

# **The role of community education in developing environmentally sustainable cities**

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## **ABSTRACT**

Australian cities are fortunate in having an abundance of natural beauty, biodiversity and natural areas within their regions, but they face considerable environmental challenges in maintaining environmental quality and the integrity of those natural areas while planning for growth. These dilemmas are perhaps typified by the pressure of development on available land in the Sydney Basin and the critical water supply problems facing at least Perth, Adelaide and Sydney.

The community plays a key role in demand for, and use of, both space and resources. Quality of life and amenity issues means the community also demands quality in environmental parameters: clean beaches for swimming, high quality drinking water, good air quality, clean attractive harbours and rivers for boating, weed-free bushland reserves for walking, rubbish-free public places, threatened species conserved and more. Along with this goes a call for less development and its perceived consequences of crowding, ever-greater areas of high-rise apartments and increased traffic.

What role can community education and reorientation of policy framing to incorporate community engagement play in ameliorating the impacts of increased population and development and in working towards the goal of sustainable cities with high quality environmental characteristics? This paper outlines the range of tools available to effectively engage the community in issues of sustainability and environmental quality, using some examples from NSW, for example in reducing stormwater pollution, reducing litter in public places and encouraging sustainable living. It also highlights the need to integrate social research and community education more effectively into the activities of agencies and organisations at both state and local government level.

## **INTRODUCTION: THE SUSTAINABILITY CHALLENGE**

Developing environmentally sustainable cities is a major challenge, whether in developing or developed economies. Where cities are growing rapidly the need to provide dwellings and basic services for burgeoning populations can so easily overwhelm environmental considerations. In developing nations the challenges may focus more on ensuring that the critical social and economic development agenda (Fien and Tilbury 2002) also meets environmental protection goals. In developed nations, where environmental goals are often well recognised, the challenges are different but no less difficult to meet, confronting as they do a range of 'lifestyle' demands, overconsumption, and issues of equity within and between cities, the nation and intergenerationally.

In Australia, for the purposes of this paper, it is worth first considering four major dimensions of the challenge which both provide a context and framework for considering policy, tools, directions and solutions.

### **1. The status of sustainability indicators**

Australia experienced improvement in a range of economic and social indicators in the 10 years to 2002, for example in health, education, employment rates, income, national wealth and productivity (Australian Bureau of Statistics, 2002). A close relationship, both positive, and negative, has been found between per capita GNP and environmental indicators (Janicke and Weidner, 1997). Thus Australia, in common with a range of other affluent nations, has also experienced progress in environmental protection legislation for air and water quality and in developing comprehensive natural reserve systems. (ABS, 2002).

However, affluence also brings deterioration in other environmental indicators. In the same period of the 1990s, the environmental sustainability of lifestyles has been deteriorating as consumption has increased, encouraged by economic success. Across Australia biodiversity (as measured by the number of threatened species) is decreasing as a result of practices such as land clearing. Dry land salinity is increasing, quality of waterways is declining, and in 2000 about one quarter of the country's surface water was classed as highly used or overused (ABS, 2005a).

While there is considerable variation in methodology used to calculate ecological footprints, Australia's 2001 State of the Environment report notes calculations which estimate there are 1.7 hectares of ecologically productive land per capita available globally, whereas estimates of Australia's footprint vary from 4.5 to 14 hectares (Australian State of the Environment Committee, 2001). In NSW, the community increased its total ecological footprint by 23% in the five years between 1993–94 and 1998–99, when population grew by only 7% (Department of Environment and Conservation (NSW) 2003). The research on which these estimates were based also found that residents of the Sydney greater metropolitan area had a footprint 5% greater than those in rural areas, despite greater density and efficiencies in services provision, some evidence that the sustainability challenge is greater in our urban areas.

### **2. Australia's booming economy**

Between the March 1993 and March 2003, the average rate of growth in real gross domestic product was 3.8% a year in a period when Australia's population grew at an average rate of 1.2% a year, leading to a growth in real per capita GDP of 2.6% a year (ABS 2004). Between 1993-94 and 2003-04, real net national disposable income per capita grew by an average annual rate of 3.1% a year (ABS 2005a). Recently released national economic figures (*Financial Review* 5.12.05) indicate that growth is continuing, with some forecasters predicting economic growth will strengthen in 2006 and 2007 (University of Adelaide 2005).

Such increases in income have bred increased standards of living and expectations. As people grow richer it appears their 'needs' expand, or rather 'wants' become 'needs'. In 2002 a survey found that 62% of Australians believed they could not afford to buy everything they really need, including 46% of the richest households (defined as those with incomes over \$70,000) (Hamilton, 2002). More than a quarter of the richest households and 40% of those on incomes of \$50,000 to \$69,000) believed that they 'spend nearly all of their money on the basic necessities of life' (Hamilton, 2002).

While closer questioning in the same study revealed that few are experiencing serious hardship, even amongst the lowest incomes, the sense of deprivation was found to be fuelling consumption of ever grander houses, cars, holidays and personal and home equipment, with ever higher standards held up as the aspirational goal and increasing pressure to consume at higher and higher levels.

For cities aiming for sustainability, this has serious consequences, seen for example in:

- o Demand for larger houses. Despite falling household sizes, the average size of a new house has grown from 115sqm in the 1950s to 170sqm in 1985 to 221sqm at the turn of the century, with space per occupant of a new house more than doubling since the 1970s (Hamilton, 2002). Also fuelling this trend in many urban areas has been significant increases in land values, justifying increased capitalisation in housing. Larger homes demand more building resources and require higher levels of energy and water to maintain.
- o Increasing consumption of energy. Electricity consumption in NSW doubled between 1980 and 2001, and on current trends (e.g. 4.5% increase 1999–2000 to 2000–01) is still growing rapidly (Department of Environment and Conservation (NSW) 2003). In Sydney demand per capita increased fivefold between 1950 and 2000 (Park, 2004). Apart from population growth, the Department of Energy, Utilities and Sustainability identifies the increasing use of airconditioning, rising incomes and consumption, and the low price of electricity as the major causes (Department of Environment and Conservation (NSW) 2003). Increased use of air conditioning is driving peak load electricity provision in NSW (Nemtzow, 2004).
- o Higher car ownership and demand for ‘better’ roads. There were 686 motor vehicles per 1,000 resident population in Australia in 2005, compared to 645 vehicles per 1,000 residents in 2001, a 4.1% increase (ABS 2005b). NSW has the second lowest rate of car ownership but also registered one of the larger increases in this time.
- o Generation of large volumes of waste to landfill. A 2004 Australia-wide study found vast amounts of food in particular are purchased but unused and thrown away, estimating that \$5.9 billion worth of food was wasted in 2004 (Hamilton et al, 2005). Less than half the population of NSW regularly compost (DEC NSW 2004) resulting in a significantly higher demand on waste disposal services than would be the case with low levels of wasteful consumption.

### **3. Environmental demands**

Expectations generated by increased living standards include expectations of improved environmental quality. These expectations include cleaner air, assured supplies of high quality drinking water, clean attractive harbours, rivers and beaches for recreational activities, weed-free bushland, rubbish-free public places and protection of flora and fauna in reserves and national parks.

In NSW, regular community surveys of people’s environmental knowledge, attitudes and behaviour have been conducted triennially since 1994. Consistently over the four surveys from 1994, 85-88% of those surveyed have stated they are (very or somewhat) concerned about environmental problems (DEC 2004). In 2003, 42% of those concerned said their reason was concern for future generations.

In addition, 92% of those surveyed said the environment is important in their lives, the third highest value of those canvassed, after family and friends. 81% agreed that products that cause environmental problems should cost more and 64% agreed they would give part of their income if the money was used to fix environmental problems.

#### **4. Community contradictions**

There are contradictions inherent in the increasing trends in consumption placed against demands for improved environmental quality. However, many of these contradictions are not necessarily apparent to the individual consumer if they do not make connections between their lifestyles or consumption and environmental exploitation.

Contradictions emerge even where the connections are closer. A recent Ipsos Mackay 2005 Australia-wide survey is reported as finding that 93% of those surveyed say they would prefer a greener, more community-based society to economic reform and greater material wealth (Teutsch 2005), which may seem to contradict Hamilton's (2002) findings on people's perceived economic needs discussed earlier, but even the Hamilton study found that 83% believed that 'our society is too materialistic, with too much emphasis on money and not enough on the things that really matter'.

The anomalies in these various trends present us with our major sustainability challenge: how do we resolve these contradictions and meet the needs of current generations in our cities without compromising the quality of life of future generations?

#### **RESPONSES TO THE CHALLENGE**

Institutional or government responses to these challenges may employ a range of tools in pursuit of more sustainable cities. This paper argues that no single response will be sufficient to meet sustainability goals and that only integration of a range of tools and responses can ultimately be effective.

More traditional tools include planning controls, regulatory mechanisms, economic incentives /disincentives and infrastructure provision. Of particular concern at the present time for major metropolitan areas in NSW are water and energy use and all these tools have been explored in the interests of containing the escalating demand for these essential resources.

##### **Some tools used to manage water and energy demand in NSW**

In a planning response, BASIX (Building Sustainability Index) has been introduced into the planning system in NSW to measure the potential performance of new residential dwellings against sustainability indices. Through a web-based tool, BASIX ensures each dwelling will use 40% less potable water consumption and produce 25% (40% from July 2006) less greenhouse gas emissions, compared with the average existing home. Each development application for a residential dwelling must be submitted with a BASIX Certificate. A Certificate is issued once the on-line BASIX assessment has achieved satisfactory water and energy use.

In the Sydney metropolitan area the regulatory approach has been effective in addressing water use and managing water demand. Water restrictions, introduced from October 2003 in the face of dramatically declining water supplies in the area served by Sydney Water, have resulted in total consumption from 1 October 2003 to 15 December 2005 at 12.6% below the ten-year average (Sydney Catchment Authority and Sydney Water 2005).

Limited economic mechanisms have also been adopted in response to the drought affecting Sydney. Incentives through subsidies for purchase of household rainwater tanks and a scheme to install water saving devices in bathrooms at highly reduced cost have been in place for several years, but pricing has not been systematically used to influence demand for water until very

recently. Water rates are still only partly based on usage and, while prices were increased in October 2005, water is still a relatively cheap commodity so that prices are not acting to control demand in the same way as petrol prices apparently impacted consumption in 2005 (NRMA 2005). However, introduction of a two-tier price structure in Sydney, so that households will be charged a higher price for the water they use above a certain reasonable volume, and reduction of the fixed component of household water bills, so that water bills are more directly related to the volume of water used is moving in this direction.

Infrastructure which ‘automatically’ reduces consumption or makes more sustainable options available and easy to use is another strategy which has been applied to both energy and water demand in NSW. Recycling reduces demand for fresh potable water and recycling infrastructure can be effected at household, local or regional level. A recent development in Sydney’s north west, Rouse Hill, included installations for recycling of water back to residents for gardens and other non-drinking uses through specially designated third pipes. In electricity, the availability of Greenpower provides people with an easy way to support sustainable energy sources. Likewise, energy star ratings for appliances provides key information to enable appropriate choices.

## **RESPONSES – EDUCATION**

While the tools described above may be effective, often the key to their acceptance and success rests on another complementary tool - education. Environmental or sustainability education must be closely integrated with the suite of other tools, which also include public policy, research and monitoring and reporting, if we are to meet the challenges outlined in the first part of this paper.

While education is often assumed to mean transmission of information, the definition here is taken as that used in the new NSW Environmental Education Plan (NSW Council on Environmental Education 2005) to be “any process or activity that engages people in learning by sharing and developing knowledge, skills and attitudes” and it occurs through a wide array of methods, media and activities including community participatory activities, mass communications, experiential learning, recreation and various forms of training and development.

In recent years the term ‘education for sustainability’ (EfS), or education for sustainable development as framed by the IUCN, has been used to denote more participatory, values-based and socially critical capacity-building processes aimed at more fundamental shifts towards sustainability in society and institutions. For the IUCN, “education for sustainable development is about how to stimulate and guide participation and learning in achieving a society that develops sustainably. Critical to education for sustainable development is learning to access and influence systems for public participation for decision-making” (IUCN 2005).

The NSW Government’s policy response to the need to integrate education with other mechanisms for achieving sustainability is embodied in the Protection of the Environment Administration Amendment (Environmental Education) Act, 1999) which formally recognises the role of education alongside other strategies to work towards sustainability by establishing the NSW Council on Environmental Education and mandating development and regular updating of a cross-sectoral environmental education plan. The first plan, *Learning for Sustainability* covered the period 2002-2005. The next plan for 2006-2009 is currently being finalised following release of a draft and a state-wide consultation period. These plans are developed by the Council on Environmental Education whose role is to advise government on environmental education, coordinate the preparation of the state-wide three year plans and monitor the implementation of

these plans. The council and plan development are serviced by a Secretariat based in the NSW Department of Environment and Conservation.

The overall purpose of the plan is to build the capacity of the environmental education system to, in turn, build the capacity of the whole community to be involved in making environmental improvements and thus purposefully progress society towards a sustainable future. While it covers all sectors, formal and informal, which may have any type of role in delivering environmental education, implementation is mandatory for government agencies. It is structured around seven key outcomes, incorporating a total of 61 actions plus relevant performance indicators and responsibilities and it includes strong monitoring and reporting provisions.

### **Why education?**

Most environmental problems ultimately have a human cause. Rayner and Malone (1998) point out that problems are the result of the myriad choices of people and societies, both past and present, and they argue that responses to environmental problems involve choice: we can decide whether to respond and how to respond. These choices operate at individual, institutional and societal level but the choices made at higher levels is still driven by the values and choices of individuals, whether through autocratic or democratic decision-making processes.

Education is a key tool in influencing and informing those choices. Demand management is seen as a key factor in reducing energy and water use, to manage both expectations and actual use. Expectations for water use have been significantly modified in the Sydney region, so that adherence to water restrictions has been high, resulting in substantial gains in water saving, but there are no such constraints to expectations of availability, and use, of electricity/energy. However, unless attitudes and expectations are modified, individual decisions, for example to install and run airconditioning and set its temperature will be difficult to modify.

### **A STRATEGIC APPROACH TO EDUCATION IN THE NSW DEPARTMENT OF ENVIRONMENT AND CONSERVATION (DEC)**

To provide examples of integration of education with other tools, the following part of this paper outlines some ways in which education has been integrated by the NSW Department of Environment and Conservation (formerly in the Environment Protection Authority) into a range of strategies to address specific environmental problems over the past ten years.

#### **The Legislative Context of the Environment Protection Authority**

The Environment Protection Authority (EPA) was established in 1991 as the lead agency for environmental protection in NSW with power to ...*direct any public authority to do anything within the powers of the public authority which will, in the opinion of the Authority, contribute to environment protection.* Its enabling legislation, the *Protection of the Environment (Administration) Act (1991)*, was explicitly formulated with contemporary notions of sustainability in mind. It recognised the social and economic causes of environmental problems and these in order to protect the long-term viability of natural systems that sustained the welfare of current and future generations (McLoughlin and Young, 2005).

The EPA's objectives thus included a wide range of far-reaching education and community involvement functions:

- *promoting community involvement in decisions about environmental matters,*
- *conducting public education and awareness programs about environmental matters,*

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- *advising persons engaged in industry and commerce and other members of the community on environment protection,*
- *ensuring that the best practicable measures are taken for environment protection in accordance with the environment protection legislation and other legislation, and; co-ordinating the activities of all public authorities in respect of those measures,*
- *carrying out or commissioning research into environment protection*
- *co-ordinating the collection of information on environment protection which is published or supplied by public or other authorities,*
- *making grants to industry, commerce, public authorities, educational institutions and such other persons who the Authority considers are acting in the public interest for the purpose of funding projects which assist or advance environment protection.*

These functions were incorporated into the DEC on restructuring where several existing environmental agencies were brought together to form the new agency in 2003.

### **Organisational development and evolution of an education strategy**

Translation of the principles of sustainability and the potential of the EPA's legislation into organisational commitment to building capacity in environmental education in NSW was the challenge that faced the Education and Community Programs Branch of the EPA. Several aspects of the context for their work were influential in shaping the approach taken:

- Consistent long-term advocacy by professional environmental associations in NSW for a coherent policy framework for environmental education across all sectors of delivery.
- Experience of several staff in managing large public policy interventions in health and AIDS/HIV prevention which provided exemplars for the integration of education and community engagement with other policy tools.
- An internal branch structure which integrated education, public communications and information services (publications, web, library and public enquiries/ information) generating synergies between education and social marketing philosophies (previously a feature of health promotion campaigns) to resource major campaigns.

Early in the life of the new agency a strong education dimension was established in the organisation's corporate plan. Education was then integrated with other tools in direct community engagement addressing specific environmental problems. In addition, a capacity building strategy was developed to specifically build the strength and capacity of the NSW environmental education system.

### **Capacity building in NSW environmental education**

The elements of this capacity building approach (McLoughlin and Young, 2005) were:

#### **1. Building social research and evaluation for:**

*Knowledge building* – conducting and disseminating community surveys, literature reviews and evaluation studies

*Evidence-based program design* - systematic use of research and evaluation in developing EPA programs

*Strategic policy development* – research to understand and gain attention to education needs

*Building effectiveness* - demonstrate the role of education in the strategic mix of pollution prevention tools through evaluated strategic programs

In order to meet the needs of stakeholder groups and maximise acceptance and uptake of findings major projects were conducted as partnerships between the EPA and key stakeholder groups

through steering committees and preliminary stakeholder consultation. Once the value of research and education had been demonstrated, education was featured in EPA strategic plans and resources were increasingly made available for social research projects. These resources funded long-term partnerships between the EPA and academic centres of research excellence and enabled employment of social research consultancies.

## 2. Policy development

NSW Government environmental education policy was developed through several stages and a process that included research and consultation exploring various dimensions of the policy problem and establishing the level and legitimacy of stakeholder support. A green paper (NSW Government 1996) was followed by legislation (Protection of the Environment Administration Amendment (Environmental Education) Act, 1999) and the subsequent establishment of the NSW Council on Environmental Education and the NSW Government's three-year environmental education plan, 1992-2005, *Learning for Sustainability*.

## 3. Resourcing stakeholders by:

- Building political support for funding stakeholder programs and social research
- Inclusion of education and research as specific programs under the Environmental Trusts grants program, established in 1990
- Providing funding directly to local government, community organisations and NGOs, associated with campaign phases in stormwater, litter, sustainable living, (from 1999)
- Establishing funding criteria which promote research, including a requirement for evaluation, and which encourage dissemination of learnings
- Providing training and resources, particularly for local government.

## Case Study Programs

From about 1999, significantly more funds were being made available for integrated education and the EPA began to run several major programs. Two of these were related though their ultimate impact on the quality and content of stormwater.

**The Urban Stormwater Education Program 1998-2002 (USEP)** was part of the much larger Urban Stormwater Program (USP) funded to \$80m over 5 years, 1997-2002, *to encourage and support better stormwater management practices to improve condition of state's urban waterways*. This wider (USP) program also took a capacity building approach, focusing on increasing the capacity of councils and other key players to manage and plan for stormwater, primarily through a Stormwater Trust Grants Scheme in four rounds. These began with a focus on structural initiatives, then moved in later phases to integration with non-structural initiatives such as funding Stormwater Extension Officers to work with councils and education.

The objectives of the education program component (USEP) were to:

- increase knowledge of causes of stormwater pollution
- change community behaviours causing stormwater pollution by promoting simple, practical actions
- build capacity of others to undertake activities to improve stormwater quality

While the education program was integrated with other tools, particularly infrastructure initiatives, a range of approaches were integrated *within* the program as well, to reach the range of audiences and stakeholders with potential to impact on stormwater quality:

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- For community this included a State-wide mass media campaign and specific programs for NESB & Aboriginal communities, schools, NGOs, and beach visitors.
- Initiatives for local government included training and capacity building, a requirement for educational components in the major grants program and provision of media/communication resources generated for the mass media campaign.
- For industry, programs for targeted industry sectors and industry associations, specific media/communication resources and business marketing support for stormwater message were all developed and promoted

The **Litter Prevention Program 2000-2003** was introduced in response to a significant increase in litter through the 1990s following cessation of the successful 'Do the right thing' campaign of the 1980s. New forms of litter began to appear in new places with the advent of smoking restrictions, ATM slips, fast foods, more take-away and 'snacking & grazing'. Following introduction of a range of new litter fines under POEO Act, this program promoted litter prevention through integrated mix of litter education, enforcement and infrastructure provision.

The program design was based on research to understand the new forms of littering and current attitudes to litter and littering. More effective enforcement of fines and more appropriate provision of bins and recycling facilities were then complemented by educational approaches to encourage people to take responsibility for preventing littering. These included social marketing through mass media advertising, school education programs and anti-littering signage. However, a key plank was the capacity building elements of training for enforcement officers, funding and other support for community-based litter prevention programs run by local government and Clean Up Australia, and for small grants program run by Keep Australia Beautiful for local community groups initiatives.

A measure of the outcomes of the Litter Prevention Program can be found in the *Littering Behaviour Studies* which provide an indicator of appropriate litter disposal behaviour in the major metropolitan areas around Australia from 1997/2000-2004 through observational studies (Community Change, 2005). In 1997 appropriate disposal behaviour measured in Sydney 1997 was on the national average (a score of 4 out of 7), above Canberra, Melbourne and Hobart but below Perth, Adelaide, Darwin and Brisbane. Sydney remained at the same level for 2000 but then rose to 5 for 2001, 2002 and 2003 rising again to 6 in 2004, the year following the conclusion of the Litter Prevention Program. Sydney was the only city to maintain consistent improvement over this period and in 2004 only Melbourne was also on a score of 6 out of 7.

A further measure of the effectiveness of the combined effect of the stormwater and litter programs is provided in a 1992-2002 study by Sinclair Knight Merz (2003) of litter caught in selected gross pollutant traps and trash racks in inner Sydney suburban areas across a range of local government areas (LGA), including Randwick, Marrickville, Waverley and Hurstville. The pattern for all study locations showed low levels of all litter (less than 3000kg per annum) in 1992-93 but sharp increases each year from 1994 to a high of more than 30,000kg in 1999 prior to the impact of the stormwater and litter education programs. Litter captured from stormwater in these devices then plummeted to less than 5000kg in 2000 and remained at this level for 2001 and 2002, despite a range of annual rainfall totals.

The DEC's current major education program is its **Sustainable Living Program**. This commenced in 2001 under the banner of its theme *Our Environment – It's a Living Thing*

(OEILT) as early research indicated that ‘sustainability’ was then insufficiently recognised to support broad-based campaign (McLoughlin 2004). The theme also carries a double meaning in its message, and was reinforced by the emotive Electric Light Orchestra song, *It’s a Living Thing*.

From 2001 to 2003 four phases of the education program were conducted through advertising (Table 1), web materials and capacity building with specific targeted organizations (Table 2). While the advertising component focused on specific behaviours, the program sought to influence behaviours beyond those specifically promoted because it called for ownership of the issue in the broadest sense. The capacity building aspects were a significant vehicle for engaging communities directly with sustainability issues directly relevant to their activities.

**Table 1** *Our Environment- It’s a Living Thing Media Campaign Phases and Messages*

<p><b>Phase 1</b> June/July 2001</p> <ul style="list-style-type: none"> <li>• reducing water use</li> <li>• reducing energy use at home</li> <li>• reducing waste at work (paper)</li> </ul>	<p><b>Phase 3</b> September/October 2002</p> <ul style="list-style-type: none"> <li>• volunteering for the environment</li> <li>• reducing water use – gardens</li> <li>• reducing waste at work – reuse</li> </ul>
<p><b>Phase 2</b> October/November 2001</p> <ul style="list-style-type: none"> <li>• treading softly on the environment</li> <li>• using your car less</li> <li>• waste at home - reuse</li> </ul>	<p><b>Phase 4</b> October 2003 (elements from Phases I &amp; II)</p> <ul style="list-style-type: none"> <li>• waste reduction at work</li> <li>• reducing energy use at home</li> <li>• recycling and re-using at home</li> <li>• using the car less</li> </ul>

**Table 2** *Capacity building elements of the Our Environment – It’s a Living Thing Program 2001-03* (from McLoughlin, 2004)

<b>Program</b>	<b>Audience</b>	<b>Objectives</b>
Professional Development	Community education deliverers	To develop knowledge of sustainability; Increase understanding of education for sustainability approaches, assist providers to integrate education for sustainability content and perspective with their existing courses and activities.
Scouts Australia (NSW) partnership project	Scouts and Scout leaders	To increase awareness of environmental sustainability and the implementation of environmentally sustainable practices with the Scouts Award Program and Leadership Training Programs.
Early childhood centres partnership project	Early childhood workers	To enhance the awareness of early childhood workers in environmental sustainability by provision of a training program that aims to enhance the knowledge and skills of childcare centre managers in environmentally sustainable management of their facilities.
Eco-Friendly Centres, partnership project with the Local Community Services Association (LCSA)	Neighbourhood and community centre staff	To increase the capacity of neighbourhood and community centre staff and volunteers to facilitate learning about and taking action for the environment. Reinforce existing campaign messages using a community development model

Capacity building became the dominant element of the next stages of this program which commenced in 2004 and 2005:

- *Local Government Partnerships Grants* of up to \$20,000 (individual council) and \$60,000

(group of councils). This scheme aims to achieve locally relevant sustainability education projects by resourcing councils with funding and the OEILT media and other materials and by providing ongoing training and support in project development.

- *Government - NGO collaborative integrated project* brings together Government agencies (Department of Environment and Conservation, Department of Energy Utilities and Sustainability, NSW Council of Social Services) and NGOs (Total Environment Centre, Nature Conservation Council, Australian Conservation Foundation, Local Government and Shires Association, Ethnic Communities Council) to address specific gaps and needs in sustainability issues, including hazardous chemicals in the home, energy & water conservation for low-income sectors, biodiversity education and conservation and sustainability education for people of non-English speaking background. The project aims to develop sustainability understandings and actions in key groups (audience and deliverers) and to build capacity and co-ordination in an alliance between major government and non-government agencies.

## CONCLUSIONS

Cities face major challenges in working towards a sustainable future. While these challenges for Australian cities include the common long-term issue of increasing population placing increased demands on resources and environmental services, in Australia these pressures are currently compounded by an expanding economy, increased personal incomes and ability to consume more, along with increased expectations around standards of living and quality of life, which drive increased consumption.

There is a range of responses possible to meet these challenges including planning controls, regulatory mechanisms, economic mechanisms, infrastructure development and education. The experience of the NSW EPA/DEC is that these tools need to be strategically integrated in targeting specific environmental problems or issues, while developing a broader conceptual understanding of sustainability may be most effectively addressed through a range of education-based programs.

Of the three DEC programs discussed, two focussed on specific problems, stormwater quality and litter, for which a specific suite of complementary strategies could be designed to target that problem. For stormwater, the strategies were a mix of infrastructure installation, monitoring and regulation of building and development, and a range of education and training strategies. For litter, the suite included regulation increasing financial penalties, bolstered enforcement and education.

However, the Sustainable Living Program is more diffuse, incorporating a wide range of possible activities and arenas of change. While there are specific measures which can be promoted in specific aspects of sustainable living, such as reducing water or electricity use, a fundamentally important response is to develop processes of engaging people in strategies whereby they are able to examine their lives in a broad sustainability context and make appropriate changes to those areas where they are able to reduce their impacts. For this to be achieved, capacity building is critical element.

The experience of the NSW DEC in running major integrated programs demonstrates that:

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1. Education is a key tool in fostering sustainability, particularly in urban areas, but educational approaches are most successful when they are integrated with, and support, other tools.
2. Education must be delivered in a range of ways at a range of levels appropriate to the problem and the project.
3. Capacity building is a key tool in education: state government bodies need to build capacity of education providers in local government, NGOs, business and industry and formal education. In turn these providers need to engage their communities and audiences and build their capacity to develop their own solutions for livable, sustainable communities and places.

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