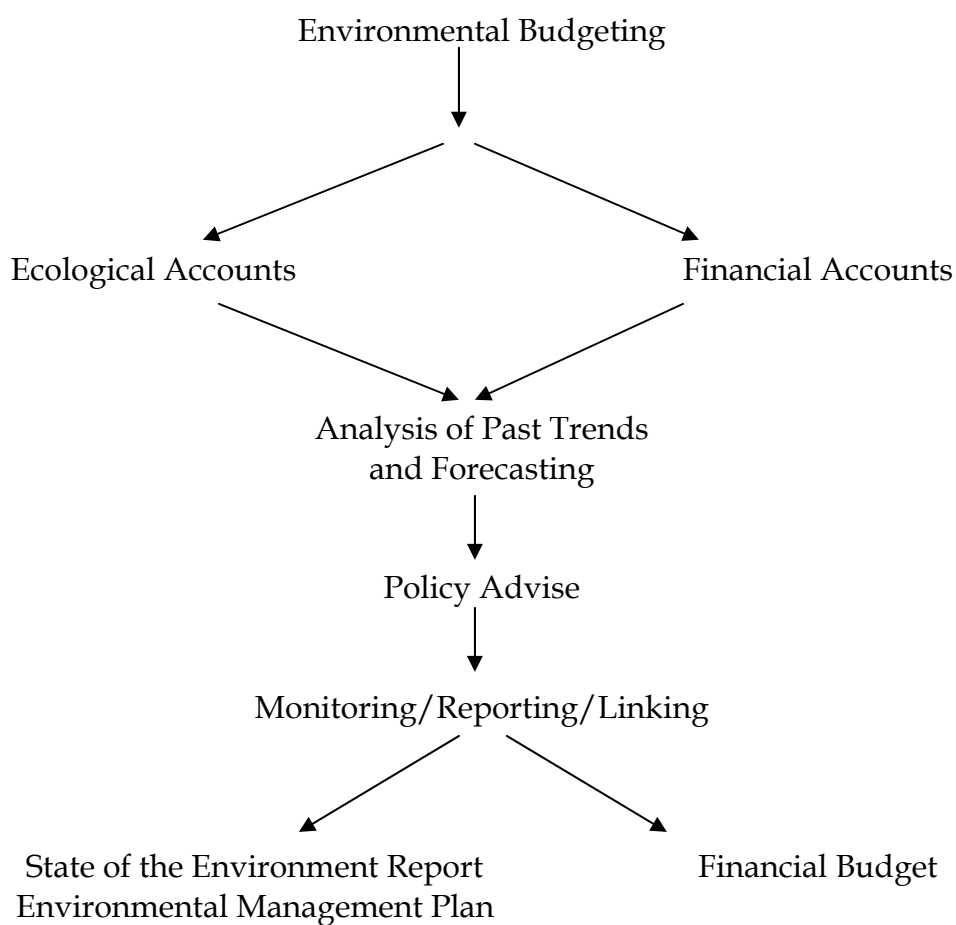
There is a need, however for more detailed environmental information at the local government level. Moreover, at all levels of government, a comprehensive conceptual framework is needed to better analyse this information, facilitate informed environmental decisions and integrate the principles of sustainability. Environmental accounting and budgeting can provide this framework, and therefore make an important contribution to fulfilling the environmental responsibilities of local governments.

The primary aim of Council's Eco-accounting program is to establish a method of identifying the value of environmental externalities and implications in order to incorporate them within the existing financial decision-making process. This is of particular importance in Baulkham Hills with the Shire's rich biodiversity and high rates of urbanisation. An expanding residential population is placing pressure on the Shire's natural resources both directly and indirectly. Council by identifying the value and cost of retaining its natural assets will be in an improved position to sustainably manage the Shire's development.

The environmental accounting project is operating concurrently with projects to identify and map Council's natural assets and a project to develop an information management tool to more efficiently utilise Council's various

environmental databases. It is clear that these projects are compatible in vision and scope and will therefore be of great benefit to ensure that information is integrative and contributes to a comprehensive picture of the Shire's environment. The environmental accounting project will also assist in the effective and continuing implementation of Council's Environmental Management Plan.

The project will be a success if it assists Council to make decisions based on a balanced outcome of economic activity versus protection and management of environmental resources.



## Methodology - Making it Happen

The Environmental Budgeting Project has been developed to harmonise with Council's existing environmental management instruments and to assist in achieving sustainability targets within a stated time frame. It will identify gaps in sustainability policy commitments and encourage best practice environmental policies by giving consideration to the environmental implications of actions. In addition, the development of indicators and targets will assist in evaluating Council policies while a systematic planning and reporting process will facilitate accountability.

**Step 1:** *Determine Council's existing sustainability commitments and develop an ecological budget of environmental resources:*

Environmental quality targets are determined and progress towards meeting these targets is analysed.

- Identify areas to be considered for the ecological budgeting framework.<sup>1</sup>
- Establish indicators relating to environmental commitments.
- Choose a reference year against each ecological indicator.
- Enter annual metric estimates of ecological indicators
- Break down long-term targets into yearly objectives.
- Estimate percentage of target achieved by current year.

**Table 1: Solid Waste Ecological Accounts**

Base Year	Source/ Policy	Ecological Indicator	Unit	Target for 2005	% to be Achieved Yearly	Target for 2002/03
2000-2001	Waste Management Plan	Domestic Waste Tonnage	150,000 tonnes	50% waste diversion from landfill by 2010	5%	-%

<sup>1</sup> The number of areas that can be considered are dependant on Council commitments and data availability. The framework will be trialed in two areas in Baulkham Hills Shire Council - waste management and energy conservation- if found to be effective, other areas will be incorporated into the Ecobudgeting framework.

**Step 2:** *Establish a financial budget of Council's environmental resources to determine the extent of income and expenditure on environmental protection and natural resource management.*

The financial budget comprises of revenue generated and expenditure undertaken by Council for protection and management of the environment and include activities that will have a net impact on environment. The use of environmental resources is divided into environment protection and natural resource management activities as identified by the Environment and Natural Resources Survey of Australian Bureau of Statistics.

The financial budget specifies:

- Budget items that have an impact on the ecological indicator, the amount of funds allocated to each item, details of revenue, grants/funding, actual operating and capital expenditure & the corporate plan reference;
- Implications for the trend of each indicator against each budget item;
- Cumulative net impact of the budget against each indicator
- Council's current expenditure in comparison to the resources needed to achieve a particular ecological target.

**Table 2: Solid Waste Financial Accounts**

Item	Amount Allocated (\$)	Indicator Implication	Revenue (\$)	Grants/Funding	Operating Expenses (\$)	Capital Expenses (\$)	Target for 2002/03	% target achieved 2001-02
Domestic Waste	200,000	Divert 10% waste from landfill	150,000	-	130,000	100,000	Forecast based annual sequencing	% spent to achieve the waste reduction target.

**Step 3:** *Determine potential impacts on local natural capital by reviewing Council's current environmental processes.*

The analysis of Council activities would specify:

- Number of business units involved in protection and management of environment
- Aims and objectives of business units
- Functions of business units

- Compliance issues of business units
- Services provided to the community

**Table 3: Impact of Council processes**

Analysis of business units involved in Solid Waste Management	Output (Products/ Services)	Impact on Waste Management indicator
Number of Business unit involved		
Objectives of the units		
Function per unit		
Compliance issues within each unit		

**Step 4:** *Align ecological and financial budgets and determine eco-efficiency indicators for products and services, covered by existing sustainability policy commitments.*

Economic numbers measured in dollar terms are compared against ecological indicators, measured in metric terms to estimate eco-efficiency ratios. Eco-efficiency measures ecological and economic performance of Council activities in a given time period.

Eco-efficiency ratios can be output related or input related. Output related eco-efficiency indicators include, for example, rates collected from domestic waste collection per litre of fuel used in waste collection. Input related indicators include, for example expenditure on managing paper use in the Council per tonne of waste paper generated. The eco-efficiency ratio makes allowance for environmental issues to be incorporated with economic factors in decision-making.

In order to fully evaluate eco-efficiency ratios it is essential to analyse current policy commitments by:

- Entering all indicators which are predicted to fall short of the target and the anticipated cumulative/net impacts
- Specify all items which meet the threshold
- Predict the cumulative impact of proposed budget on Council commitments
- Forecast rate of increase/decrease of physical and financial indicators

- Conduct sensitivity analysis to see how contribution of an activity affects the target
- Define measures which will offset impact of activities

**Table 4: Eco-Efficiency ratios and analysis of trend indicators for Waste Management**

Ecological Measure	Economic Measure	Eco-Efficiency Ratio	Corporate Plan Reference	Indicator Trend
Domestic waste collection (Tonnes)	Total Expenditure on collection & transport of Solid Waste to landfill (\$)	Total expenditure in collection & transport of solid Waste (\$) / domestic waste collection (tonnes)	Waste Management Plan	Total expenditure per unit of waste to landfill decreased by 5% compared to 1999-2000 due to better waste management

*Step 5: Establish a reporting & monitoring framework for the Ecobudget project.*

Clear documentation is required to ensure that the system is self-sustaining and the process works efficiently, primarily, the development of an ecological and financial data management system to allow standardised reporting of requisite information. Reporting on the progress and outcomes of the Ecobudget will be achieved through quarterly reviews in the Council's management plan and an annual analysis to be reported in Council's Annual Report and State of the Environment report. Finally Council will be presented with an evaluation report at the end of the year long pilot period to determine whether to proceed with the Ecobudget.

## Challenges to Date

The Ecobudget project is in its initial stages with agreement reached by Baulkham Hills and Sutherland Shire Councils to proceed as the initial Australian pilots and an agreed brief developed. The brief outlines the objectives of the Ecobudget project, proposed methodology, expected outcomes, environmental quality targets and reporting and monitoring mechanisms. Although still the project is still in its infancy there have already been a number of difficulties to overcome.

In the first instance, there was considerable effort expended on determining the appropriate model to use in working towards an environmental accounting system. An initial literature review and analysis of environmental accounting models was undertaken in partnership with a Honours student in economics and policy. The use of such external resources is essential as this is still a very new area for Local Government and the skills and resources are simply not available within the organisation. Building up partnerships with the University of Western Sydney and the International Council of Local Environmental Initiatives in order to access current theory and methodologies has also been invaluable. The worth of external partnerships and knowledge sharing is true not only in respect to environmental accounting but for any major project that is being developed.

Again as this is a very new area for Local Government there are few recognised results to demonstrate the value of the project to senior management. Fortunately industry and to a lesser extent Federal and State Governments have begun to explore the use of environmental accounting within a growing interest in a triple bottom line approach to corporate management. This has provided credibility and a number of accessible case studies to present to senior management. The involvement of the financial arm of the Council as well as the environmental team has also been essential in gaining political support for the project.

In terms of the implementation of the environmental accounting project, gathering information on ecological and financial indicators has been a long and formidable task. Many of the difficulties in accessing, and motivating individuals to analyse information, will be resolved with the establishment of a regular reporting and documenting procedure. Although staff have become used to providing information for the State of the Environment report there is a much greater level of detail needed for the Ecobudgeting project. In this respect the Environment and Natural Resources Survey required by the Australian Bureau of Statistics has provided some much needed leverage to obtain the necessary information.

Work has also begun on the development of strategic environmental indicators and targets for the Ecobudget project. The first decision was whether to set stretch, political or realistic targets for the pilot program. It seems clear that if the environmental accounting project is to be used as a management tool it must establish realistic goals that can be achieved if existing policy commitments are implemented. Even if these goals, do not meet the targets established by other policy documents, for example the waste reduction targets set by the State Government.

## Issues to Consider

Other Councils involved in Environmental Accounting have mainly focused on measuring financial aspects of environmental resources. For example; Eurobedalla City Council in collaboration with the University of Canberra and the Australian Bureau of Statistics has instituted an Environmental Accounting Program that measures the financial value of natural assets in order to calculate the cost of impacts on the local environment.

Hornsby Shire Council has developed an Environmental Program Supplement, which contains information on Council's expenditure on environmental activities. It is attached to the General Purpose Statement of the Council. Lake Macquarie City Council also compiles information on environmental costs of different activities in its budget cycle.

The Environmental Budgeting Project initiated at Baulkham Hills Shire Council and Sutherland Shire Council is innovative because it focuses on developing and aligning financial and ecological indicators of natural resources to assess the environmental performance of the community and compare it with the environmental quality targets. It will provide a complete picture on the status of natural resource use and forecast policy implications to ensure efficient management of environmental resources in the community.

Regardless of which approach is taken, the major issue to be aware of is that this is not a simple process. Environmental accounting requires the development of new skills, systems and resources in order to provide the required outcomes. Implementation requires an upfront evaluation of the commitment and capabilities available internally and those that may be accessible from external processes in order to not only undertake but to also maintain an environmental accounting program.

## Outcomes

The ambitious approach undertaken by Council in looking towards a comprehensive and integrated evaluation of physical and financial ecological accounts has yet to be truly tested. Many of the questions in regards to the value, applicability and accessibility of this approach will be answered with the completion of the initial Ecobudget. In terms of identifying the actual costs of environmental policy commitments it has the potential to be an extremely valuable resource for Local Government. Without clear monitoring and accountability, all too often the local environment suffers when financial expediency is chosen over identified sustainability aims and objectives.

Regardless of the outcome of the pilot project it will have raised the awareness of senior management and Council's economic strategists to the importance of considering environmental implications within the budget process. It will also help establish an on-going information gathering and data management system to inform the State of the Environment reporting process.

## Useful Links and Publications

International Council for Local Environmental Initiatives, Environmental Budgeting, <http://www.iclei.org/europe/ecobudget/envbud-e.htm>

United Nations Statistical Division, System of Economic and Environmental Accounting (SEEA), New York, [www.un.org/depts/unsd/enviro.htm](http://www.un.org/depts/unsd/enviro.htm)

Green Measure, [www.greenmeasure.com.au](http://www.greenmeasure.com.au)

Environment Australia, [www.ea.gov.au](http://www.ea.gov.au)

Environment Expenditure Local Government Australia, 1999-2000, Australian Bureau of Statistics, No. 4611

Environment Protection Expenditure Australia, 1995-96 and 1996-97, Australian Bureau of Statistics, (No. 4603)

## **Case Study 6 - Leichhardt Council**

### **“Choosing a ‘Flagship’ and Setting Sail - Solar Hot Water as a Change Agent”**

**prepared by:**

**David Eckstein  
Senior Environment Officer**

## Overview of Project

In 1994 Leichhardt Council introduced a new Planning Code DCP 17 – Energy Efficient Housing that set new standards in defining energy use in the residential development sector. Despite the fact that the policy dealt with all the regular aspects of energy smart housing, including site orientation and passive solar design components such as insulation and shading the decision to mandate solar water heaters remains the stand-out / best known feature of the policy.

This case study demonstrates:

- the value of using an icon to drive the sustainability agenda;
- the need to be familiar with the technology if one's policy is strongly technology related;
- the need to have very clearly thought-out and stated objectives within policy;
- the challenge of training generalists in a specialist field;
- the challenge of maintaining policy consistency and enhancing quality of decisions in an environment of regular staff –turnover.

## Rationale

Estimates of greenhouse gas emissions from various sectors of human activity vary, and local government may have limited control over many sources of emissions (e.g road transport, rural area land clearing, industry). An exception is in the residential sector – especially emissions associated with how people heat and cool their homes and heat water for domestic use. This later aspect is particularly relevant as estimates for the proportion household energy demand used to heat water in Australian homes ranges from circa 27 % to circa 40 % of all imported energy. So if one particular standard activity within the home typically accounts for one third of the total in-house energy demand, might that activity not be ripe for targeting in a greenhouse gas reduction program? All the more so in the Leichhardt Case where existing street patterns restrict dwelling orientation options (though conversely in urban fringe and rural settings wider orientation options, large blocks and bigger roof planes all make the solar water option even easier.

## Riders within the rationale:

Within these general statistics about energy demand for water heating one needs to recognise that the greenhouse impacts may vary widely - for example traditional gas water heating is consistently better, in greenhouse gas emission terms than traditional electrically (coal-fired) boosted systems, yet a dwelling using a standard electric water heater but electing to buy 100% green-power can claim to be more benign than a house using gas water heating. An electric-boosted water heater can be operated by a diligent owner to give *very* low greenhouse gas emissions due to minimal reliance on boosting, whereas a lazy / disinterested owner/operator may produce much greater emissions. Cost has always been a big factor in the solar hot water story, the very best greenhouse gas performers (gas boosted solar systems) are also the priciest, but the availability of rebates and RECs (renewable energy certificates) has significantly altered this scene and revised pay-back periods on capital expenditure significantly.

## Making it happen (Methodology)

It was the combined efforts of motivated strategic planners and Council's first Environment Officer that really drove this project to fruition - i.e. from idea to policy research, to drafting policy (Draft DCP) to policy adoption. However the genesis seems to have been a highly motivated Environment Committee, which included members who were very 'greenhouse motivated', coinciding with a very supportive groups of councillors.

Before and during the research phase draft DCP material was developed and presented to the Council via its Environment and Planning Committees. Revisions were made, lobbying occurred on the 'hot' topic of solar water heaters and the Council decided to take the big step and mandate solar water heaters for all new dwellings and in major alterations and additions. Other aspects of energy efficiency standards such as minimum insulation standards and shading for north, east and west facing windows were also mandated within the policy. When *DCP 17 Energy Efficient Housing* was adopted, the mandatory aspects were written up as standard control conditions placed on approvals for DA's and (until EPAA changes) Building Applications. The conditions have been significantly refined over the years as it became evident that loose wording led to misinterpretation and inconsistent application of the policy and in *some* cases, poor quality installations - an almost inevitable outcome of new policy, whether it be concerned with environmental issues or not.

A major review of the policy in 2000/2001 resulted in the solar water heater mandate being removed from DAs concerning existing dwellings, and the introduction of an options clause allowing photovoltaic panels (solar electricity) to be installed in lieu of solar, for those applicants motivated to do so (an energy smart water heater – e.g. 5 Star gas is still required in these circumstances). For single new dwellings or developments of just two new dwellings the solar (gas or electric-boosted) (or heat pump) mandate remains. For three or more dwellings a gas-solar mandate applies.

## **Challenges to Policy Implementation to Date and How They Have Been Addressed**

### **Passive Solar Design issues - a general comment**

While the solar hot water requirements of the policy have attracted most attention most of the policy is concerned with passive solar design matters, including the following:

- providing adequate shading to windows that receive direct sunlight;
- making the most of thermal mass of buildings;
- ensuring buildings are well insulated against heat and cold;
- achieving adequate natural ventilation of internal dwelling spaces.

Furthermore the policy stipulates that old-growth and rainforest timbers should not be used in home construction. The extent to which architects, designers, draughts-persons, builders and home-renovators take on board these important design issues can only be partially influenced by Council. Influences on building design come from an array of sources. The focus (by others beyond the Council) on solar hot water has, at times, obscured the bigger picture (and the low cost aspects) of energy-smart dwelling design.

### **Cost of SWHs and difficulty in confidently assessing greenhouse gas savings from different types of hot water systems**

*From a greenhouse gas perspective* research shows that the best commercially available hot water system is a well-orientated gas-boosted close-coupled

solar system. Only one company currently regularly offers gas boosting of close-coupled SWHs, but because the gas element is not a standard fitting, there is an additional charge for the gas boosting option. This cost is in addition to a system that *already* costs more than traditional gas or electric systems. The next most preferred *systems (in greenhouse gas emission terms)* are heat pumps, electrically boosted solar hot water systems and high-efficiency (5 star) gas systems. Depending upon how these are used (extent of boosting, pattern of hot water use in any particular household etc. ...) it is possible for a high efficiency gas system to out-perform (*in greenhouse gas terms*) a electric-boosted solar hot water system.

There is, however, uncertainty in the estimates of greenhouse gas emissions associated with gas hot water systems. While these systems may be very efficient at the *end-point* of energy usage (hot water generation in the home) it is difficult to assess the extent of gas loss during transmission from the source (gas field) and / or place of central storage in the gas network.

The introduction of rebates (SEDA) and now RECs has significantly altered the market as the cost differential between traditional (electric or gas) systems and solar systems has been greatly reduced.

### **Solar hot water requirement addressed ‘too late in the process’ by builders, developers and planners**

A persistent problem is that many architects, builders and developers fail to give adequate consideration of solar design issues, especially the solar hot water requirements, at an *early stage* of development proposals. All too often applicants only consult the policy checklist and detail of the policy at the counter at the time when plans are being submitted, not at the earliest stage of design. Often plans are submitted over the counter without SWHs shown on the diagrams in cases where the proposed development *does* require SWH, or the systems are not drawn to scale.

As developers are not yet encountering the same degree of insistence on renewable energy technology in other Council areas, they continue to be surprised by the requirement and thus do not plan strategically for it.

## **Difficulty in tracking total number of SWHs installed as a result of the policy, and the types / capacities of systems installed**

In terms of statistics associated with the policy, the most frequently sought item of information concerns how many solar water heaters have been installed. While Council originally kept computer records that showed how many applications have had insulation, shading, and solar hot water conditions attached to them it has not been possible to immediately track how many solar hot water systems have been installed as a result of the policy because some BAs and DAs involve multiple dwellings (and therefore multiple hot water systems), but the records only indicated that the SWHs condition applied to the development rather than detailing the number of dwellings. This record system ceased when new IT was implemented. Subsequently an on-ground study by a staff member and a student assistant tracked all visible systems and established, with a reasonable estimation, systems installed pre- and post- policy introduction. Since September 2001 tracking of systems installed as part of DA approval has been made easier as a result of SEDA passing rebate administration across to councils. Systems installed voluntarily and not as part of DA projects are difficult to track.

## **Solar hot waters systems installed outside ideal orientation range**

The policy indicates that solar hot water panels should be installed within 45 degrees of true north to ensure sufficient solar capture. To reach a quality decision on a merits basis takes time and expertise. It is hoped that an ongoing education of applicants, architects and Council assessment staff will improve performance in this area.

## **Quality of service provided by solar hot water service companies**

*Generally* the service has been good. However poor service provision and advice can lead to negative perception of a still emerging industry. There have been some instances which appear to involve providers quoting to ensure that they secure the installation contract to provide the service rather than advising a customer that achieving a quality installation which will have sufficient solar capture and reduced energy bills is not feasible in a particular circumstance (in which case Council has always been willing to consider exempting the solar hot water requirement).

There has been one case where an installation would obviously have had a significant negative visual impact on a neighbour (and increased shading on the neighbour's small courtyard) but the contractor tendering for the service did not consider this impact and the installation (a reverse pitched system mounted on a frame) was undertaken, resulting in protracted and time-consuming negotiations to resolve the matter. Such scenarios are a rarity.

## **Need to modify the policy to accommodate impending innovations in renewable energy technology**

Council receives queries from owner-builders and / or developers seeking to use energy-innovative technology such as photovoltaic power systems (e.g. 'solar roof tiles') and the 2001 policy review accommodated such technology. The policy needs to be flexible enough to enable the energy conservation and efficiency objectives to be met in a variety of ways, using passive and active solar design. Furthermore, with the opportunity for residents to now opt to pay a 'green power' levy on their electricity bills Councils might consider entering into discussion with electricity providers to establish whether part of the energy efficiency assessment could consider, for example, three or five year agreements to purchase 'green energy' in addition to, or in lieu of other energy efficiency requirements of the policy. This would be a policy administration challenge but would open up so many doors in terms of providing choice in achieving greenhouse gas savings in the residential sector.

## **Resourcing**

Council has established a leading edge policy that requires consistent professional support. The environment officer position which has supported the policy and its review, and provided staff training. As part of the 1997-98 IMROC Regional Planning Partnership project Leichhardt Council suggested the funding of a specialist Energy Adviser position across the region or shared among several neighbouring councils.

Such a position could:

- provide specialist technical support for complex solar hot water matters (e.g. multiple-unit dwellings)
- assist in implementing recommendations from Council's own in-house Energy Audit of its own premises
- identify further cost-saving measures (beyond those identified in the energy audit) through improving in-house energy efficiency

- further develop policy for energy efficiency in the commercial and industrial sector
- provide a marketable service to the private sector

Such a position has not been created by Leichhardt Council or any inner metropolitan grouping – though in the increasingly sophisticated energy market such a position could be virtually self-funding

## **Staff training**

This remains one of the main challenges. The staff most in need of technical support and training are the DA assessment planners. This professional sector is ‘generalist’ by nature. The planners, young and old alike, can’t be expected to learn all the intricacies of, for example, solar technology and its appropriate installation, just as they will never be contaminated site or landscape architecture specialists.

A solar water heater assessment and installation training program has been developed and delivered in-house and to another Council and to a SEDA accredited Energy Smart Homes assessors group. However, for the in-house scene, staff turnover is a consistent problem. How well peer planners are able to coach new planning staff in a technical area such as solar technology is obviously an issue.

## **Issues to Consider**

### **Opting for an icon**

If a Council wishes to kick-start or fast track a sustainability agenda, then choosing the ‘touchstone’ or ‘iconic’ method may be the way to go, especially if your community is worn-out from community consultation and/or responds to highly visual stimuli. The solar water heater policy certainly ‘launched’ Leichhardt on its way, and has remained prominent, in the public eye and in the eyes of NGOs, other Councils and agencies, for the past seven years. The solar hot water policy led council down various subsequent energy efficiency programs and activities and staff in other sections of Council now look for energy smart solutions and the ‘do what we preach’ philosophy has rubbed off in the form of 407 solar powered parking meters, a 3kW photovoltaic array on the administration building and solar lights in several of our parks and public domains . Funding for major work has

always remained an issue – so some of the big ticket and major greenhouse gas saving actions remain on the ‘to –do’ list at Leichhardt – the aquatic centre being the most obvious example.

## **Technical challenges**

The major challenges have been ensuring the policy gets applied in a consistent manner to a high standard so that the intended greenhouse gas savings are achieved. This objective has been a challenge for various reasons – staff turnover, technology changes, resourcing of staff for core policy review, private sector architect / developer failings and their ‘learning inertia’ (especially in marking solar systems on submitted plans). All these challenges can be overcome with adequate policy review resourcing and regular staff training.

## **Engaging the community**

The solar water heater policy strongly promotes a way that the individual householder can take clear personal action on a major sustainability issue – greenhouse gas abatement. Existing, proven, off-the-shelf technology is promoted that had the immense additional benefit that, when installed it is usually visible ... and therefore demonstrable.

## **Heritage and visual amenity issues**

Solar water heaters, like other renewable energy technology, has been forced to jump unreasonably high hurdles against ‘business as usual’ systems and scenarios. We are surrounded by visually-impacting, sometimes environmentally detrimental technology and infrastructure that attracts none of the unwarranted flack traditional (tank-and-panel) solar water heaters (i.e. renewable, sustainable, energy systems) have had to endure. Air conditioners stuck into windows and roof tops, satellite dishes, mobile phone relay stations, gross advertising billboards, overhead cabling ..... give us a break!

There are ways to split tanks from panels – ie. on-ground tanks with pumps circulating water between roof panels and tank but this introduces inefficiencies (cooling in extra pipe chases, energy demand for pumping). This provides a design solution for heritage buildings, slate roofs, weak roofs (inadequate trussing to support the water tank) and in cases where a tank would be overly prominent etc. . but are not a recommended solution where standard, close-coupled thermosiphon systems could be installed.

## Outcomes to date

### Leadership in promoting renewable energy resources - solar hot water systems

The decision to include a solar hot water / heat pump condition in the policy has been the policy's 'stand-out' feature. The principles of passive urban design to achieve energy efficiency (solar access, thermal mass, effective glazing, effective insulation and ventilation .... ) have been well documented and understood by those working in the academic / research sectors of building design and architecture for at least the past two decades. It has however proved frustratingly difficult to transfer this knowledge to the mainstream housing construction industry. By including a condition which requires new dwellings and major renovations to use solar hot water heating systems (an *active* solar design feature, as opposed to *passive* design matters). The Council has taken a very bold step in 'raising the bar' with regard to domestic energy performance.

Leichhardt Council is well known nationally for its policy, has won various awards and has been case-studied in numerous forums since 1994 including at the Asia Pacific Economic (APEC) Forum website.

### Policy has stimulated innovations to resolve problems / planning constraints

There have now been several cases where, to protect streetscape, solar water *panels* have been mounted on the street frontage with the hot water storage tanks 'hidden' on the rear roof. This resolution of energy efficiency and aesthetic issues indicates how policy can drive change.

The policy has also resulted in council being included in industry and state government discussions on residential energy policy and product development.

### On-ground outcomes

Hundreds of traditional solar water heaters, heat pump water heaters and centralised solar boosted (for apartment buildings) water heaters have been installed as a direct result of the policy. Wherever these systems have

displaced cheap standard electric hot water systems quantum greenhouse gas savings have been achieved. A staff training package has been developed with real -world working case studies for planners and building surveyors to work through.

## What We Would Differently If We Started Again

Some of the things we would do if we were 'starting from scratch' and yet still had the benefit of hindsight ! :

- Employ a full-time energy adviser, the position to be part self-funded from revenue raised by providing services to private sector and other councils, not just DA assessment but also implementing Council's own identified energy saving actions.
- Establish a fail-safe (is there such a thing ?) tracking system to record installations so we could more accurately quantify greenhouse gas savings.
- Ensure that internal staff are made aware of the immense positive perception of Council that exists as a result of the policy '*beyond* our borders'
- Have regular, scheduled solar training sessions for development assessment planners and counter staff and/or peer coaching sessions for newcomers - this requires the regular setting aside of time .... !

Provide frequent and detailed information to the service providers / installers regarding what is and is not deemed as acceptable installation standards.

## Summary

The solar water component of council's energy efficient housing policy really launched our environmental agenda. The Council is perceived very positively by a range of stakeholders and interested parties within and beyond Leichhardt and the policy has stood the test of time - still operating 7 years after original inception.

Maintaining planning staff decision-making skill levels is a challenge in the face of staff turn-over and in an environment of significant workloads by generalists who rarely develop sophisticated skills in any one particular environmental theme area. However our planners apply the conditions with keenness and the results are clear –solar systems are still being installed in large numbers across the council area.

Solar hot water is proven technology that makes good sense whether it be in urban areas where other aspects of energy smart housing are constrained by existing site conditions, or in rural areas where gas supply may not be available and where abundant, unshaded roof planes provide perfect platforms for this ‘easiest-to-install’ form of renewable energy technology.

**Solar hot water is demonstrably *not* ‘Business As Usual’ and makes a clear and strong sustainability statement.**

# **Case Study 7 - Camden Council**

## **“Riparian Areas Plan of Management”**

**prepared by:**

**Jeff Bell  
Senior Project Officer**



## Overview of Project

Achieving sustainability is premised on the effective management of the natural resources of the region. The relative health of the regional environment is most commonly expressed in the condition of the regions waterways. The rapid urbanisation of the Camden region is placing significant impact upon wetlands both existing and created. Wetlands are commonly included in the designs of new urban development in order to counter the impact of urban development on water quality. Created wetlands are generally positioned within public reserves and are designed to meet multiple objectives including water quality, biodiversity, aesthetic and recreational. Balancing these often competing objectives and providing a sustainable outcome for the community was the focus of the riparian areas plan of management.

## Rationale

The performance of created wetlands is a concern for both the community and Council. There are many issues including algal blooms, feral animals, weeds, water quality, public liability and localised salinity. These issues related to both the design and management of created wetlands and questioned traditional urban stormwater management and public perceptions of wetlands.

The costs associated with the management of created wetlands in urban areas had been underestimated. The social impact of having a poorly performing wetland positioned within public reserves was becoming a major concern. Efforts to address the issues identified a lack of understanding in the community of the reasons for wetlands in urban areas.

In summary, created wetlands have generated a significant management challenge for both council and the community. In order to create a sustainable outcome a plan was required.

## Making It Happen

It was decided that the most efficient manner to address the issue was to develop a generic plan of management for all public riparian areas (those areas directly influenced by a water body). Through the generic plan of

management we could establish a framework for wetland management and design criteria for all new wetlands.

The plan of management was structured so that specific area plans of management could be added as appendices. These specific area plans of management address the management requirements of individual wetlands and as they are more succinct they can be developed at minimal cost and on a needs basis.

Council was successful in obtaining funding through the Planning NSW Metropolitan Greenspace program to undertake the program. PSB Consultants were engaged to assist Council develop the plan.

Research was undertaken into current best practice in urban stormwater management. It was discovered that there is a quiet revolution in stormwater management under way with a variety of new practices commonly referred to as water sensitive urban design. Where applicable these practices were adopted into the plan.

Interviews were held with the respective divisions of Council to explore the issues and the barriers to a sustainable outcome. As part of the process a specific area plan of management was developed for one of the wetland areas. A community consultation process was held with the residents surrounding the wetland to explore community perceptions and desires.

Drafts of the plan of management were distributed and commented upon and discussions held until the production of the final draft. Council has resolved to place the plan of management on public exhibition

## Challenges To Date

The project encountered many challenges.

1. Wetlands are a dynamic natural system and their management required all the respective departments within council to co-operate with each and function in a co-ordinated manner. Within council the responsibility for the management of wetlands was divided between different departments. Accommodating the different 'cultures' of the respective departments and fostering co-operation and mutual accountability for the outcome was challenging

2. Another challenge was the 'legacy of precedent' or "this is how we have always done it". Urban stormwater management practice is well established and engineering by nature conservative and resistant to change. Highlighting the need to change accepted practice is not for the faint hearted.
3. Changing public perception is an ongoing challenge. Many residents had purchased property proximate to created wetlands thinking that the water bodies would provide recreational outcomes, not surprising as water quality control basins had been called 'lakes'. Convincing the community that a wetland should be at least 30% reeds was difficult when they had convinced themselves that open water was far more attractive. Trying to convince the local community that feeding feral ducks was compromising the function of the wetland and reducing local biodiversity was another challenge.

## Issues To Consider

On reflection the main issue to consider was that the process is just as important as the output. Many of the outcomes achieved were a result of communication and investigation undertaken in the development of the plan rather than the plan itself. Therefore do not compromise the process to meet an outcome deadline.

Change takes time. Recognise that changing accepted practice takes time and trying to achieve radical change in a short time frame may do more harm than good. Be realistic in the scale of the change that you are suggesting remembering that small steps towards the target is more effective in bringing everyone along with you.

Sustainability pays. Generally arguments against changes in accepted practice are based on cost. However quite often this argument can be won if the true costs are calculated. Stormwater infrastructure is a long-term investment and maintenance costs over this timeframe can be considerable. Consider the environmental and social costs and incorporate them into any cost benefit analysis

## **Outcomes to Date**

The primary outcome has been the establishment of a clear Council position on created wetlands. The categorisation of the public areas associated with created wetlands as 'natural areas' sets management objectives agreed to across council and community.

A complete review of the design of stormwater systems for new developments. The process encouraged Council to adopt Water Sensitive Urban Design (WSUD) elements that placed greater emphasis on the management of urban stormwater at the source rather than focussing on traditional 'end of pipe' solutions.

An emerging community awareness of the importance of wetlands in mitigating the effects of urbanisation on water quality ie. Wetlands as 'natures kidneys' and an appreciation of indigenous biodiversity and the natural aesthetic over the engineered.

An appreciation of the real costs of maintaining urban wetland systems and the consideration of these costs in the operational planning of Council.

Although not entirely an outcome of this project, the recognition of the specialist skills and knowledge required to manage dynamic wetland systems has contributed to the decision to employ a natural resource officer with responsibility to co-ordinate management.

## **Council's Offering Similar Programs.**

Many Council's are either implementing or considering the implementation of either a similar project or projects that aim to achieve similar outcomes.

The Water Sensitive Urban Design e-mail list hosted by the Upper Parramatta River Catchment Management Trust keeps council officers informed about what other councils are doing and fosters discussion of the issues.

## What We Would Do Differently If Starting Again.

If starting again we would spend more time and effort outlining the 'problems'. We were guilty of assuming that 1. everyone was aware and 2. everyone was concerned about urban wetlands.

A lot of time could have been saved if a discussion paper or similar outlining the issues could have been distributed within Council beforehand and a community education campaign regarding the role and function of urban wetlands undertaken.

We should have found a respected engineer to highlight the benefits of new stormwater management practices. This would have allayed many of the fears and concerns of Council.

## References and Other Essential Reading.

The CRC for Catchment Hydrology [www.catchment.crc.org.au/](http://www.catchment.crc.org.au/)  
publication list and their newsletter 'Catchword'

## **Case Study 8 - Kogarah Municipal Council**

### **“Kogarah Town Square - A Sustainable Development”**

**prepared by:**

**Ransce Salan  
ESD Strategist**

## Overview of Project

Kogarah, 15kms south of Sydney has a population of 51,000 and is well known for its waterways, natural bushlands and village-like town centre. The Kogarah Town Square is being redeveloped and will have approximately 4,500 m<sup>2</sup> of retail and commercial space, 193 apartments, a 1400 m<sup>2</sup> public building and an underground car park.

The new complex will incorporate a range of best practice urban and environmental design features. It will be the largest solar powered medium-density development in Australia. It is predicted that 375 tonnes of CO<sub>2</sub>-e will be saved each year through the use of solar power and the passive solar design features of the development. The development also includes water sensitive urban design concepts that capture and recycle all stormwater that falls on the site.

The project demonstrates that sustainable development is feasible through negotiated solutions and public/private partnerships.

## Rationale

The pursuit of a more sustainable future is central to Kogarah's philosophy and council wished to exemplify sustainable design in redeveloping the Kogarah Town Square. From an economic perspective the Kogarah CBD was greatly in need of revitalisation. The Kogarah Town Square Redevelopment was intended to act as a catalyst for a wider urban renewal program of the Kogarah CBD. Following two failed attempts to redevelop a council owned carpark Council consulted the community on what they deemed to be an acceptable utilisation of the site. It was during this consultation that council seized the opportunity to conceptualise this unique opportunity to:

- create a DCP based on environmentally sustainable development principles;
- develop a council owned sites into a development that exemplified sustainable design.

## Kogarah Town Square Redevelopment

This project is a world class urban consolidation project that demonstrates sustainable outcomes can be achieved through negotiated solutions and public/private partnerships. This project was thought to have the potential to generate over \$100 million of capital investment over the ensuing decade. It is now anticipated that over \$200 million of capital investment will result over the ensuing decade. It was also thought to have the potential to contribute to growing social and civic outcomes.

In 1998 Kogarah Council established a vision for the Kogarah Town Centre (CBD) in the year 2010 to be a:

*“Vibrant urban village providing learning, leisure, living and working services (especially medical and health care) for residents of the Municipality, St George District and wider Southern Sydney”*

The focal point of the project from a civic perspective was the public domain works, highlighted by a central Town Square and new public library. Importantly the project was to incorporate Australia’s largest solar powered medium-density residential development; tertiary treated stormwater systems; and include a suite of energy and water conservation measures.

To achieve this vision Kogarah Council has undertaken an intensive integrated planning and capacity building process. This urban management process addressed not only built form and urban design, but also a comprehensive approach that integrated landuse with environmental and transport planning, economic and cultural development as well as community development.

The project represents a model of how to transform a typical suburban town centre which has not realised it’s potential into a model of good design and a centre for community life through community involvement and adoption of a place management approach. It promotes sustainability through the efficient use of urban space and infrastructure, improving community liveability and enhancing resource and energy efficiency.

# Making It Happen (Methodology)

## Motivation for an environmentally sustainable revitalised Kogarah CBD

### About the Project

The Kogarah Town Square Development Control Plan (DCP) was developed after extensive community consultation. The DCP established the parameters for the Kogarah Town Square design and includes reuse of stormwater, natural cross-flow ventilation, using natural lighting, water efficient fixtures and fittings and passive solar design principles.

The Kogarah Town Square redevelopment is part of a 10-year strategy and a catalyst for a wider urban renewal program for the Kogarah CBD. The redevelopment incorporates state-of-the-art urban planning and architectural designs.

The project includes Australia's largest solar powered medium-density residential development; tertiary treated stormwater systems, and a suite of energy and water conservation measures. The plan for the redevelopment took more than three years to prepare. Councillors, community members, local business people, developers, architects, urban planners and specialists all contributed to its development.

Council used a carpark as a catalyst for wider urban renewal by using the asset as leverage to gain environmental and community benefits. When the site went to tender the Council desired environmental outcomes and design criteria were already set and included in the tender documents. Council retained control by not releasing the title deed to the developer until it received the community facilities and environmental outcomes it wanted.

Solar power will provide much of the electricity for the 193 apartments in the development. Initial estimates from Energy Australia indicate that the 160kWp PV panels will produce about produce 206,000 kW/H and save 190 tonnes of CO<sub>2</sub>-e annually. Excess electricity generated will be sold and fed into the national grid. The remaining estimated CO<sub>2</sub>-e savings would come from the other design features in the development.

A stormwater recycling facility will collect and treat rainwater for gardens, toilets and washing cars. Rainwater will be collected in underground storage tanks and filtered through sand and biologically engineered soil. It is anticipated that about 70 per cent of the water used for toilet flushing will come from this system.

As well as the solar power and water conservation initiatives, the council's development plan requires cross-ventilation and awnings on the north facing windows of 75 per cent of the apartments. The same rules will apply to all new apartments in the designated medium-density area near the Kogarah railway station. It is estimated that more than 1,000 new apartments will be developed in this area over the next 10 years.

Widespread use of natural lighting is another energy efficiency measure of the project. Building techniques to minimise heat gain and refract light deeper into the commercial spaces has been used along with awnings at street level to help control heat and light from the sun.

## **Partnerships**

To help implement the 10-year revitalisation strategy, Kogarah Council established a number of internal working groups and formed significant partnerships to drive the process. A major partnership between the developers, Hightrade Pty Ltd, Solarch from the University of New South Wales, the Sustainable Energy Development Authority (NSW), the Australian Greenhouse Office and Kogarah Council was formed to implement the Solar Kogarah project. Collectively the partnership members helped develop the concept and deliver the project.

While the Council's internal working groups and the partnership were primarily responsible for delivering the project, Kogarah Council formed an advisory panel of community members and representatives from the area's major employer organisations to assist with delivering the project.

## **Costs of the Kogarah Town Square Redevelopment.**

The solar energy system will cost approximately \$2.5 million and is being partially funded by a grant of \$1 million from the Australian Greenhouse Office and \$200,000 from the NSW Sustainable Energy Development Authority.

The water sensitive urban design initiative will cost \$629,000 funds that have been granted to the project by Environment Australia. The NSW Urban Improvement Program has provided \$70,000 for a water feature and Sydney Water is providing a similar amount to monitor the success of the water conservation system.

The total investment for the whole redevelopment project is \$55 million with Hightrade Pty Ltd, the developer, investing the bulk of the funds.

## **Benefits**

0. The project will save 375 tonnes of greenhouse gases annually. It will also promote and showcase the solar energy industry and show how solar power can be integrated into a development.
0. The water conservation measures will demonstrate the advantages that new technology and new approaches can provide.
0. Solar power generation and stormwater recycling mean businesses and residents will save power and water costs while reducing greenhouse gas emissions and conserving water. The savings residents will enjoy will largely depend on the amount of excess electricity generated and sold to a power company.
0. The whole town centre revitalisation project has generated well over \$100 million of capital investment in the first 4 years. Creating an attractive, lively and livable town centre will also bring social and community benefits.

## **Longer Term Benefits**

The project provides other councils with a sustainable development model for urban renewal projects. The cumulative environmental, social and financial advantages of these measures will become increasingly clear as the redevelopment is completed and fully occupied.

The solar energy system, Solar Kogarah, is open to the public and industry for on-site demonstrations and training. It will be used to promote solar energy as a potential mainstream power source. It will boost the solar energy industry and the development of new technology.

# Challenges To Date And How They Have Been Met

- Keeping everyone involved and focused on the same end goal - Developers, technicians, academics, funding bodies and council often share values but may be focused on different end results. Negotiating and establishing outcomes at the beginning of the process is important in overcoming problems that arise during the process.
- Taking appropriate precautions to ensure that innovations are not lost or modified during construction - This in part has been achieved by council's ongoing involvement in all aspects of the construction and close working relationship with the developers. Building in controls into contracts and Development controls has also assist in this process.
- Managing risk verses innovation - Managing risk and being innovative is a challenge but also can reap benefits. The innovation associated with the Solar Kogarah project meant that it has received funding from the Australian Greenhouse Office and SEDA, it has also meant that the developers Hightrade have had to incur an additional cost for the provision of the photo voltaic cells.

## Issues to Consider

- The value of assets: Kogarah Council had a car park close to the railway station and in the middle of the CBD. Realising the potential of this land, Council developed the Kogarah Town Square project, which in turn furthered their vision of revitalising the Kogarah Urban Village.
- True costs: The cost of the social and environmental features of the project was factored into financial plans to avoid difficulties down the track. (Ie. If the land was 10 million, the developer may have offered 8 million because of the social and environmental costs of the development.) Councils should attempt to work out the hidden and not so hidden costs when undertaking a project such as this. Ie. costs arise from something as simple as paying for a plaque to the need for new security systems
- Staffing and Expertise: Getting the right staff, developing a good team and forming viable partnerships is central to advancing the project.

- The costs of grants: While grants enabled Council to promote their environmental objectives, their administration also consumed time and resources.
- The political cycle: It is difficult for Councils to make decisions around election periods. This should be factored in when setting planning and approval deadlines.
- Maintaining a degree of control in the process: Developers know a lot more about development than Councils. Council risks being at a disadvantage in negotiations unless it establishes and stands firm on its objectives in relation to design and building controls.
- Setting boundaries: Council had to be able to separate its regulatory role from its role in terms of satisfying its objectives. Access to a probity auditor on an 'as-needed' basis was invaluable.
- Value adding: Engaging prominent design professionals is invaluable in adding credibility to the project, especially when approaching funding bodies.
- The benefit of partners: Alliances with organisations such as the University of Technology Sydney and the University of NSW, provided helpful support and much needed expertise as Council headed beyond its area of development knowledge.
- Celebrating achievements and milestones is important: The Ground Breaking Ceremony finally launched the development phase of a process that had languished in red tape, and raised public awareness and confidence in Council.

## Outcomes to Date

- The Kogarah Town Square project is useful in demonstrating how to sustain social and environmental goals from the planning stage through to construction. It also reveals that a landholder can achieve these goals while earning profits.
- The integrity of the project has not been significantly compromised due to the approach taken by council.

- Council assets, such as Kogarah's carpark, can be used as leverage to gain environmental and community benefits from the redevelopment of urban areas: The project shows how a typical suburban town centre that had not realised its potential, can be transformed to become a model of good environmental design and a centre for community life.

## **Councils Offering Similar Programs**

Many councils are undertaking projects aimed at exemplifying sustainable design but not at the same scale as the above-mentioned case.

## **What We Would Do Differently If We Were Starting Again**

- Start with talking to the community: This would have reduced costs to council and greatly reduce timeframes associated with the projects implementation.
- Transparency: It is crucial that all stakeholders are kept informed. While this process began in a very open fashion, it became less accessible during the tender process, before opening again once the successful tender was announced. A newsletter to local businesses and residents might have been a useful tool in providing ongoing information.
- The role of council: At one stage Council was in a position to become a partner in the development process, but declined due to the perceived risk. The financial gain could have been quite substantial; if Council could had pursued this partnership.
- Be thorough and take nothing for granted: Evaluating the whole process is essential. In hindsight Council could have put more thought into determining the retail/commercial mix of the project to provide a greater guarantee of the final product. Omissions on appliances and lighting to be provided in the development meant lengthy negotiations were required to correct this oversight.

## References and Essential Other Reading

Kogarah Town Centre DCP No.5 November 1998 *Shaping Kogarah's Future: meeting the diverse needs of a diverse community*

Kogarah Councils 1999 *Better Homes Design Guide* - development Control Plan available at [www.kogarah.nsw.gov.au](http://www.kogarah.nsw.gov.au)

# **Case Study 9 - Newcastle City Council**

## **“Greenhouse Action in Newcastle”**

**prepared by:**

**Newcastle City Council**

# **Case Study 10 - Strathfield Municipal Council**

## **“A Water Wise DCP”**

**prepared by:**

**Sam Cappelli  
Senior Environmental Health Officer**

# Overview of Project - Mandatory Rainwater Tanks

The policy of requiring the installation of domestic rainwater tanks in all new residential dwelling houses and multiple unit housing developments was undertaken as part of a review of the Council's residential Development Control Plans (DCP's). Several DCPs were implicated, however DCP 21 relating to single dwelling houses was the first DCP to be amended making it mandatory for the installation of rainwater tanks on new detached single dwellings (primarily for irrigation and related outdoor purposes). Each year, Council receives a considerable number of development applications that involve the demolition of existing premises and the subsequent construction of new dwellings.

This requirement regarding rainwater tanks aims to encourage residents on single dwelling blocks to actively participate in appropriate water conservation practices and demonstrate sustainable behaviour. The primary benefits of this decision was to help reduce the unnecessary stress being placed on our drinking water suppliers and also to help divert water from a stormwater system already at capacity in order to ease blockage problems and flooding during heavy rains.

By choosing to capture and use rainwater for garden watering, carwashing and other related outdoor activities, residents can help reduce the demands placed upon our increasingly precious water supply, not to mention the obvious benefits on the household budget by reduced water rates. The changes were sold this way.

Council took the lead by steering residents into beneficial environmental management by making this a mandatory requirement for all new residential developments.

Dwelling houses are required to have a rainwater tank of at least 1,000 litres in size. Of course, larger sizes are available and are encouraged, commensurate with the size of the development.

Council's commitment does not end here. Further policy development is currently taking place to apply the rainwater tank requirements to medium density residential developments.

The policy for single dwellings only took effect on 28 November 2001 and to date has been applied to applications for all new single dwelling housing developments that have been lodged with Council since that date.

To assist residents and developers, Council arranged for the display of various types of preferred rainwater tanks from different suppliers and manufacturers during the month of December in its Customer Service Foyer area.

To date, the policy is being well accepted.

## Rationale

On 1 May 2001, Council moved that it support the Kyoto Protocol for fulfilling a global vision of environmental sustainability and prosperity for our future. There has also been various State and Federal legislation passed in recent years aimed at achieving better environmentally sustainable developments through building controls, incentives and standards.

Strathfield Municipal Council is renowned for its large lush residential gardens, which contribute positively to the character of the Municipality and to a 'greener' environment generally. Maintenance and watering of such gardens particularly in dry periods (which we frequently experience), places stress on Sydney Metropolitan water supplies. Council considered it inappropriate for drinking water to be used to water gardens, wash cars and related outdoor activities. Instead, Council thought that residents could easily collect rainwater for these purposes and rainwater tanks were considered a low-cost way of achieving this.

When it comes to the use of natural resources including water, water authorities such as Sydney Water have introduced "user pay" pricing mechanisms as a disincentive for over water use. Sydney Water has for a number of years been promoting through its water rates methods of wise water usage when it comes to watering domestic gardens etc.

Council sees this as an opportunity to encourage residents to participate in appropriate water conservation by requiring suitable rainwater tanks being installed as part of new residential developments.

The added benefit of diverting water from what is already a fully stressed stormwater system in the Municipality thus easing some flooding problems during heavy rains was also a determining factor.

## Making It Happen - Methodology

1.5.01 Council gives support to Kyoto Protocol and identifies the need for housing developments to be environmentally sustainable in terms of water usage.

7.8.01 A professional officer's report is put to Council encouraging the installation of rainwater tanks and the Council resolves that :-

"Council prepare amendment to the following Development Control Plans in accordance with the Environmental Planning and Assessment Regulation 2000 to require the installation of Rainwater Tanks in conjunction with new development:

- Strathfield Development Control No. 3 - Multiple Unit Housing
- Strathfield Development Control No. 8 - Dual Occupancy Housing
- Strathfield Development Control No. 20 - Guidelines for the Siting, Design and Erection of Developments Within the Parramatta Road Corridor Area
- Strathfield Development Control No. 21 - Guidelines for the Siting, Design and Erection of Dwelling Houses and Ancillary Structures."

It was decided to start with DCP 21 and that other reviews would follow in due course.

26.9.01 Amendments to DCP 21 - Guidelines for The Siting, Design and Erection of Dwelling Houses and Ancillary Structures are made and the whole DCP is exhibited till 24.10.01. Relating to rainwater tanks, the following amendments were publicly exhibited:

### **"4.7 Mandatory Rainwater Tanks**

1. **A rainwater collection tank of at least 1,000 litres capacity must be included in all applications for new dwelling houses. The use of tank water for outdoor**

purposes such as garden watering should have the effect of “saving” higher-grade water.

2. Subject to the fulfilment of certain conditions indicated in Schedule 13 of the Strathfield Planning Scheme Ordinance (SPSO), domestic water tanks with a capacity of 3,000 litres or less are classified as Exempt development and therefore do not require Council approval.
3. The following controls apply to all water tanks that are not classified as Exempt development under the SPSO:
  - a. The water tank is to be located behind the dwelling. Where it is not possible to locate a water tank wholly behind the dwelling, it should at least be located behind the front building line. Care should be taken to reduce the visibility of the water tank from the street.
  - b. The water tank and any associated support structure and plumbing should be the same colour as the dwelling or a colour which complements the dwelling.
  - c. The water tank should be located at least 900mm from any property boundary.
  - d. The top of the tank is to be located below the top of the nearest fenceline or 1.8 metres, whichever is the lesser.
  - e. The water tank should be positioned to collect rainwater which falls on the roof of the dwelling. Tank water is to be used for non-drinking/non-consumption purposes only. Taps associated with the tank are to be clearly marked “NOT FOR DRINKING”.
  - f. Overflow from the water tank is to be piped directly to the approved stormwater drainage system. Where stormwater for a particular property is required to be directed to on-site stormwater detention (OSD) storage (as per Council’s Stormwater Management Code) then the overflow from the water tank must also be directed to the OSD storage.
  - g. Plumbing from the water tank is to be kept separate from the reticulated water supply system.

- h. The water tank inlet is to be screened to prevent entry of any foreign/animal matter and insects such as mosquitos. The water tank should be enclosed.**
- i. No part of the water tank or support stand is to rest on a wall footing.**
- j. The water tank is to be installed in accordance with the manufacturer's specifications.**
- k. The design of any water tank support structure is to be in accordance with the requirements of a qualified practising structural engineer or to the maker's specifications.**
- l. A pump associated with the tank is to be no louder than 5dBA above background noise levels."**

6.11.01 Following the public exhibition process, the Council considers a further report in which it is advised that there were no objections to the proposed rainwater tank requirements. Council proceeds to adopt the amendments relating to rainwater tanks along with a series of other amendments to DCP 21.

21.11.01 An In-house briefing session regarding the amendments to DCP 21 was provided for all Development Assessment Officers.

28.11.01 Rainwater Tank requirements for single dwelling house developments takes effect in the context of an amended DCP 21..

Dec 2001 Displays of different types of rainwater tanks from various suppliers and manufacturers were organised in Council's Customer Service Foyer. Suppliers were invited to display preferred tanks to specified criteria.

## Challenges

There has been a tendency for Sydney Water to be reluctant to encourage the use of water tanks because their modelling data indicates that Sydney has 40

years future supply capacity in existing storage dams. Councils decision to make rainwater tanks mandatory has set a precedent that it hopes will be followed by other local government Councils in order to promote sustainable water management across the State. Council has had to go it alone in this regard.

Some elected representatives did express concerns about the mandatory nature of Council's Rainwater Tank requirements. This necessitated good and open communication between professional staff and Councillors, to enable a smooth passage of the changes through Council. Officers were able to demonstrate the environmental benefits of such tanks and also, to some degree, how these tanks contribute to lowering the volume and velocity of stormwater thereby reducing environmental harm and property damage from nuisance flooding.

Selling the policy to the developers. So far, the Policy only applies to single house developments and has been met without serious objection. Policy changes are currently under way for medium density development where the size and type of tanks will need to be determined commensurate with the development size and type. This will give rise to other issues relating to communal living which will need to be specifically addressed. Council anticipates that it will follow the same procedure it did to vary DCP 21 and will consider the views of developers before finalising any requirements.

## Issues to Consider

1. The advantages of installing rainwater tanks:
  - Less wastage of useable fresh water;
  - Less energy wasted in bringing treated fresh water to the home;
  - greener gardens;
  - lower water bills;
  - Reduction in the volume of water flowing into the stormwater system thus reducing flooding and sedimentation;
  - According to Sydney Water, the average garden sprinkler uses 1,500 litres of water per hour and washing a car uses 100 to 300 litres. The household bill for 1,000 litres of water 98.38c. With the average cost of a 1,000 litre being \$435 installing a water tank

is not only a smart environmental choice, it is also a good investment.

2. The average Australian household uses 290KL of water a year (800 litres per day). 190KL is used inside the home and 100KL is used outside the home. Annual rainfall on the roof of an average Australian home roof is 180KL on the east coast. The lowest cost per litre would be achieved by connecting the tank to the home plumbing because there is constant demand. However, for health reasons, Council has remained guarded on this point and has required that plumbing from the tank be kept separate from the reticulated water system
3. Sydney Water data trends indicate that 9% of Sydney's water will be supplied by water tanks by the year 2011.
4. There is a new emerging industry opportunity for the supply, fitting and maintenance of water tanks, and the water utilities could rise to the challenge, as they have done in the past, when promoting water saving devices such as water efficient shower roses and dual flush cisterns to name a few.
5. Opposition to the human consumption of rainwater tank water centres on the potential of organic and chemical contamination to cause ill health. Until the Health Authorities come up with a definitive policy statement in support of rainwater tanks as well as providing practical guidance for safe drinking purposes, Councils should not allow tank water for drinking purposes.
6. The disadvantages of installing a rainwater tank:
  - Occasional maintenance;
  - Loss of a small portion of the rear yard.

## Outcomes to Date

In-house briefing of all Development Control Officers on how to implement the new Policy was given the week leading up to the Policy taking effect. The general acceptance of how the Policy will be applied was obtained from the officers.

Amendments to other residential DCPs to make rainwater tanks mandatory are currently under way.

Council has demonstrated its commitment to sustainable water usage practices in Council operations by installing and maintaining its own 5,000 litre rainwater tank in a public golf course for irrigation purposes only.

## Other Councils' Offering Similar Programs

- Guidelines by Sutherland Shire Council - to make rainwater tanks compulsory for large residential developments under consideration.
- Leichhardt Council encourages installation of rainwater tanks but has not made them compulsory.
- Many Councils encourage the installation of rainwater tanks through their exempt and complying DCPs and policies. But none to date have made this mandatory.

SMC72028

# **Case Study 11 - Albury City Council**

## **“Biodiversity Conservation Strategy”**

**prepared by:**

**Julie Rudner  
Environmental Planner**

## Overview of Project

This case study demonstrates that councils are already applying many of the principles of Ecologically Sustainable Development (ESD) principles to strategic planning procedures. It also discusses some of the obstacles that may be encountered when applying ESD within the statutory planning context. The focus is on biodiversity conservation as part of the Hamilton Valley Strategy for a new growth area of Albury.

## Rationale

Urban development in Albury has traditionally been ad hoc. The aim of the Hamilton Valley Strategy is to provide the structural framework for an urban growth area so that all development is coordinated to achieve the best outcome, regardless of multiple land ownership. The Hamilton Valley Strategy is considered to be the first strategic urban development plan produced by the City of Albury to endorse the principles of ESD.

Past Actions	Present Objectives
<b>Urban Planning</b>	
Urban planning by developers eg: roads, subdivision layouts	Urban planning coordinated by Council
Development consent through application process	Liaising with relevant agencies to design urban areas before development application process
Focus on lot yield regardless of natural features	Focus on natural features even if there may be impacts on lot yields
Development no higher than 240m contour regardless of native vegetation	Development sensitive to native vegetation regardless of contour
Development close to waterways, therefore requiring intensive engineered flood mitigation	Conservation of riparian zone to 40m either side of banks with designated retention basin areas
Low knowledge of flora, fauna and habitat values – Limited to 8 Part Test	Increased knowledge of flora, fauna and habitat values – Professional biodiversity surveying

Fire buffers cut into existing native vegetation	Fire buffers partially included in property boundaries and not impinging on native vegetation
<b>Statutory Planning</b>	
Poor knowledge of biodiversity issues and access to relevant local resources eg: species lists, habitat requirements, maps	Increased knowledge of biodiversity issues and access to relevant local resources
Inadequate policy support eg: TPO, biodiversity conservation strategy	Appropriate policy support*
Poor community knowledge eg: legislation, landowner responsibilities	Increased community knowledge through reference material, 149s, etc*
Non-compliance regarding vegetation clearance and poor enforcement	Mapped areas with relevant biodiversity conservation and vegetation clearance conditions with strong enforcement*

\* To be developed.

## Making It Happen (Methodology)

All aspects of the Hamilton Valley growth front were analysed by expert staff working within the organisation as well as representatives of major state agencies and interested members of the local community. A variety of professional backgrounds, skills, knowledge and interests were represented.

During the study process, all development applications for the area were referred to the strategic planning section of council to determine whether the proposed development conformed with the intent of the strategy.

Stage	Action	Material
<b>Step 1</b> Initial Data Collection/ Constraints Analysis	Introductory letters advising of study and invitation to participate. Eg: EPA, Health Service, Rural Fire Service, DLWC, NPWS, Dept of Education, Telstra, Gas, Electricity, Dept of Agriculture, RTA, Aboriginal Land Council	<ul style="list-style-type: none"> <li>◆ Landform and land stability data</li> <li>◆ Primary and secondary waterways</li> <li>◆ Vegetation distribution</li> <li>◆ Flood incidence</li> <li>◆ Fire incidence</li> </ul>

		<ul style="list-style-type: none"> <li>◆ Land ownership</li> <li>◆ Heritage</li> <li>◆ Utilities</li> </ul>
<p><b>Step 2</b></p> <p>Potential Need</p>	Estimate future population requirements and servicing needs	<ul style="list-style-type: none"> <li>◆ Current/ projected population data</li> <li>◆ Potential lot yield requirements</li> <li>◆ Open space requirements</li> <li>◆ Community facilities infrastructure</li> <li>◆ Utilities</li> <li>◆ Transport</li> </ul>
<p><b>Step 3</b></p> <p>Design Concepts</p>	Develop principles for strategies and map information	<ul style="list-style-type: none"> <li>◆ Biodiversity survey conducted</li> <li>◆ Protection of waterways</li> <li>◆ Protection of vegetated areas</li> <li>◆ Tip buffer zone area</li> <li>◆ Conceptual road network</li> <li>◆ Areas that may require re-zoning</li> </ul>
<p><b>Step 4</b></p> <p>Negotiation</p>	<p>Assimilation and application of information</p> <p>Council, AWDC, NPWS, DLWC, Rural Fire Service, Lavington Community Action Group</p>	<ul style="list-style-type: none"> <li>◆ Creating appropriate riparian buffer zones</li> <li>◆ Land swaps for protection of high conservation areas</li> <li>◆ Determining fire buffer zones</li> <li>◆ Zone boundaries</li> </ul>
<p><b>Step 5</b></p> <p>Strategy Adoption</p>	Public exhibition and presentation to Council	<ul style="list-style-type: none"> <li>◆ Strategy document</li> </ul>

## Challenges To Date And How They Have Been Met

### Interpretation and Application of Biodiversity Survey

Rapid assessment sheets were used to evaluate the presence/ absence and abundance of indigenous and native vegetation, weeds, native fauna and feral species. The floristics and habitat value were each ranked according to five categories: low, low-medium, medium, medium-high, high. Overall site ranking was also determined based on the combined ranked values of

floristics and habitat. Management issues were highlighted and site recommendations were stated.

Conservation was determined to be the most appropriate land use for areas of high site values. Development was an accepted outcome for low, low-medium and medium site rankings. The AWDC and Council believed that each development proposal in areas of medium-high ranking should be assessed on their own merit. For medium-high ranked sites, an initial position would be to conserve the area unless it was demonstrated that development would be the better land use option. However NSW NPWS believed that medium-high areas should be conserved in the same manner as sites of high ranking. This has resulted in development uncertainty for landowners in these areas.

These issues have not been resolved at this time. Options may include:

- Trading land of low ecological significance with land of high ecological significance so that the latter can be conserved and landowners are not disadvantaged;
- Permit restricted development that aims to conserve the core area of ecological value;
- Let landowners 'cop it on the chin'.

## **Conserving Paddock Trees**

Extensive vegetation clearance has severely reduced Grassy White Box Woodlands in NSW, the main vegetation class in Albury. Remnant native vegetation on the upper slopes of the Hamilton Valley comprise quite a large and continuous area, however remnants on the lower slopes and flat land is primarily restricted to roadside vegetation and paddock trees. NPWS emphasised the need to protect this vegetation through sensitive planning and design. In contrast, the DLWC, the AWDC and Council were more concerned with protecting and supporting the larger established remnants, rather than individual trees or very small groups of trees which may be removed or die due to perceived safety issues on private land and a degraded environment. The concepts of 'no net loss' and 'net gain' guided discussions.

It was decided that individual paddock trees and small groups of paddock trees would not be protected. The focus of conservation would be on larger groups of paddock trees in close proximity to well vegetated and protected areas.

## **Allocation of land to Albury Wodonga Parklands**

The higher elevations of two existing large rural type lots owned by the AWDC are well vegetated with Grassy White Box Woodlands and stands of White Cypress Pine (*Callitris Glaucophylla*). Discussions between Council and the AWDC indicate the willingness of the AWDC to transfer these sections to the City of Albury as public land for conservation and recreational purposes. In recognition of the public benefit that would accrue, the re-zoning of land of marginal ecological value for residential purposes is being considered.

## **Bush fire buffer zones**

Traditionally, the bush fire buffer zone commences from the extent of the treeline. This would result in the destruction of bushland regardless of habitat value. It was determined that the protection of high habitat bushland takes precedence, and that bush fire buffer zones should not impinge on these areas as management activities may conflict with the habitat value of such areas.

## **Issues to Consider**

Although great care was taken to appropriately address issues of biodiversity in the Hamilton Valley Strategy, it is evident that these have to be re-assessed under the statutory planning regime. There is a gap between the conceptual based plan and detailed statutory analysis that contributes to landowner uncertainty with regard to development and ecological uncertainty concerning biodiversity protection.

## **The role of state agencies**

It is important to understand the role of state agencies at various stages during a project. While researching and developing the strategy, staff from state agencies like NPWS, DLWC, Planning NSW and the like, can provide information, expert technical evaluations and planning advice. However, these representatives cannot give definitive responses or act as a concurrence authority until the outcomes of the strategy are introduced into LEPs or DCPs.

- How should council assess agency advice eg: suggestion or potential consent requirement?

- How should council proceed when state agencies disagree on certain goals or objectives?

## **Area Approach or Site Inclusive**

The emphasis of an area approach is on ensuring the economic viability of development within the context of ecological conservation. It relies on the continued existence of larger tracts of protected vegetation and habitat to counteract the loss of smaller sites of conservation value. Factors influencing decisions includes the absence/ presence of threatened species, habitat corridors, and the distance between conservation areas.

A site inclusive approach focuses on protecting and enhancing all sites of ecological value, which poses a greater limiting factor on development. It asserts that each area is integral to the whole system, and assumes that conservation areas are always under threat from incremental development.

- Does one approach adhere to the principles of ESD better than the other?
- Which approach is the most appropriate for the area?
- Which offers the best option in terms of practical management and long term success?

## **Zoning**

In areas with higher ecological value that are not already protected by zoning, council has the option to re-zone the site to cater for more appropriate land use activity and/ or conservation purposes, or maintain the current zoning.

Rezoning may have ramifications if a proposed use is no longer permitted and the land cannot be developed as intended.

Maintaining the existing zone can lead to landowner uncertainty and create a situation of potential conflict with regard to proposed site development. Development proposals are assessed through regular approvals processes, even though it is already known that gaining approval for the development may be difficult, if not impossible.

Rezoning an area recognised as having little or no recognised ecological value from that of protection to a residential or industrial type zoning is more easily accommodated, but requires sound justification

- How does council address this situation if areas in private ownership are re-zoned for conservation?
- Is council acting ethically if it is clear that potential developments will have difficulty gaining approval, yet council does not re-zone privately owned land?
- Should areas of low ecological value be considered for re-zoning and subsequent development or should they be retained for future rehabilitation activities?

## Land Speculation

Land is often purchased for investment purposes. The investment is calculated according to the potential value of the land in terms of selling subdivided lots. Ownership is often viewed in terms of development rights, and subdivision may be viewed as a guaranteed development outcome. When there is a gap between landowner expectation and site constraints, conflict may result.

- How soon should landholders be notified of studies or the development of area strategies?
- Is council responsible for the speculation of landholders?
- Is council responsible for landowner's decisions to purchase land without researching the various legislation that may apply to their site?
- Should council assist landholders in this situation, and if so, how?

## Physical Development Stage

The Hamilton Valley Strategy provides broad direction, however the final outcome will be influenced by the actual physical development of the area. Biodiversity values conserved in the strategy are at risk of degradation from the impacts of construction and long term residential occupation of the area. These issues are largely determined through the LEP, DCPs, development approval processes, and education.

- Does council have the necessary policies to help guide approvals processes in the spirit of which the area strategy has been developed?
- How prescriptive should LEP amendments and DCPs be?
- What behaviours are best addressed through statutory requirements and which are better dealt with through targeted education programs?

# Outcomes To Date

## Pre-Strategy Lot Yield Objectives vs Post-Strategy Result

It was initially intended to obtain a lot yield of at least 2000, however as a result of ecological and legislative requirements, lot yield was reduced to 1710. It is noted that lot yield is a conservative estimate and that actual achieved yields may depart from the estimate provided.

## Strategy Progression

The Hamilton Valley Strategy has been adopted by Council, however this is only the first stage of the development process. The next stages will focus on amendments to Albury's LEP, the creation of a DCP, and the production of educational material aimed at promoting the principles of ESD to developers and future residents.

The main areas of consideration for the physical development of the area are:

- ◆ Stormwater management
- ◆ Road design and construction
- ◆ Energy efficiency design and construction
- ◆ Water conservation design and construction
- ◆ Building design and materials
- ◆ Appropriate landscaping

## Obstacles to Biodiversity Conservation

- Zones within Albury's LEP did not correspond or support the natural physical and biological systems of the Hamilton Valley.
- Council does not have an appropriate policy or strategy directing the decision-making process with regard to evaluating, applying and weighting technical data about biodiversity.
- Without an appropriate biodiversity policy or strategy to guide council, privately owned land of conservation value is not dealt with effectively, resulting in uncertainty for both landowners and vegetation/ habitat protection.
- The economic viability of development areas cannot be properly assessed because biodiversity values are only addressed in terms of property values. The cost of revegetation/ bush regeneration, loss of

mature vegetation species, loss of nectar and seed production, loss of habitat, degradation of soil structure, loss of nutrient cycling, and costs associated with runoff, filtering, stabilisation of carbon dioxide and so forth, are not included in calculations.

The City of Albury has started to address these issues by commencing the development of a biodiversity conservation strategy.

## **What We Would Do Differently If We Were Starting Again**

In a perfect world, a full biodiversity conservation strategy and associated policies, guidance documents and technical references would have been established prior to the development of the Hamilton Valley Strategy. For example:

- All existing native vegetation within the city of Albury would be mapped and classified with regard to its location, composition, and health. This information would be used to divide the city into clearly marked areas according to the degree of conservation required and/ or desired. These areas would be classified as to the conditions required for biodiversity protection and clearing of native vegetation. This would provide certainty for landowners and biodiversity conservation.
- Areas of conservation significance would be purchased for public land or through a revolving fund so land parcels of lower conservation value could be resold with stricter development conditions.
- A developer contributions plan schedule would clearly indicate funds required for biodiversity conservation.
- An information package aimed at educating landowners and future residents would be produced and distributed by real estate agents before land sale. This package would include information about:
  - the special attributes of the area,
  - the need for ecologically sound design and construction,
  - a garden guide book aimed at promoting indigenous species and friendly exotic species that would not become bush invaders,
  - contacts for information regarding design, construction, and government rebates,

- promotions for keeping pets in at night as well as using leads and poo bags, and
- the various legislation that may apply to the land.

The primary focus for biodiversity protection often stops at the area strategy or subdivision design. There is little thought of the continuing human impacts of residential development on biodiversity such as traffic, pollution, recreation, dumping, etc. It is important to frequently analyse the basic requirements of biodiversity protection throughout all stages of development, so that the final product continues to support biodiversity objectives in perpetuity.

## References And Essential Other Reading

Greening Australia 1995 Local Greening Plans: A guide for biodiversity management Greening Australia: Canberra

Department of Environment and Planning 1998 Manual for Preparing Local Environmental Plans and Studies Department of Environment and Planning: Sydney

Land and Environment Planning; Environs Australia 2001 Biodiversity Planning Guide for NSW Local Government National Parks and Wildlife Service: Hurstville

Personal Communication - Net Gain Principles and latest research trends - Natural Resources and Environment Victoria, NSW National Parks and Wildlife Service

City of Albury 2000 Hamilton Valley Strategy  
Contact: Chris Graham, Strategic Planner 02 6023 8148