

**THINKING**

**SUSTAINABLE DEVELOPMENT**

**ACTING FOR HEALTH**

An introduction to better Environmental Health Practice,  
using the Sustainable Development Model  
of integrating economic, social and environmental goals.



## **Preface**

In this period following the tenth anniversary world summit on sustainable development in Johannesburg, it is appropriate to renew our action plans for public health based on a systems approach to society. Concepts of the integration of environmental, economic and social factors underpin public health policies and programs of greater intersectoral coordination, as many sectors of administration, professional practice and community action contribute towards human health outcomes.

This booklet is a precis of material collected from 1999 to 2001 in different consultations with stakeholders, combined with up to date information on current local and community activities based on sustainable development. It uses material from the First International Congress on Integrating Sustainable Development and Environmental Health Practice and post-Congress Workshop (1999) as developed by a consortium consisting of Queensland University of Technology, University of Queensland, University of the Sunshine Coast and Queensland Health.

The objective of this booklet is to provide a reminder for environmental health practitioners and policy makers of the application of the sustainable development model to their practices for better health outcomes. It provides a rationale for the inclusion of health on the sustainable development agenda and action for better environmental health practice using the sustainable development paradigm. Action is recommended nationally, regionally and locally through partnership with key organisations, stakeholders and the community.

The process of applying the described principles to health planning and promotion will encourage intersectoral integration and forward thinking, with appropriate impact assessments for health interventions and community developments.

This booklet gives a picture of what environmental health and sustainable development are, and examples of how sustainability thinking can be used in environmental health practice. Enabling factors that will influence the successful integration of the sustainable development model into environmental health practice include:

- ensuring a variety of environmental health professionals are involved in program planning and development at all levels of government, both horizontally and vertically;
- gaining an understanding of the links between health and the triple bottom line of environment; economic and social indicators;
- working in partnership with industry to adopt sustainable development goals;
- fostering collaborations that bring together community organisations and industry to develop a shared vision for action;
- ensuring that human health is an important item on environment and development agendas and environmental issues are prominent on health agendas; and
- strongly encouraging and supporting integrated action at the local level by recognising the important role that local government plays in fostering, developing and implementing local, regional and national policies and programs.

*Thinking Sustainable Development, acting for Health* is endorsed by the enHealth Council for use by environmental health practitioners and policy makers.

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## Chapter one

### Sustainable development and health

*“Human beings are at the centre of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature.”*  
(Principle 1 of the UNCED Rio Declaration, 1992)

This chapter describes the philosophy of sustainable development in the context of striving for better population health.

#### ***Linking Environment and Health***

Environmental, behavioural, socio-economic and genetic factors contribute to population health. Environmental factors in their broadest sense include the chemical, physical and biological factors as well as the built environment and community arrangements. Health of populations affected by the human environment is known as environmental (population) health, and environmental health practice is the implementation of environmental management and health promotion strategies to achieve optimal health where affected by the environment.

In 1993, the World Health Assembly placed the links between health and the environment in the context of sustainable development. The Assembly agreed that the scope of environmental health should expand beyond the direct physical impact of the environment on health to encompass the health consequences of the interaction between human populations and a large range of factors in their physical and social environments.

Since the 1980s there has been increasing recognition of the diversity of the linkages between the state of the environment and human health. In 1986, the First International Conference on Health Promotion oversaw the development of the Ottawa Charter for Health Promotion (WHO, 1986). The Charter embraced the notion of ecosystem stability and resource sustainability as prerequisites for health. It recognised that “...the inextricable links between people and their environment constitutes the basis for a socio-ecological approach to health...”.

This link between the environment in which we live and health at individual and population levels, was reinforced in 1987, when the World Commission on Environment and Development (WCED) noted, “...the principal reductions in mortality rates in the industrial world came about before the advent of modern drugs; they were due to improved nutrition, housing, and hygiene.” This statement reinforces the notion that the condition of the environment, is an important direct and indirect determinant of human health. Deteriorating environmental conditions are considered to be a major contributory factor to poor health and poor quality of life, thus hindering sustainable development.

*“Humans like other forms of life on earth, are dependent upon the capability of local ecosystems and of the global ecosystem for maintaining health”*  
(Soskolne & Bertollini, 1998)

## ***Environmental Health Practice***

Traditionally, environmental health practice focussed on the links between the environment and communicable disease through strategies such as environmental hygiene, vermin control, sanitation, clean air, safe food and potable water. The understanding of the links between the environment and health in the genesis of disease and wellbeing has expanded to incorporate considerations of the hazards presented by chemicals, ionising radiation, biotoxins, solar radiation, temperature, noise, building design, social capital and many other factors. The next evolutionary phase incorporates environmental health promotion by raising awareness of the relationships between human health and natural and man-made ecosystems.

Environmental health practice covers the assessment, correction, control and prevention of environmental factors that can adversely affect health, as well as the enhancement of those aspects of the environment that can improve human health. Consequently, as a multi-disciplinary field, environmental health practice requires the collaborative efforts of those working in a wide range of areas such as social sciences, applied sciences, engineering, land use planning and economics.

This is reinforced by Brundtland (1999) who described the practice of environmental health as requiring an integrated approach, in which key health objectives are formulated with regard to issues such as food production, water supply and sanitation, industrial policy, environmental safety and pollution, the planning of human settlements and health inequalities. Additionally, it is necessary to identify the needs of vulnerable groups and their peculiar health risks.

Environmental health practice takes health promotion, prevention and protection roles in public health. Furthermore, environmental population health activities have evolved from a traditional approach emphasising control through to one that strives for proactive enabling strategies that address concerns of quality of life.

### **Commonwealth Government**

The Commonwealth provides national leadership and focus on health in environmental management and environmental health practice. The two commonwealth departments directly involved are the Department of Health and Ageing and the Department of Environment and Heritage.

The Commonwealth, through the Minister for the Environment and Heritage, is a member of the National Environment Protection Council, which develops and sets standards in areas such as air quality and the assessment of site contamination, through legal instruments known as National Environment Protection Measures (NEPMs).

The Australian Greenhouse Office has been established as the world's first dedicated greenhouse organisation to drive the Government's progressive agenda on greenhouse. As the lead Commonwealth agency on greenhouse matters, it is responsible for promoting a whole-of-government position on greenhouse issues to the broader domestic and international community. Its integrated, balanced approach will facilitate the realisation of both economic and environmental benefits for Australia from the opportunities arising from greenhouse response action.

Commonwealth legislation, through the *Environment Protection and Biodiversity Conservation Act 1999*, provides a national framework for environmental protection through a focus on protecting matters of national environmental significance and on the conservation of Australia's biodiversity. Section 156A(6) of the Act requires Commonwealth organisations to include in their Annual Reports a section detailing the environmental performance of the organisation and the organisation's contribution to ecologically sustainable development.

The Commonwealth Department of Health and Ageing (DoHA) and associated statutory authorities make a wide range of contributions, including regulation (therapeutic goods, TGA; food, FSANZ; gene technology, OGTR and radiation, ARPANSA), chemicals risk assessment (Office of Chemical Safety, Therapeutic Goods Administration) and policy development (Population Health Division).

DoHA is represented on enHealth Council and leads on various projects for national coordination, guidelines development and resource development.

### **State Government**

The individual States and Territories retain the primary responsibility for public and environmental health legislation and practice within their jurisdiction. The respective Environmental Health units within the States and Territories are responsible for a variety of areas, but there is variation in areas of responsibility between the jurisdictions. State and Territory Directors of Environmental Health work in the national interest through enHealth Council.

### **Local Government**

Local governments directly influence the natural, man-made, social and economic environments in which people live. Environmental health management within local governments has primarily supported public health through law and enforcement, but is also adopting an educating and enabling role. Regulation involves creating local laws under either health or local government Acts and overseeing standards and regulations as laid down by the state/territory governments.

Local authorities manage the economic, social and environmental infrastructure, oversee planning processes, establish local policies and regulations, determine parameters for economic development, work together with communities, and are important in the development and local implementation of regional and national policies

The Australian Local Government Association is a signatory to the Intergovernmental Agreement on the Environment (IGAE) and hence involved with sustainable development issues, albeit environmentally focused. Local Agenda 21 (agenda for achieving sustainable development at local level if it is to be achieved at a global level) places a great deal of importance on the role that local government can play in fostering sustainable communities. Key areas where local governments have also played a significant role are the Healthy Cities program (see Chapter 2) and the International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection (CCP) Campaign.

Local government has a major role to play in the end use of energy. Ways in which local governments affect end energy use include town planning, local transport, land use, infrastructure provisions, community education, and leading by example in local community (Australian Local Government Association (ALGA), 1997). Local government also has considerable influence over small and medium businesses, which form a major component of Australian business and should be targeted for changes in energy use (ALGA, 1997).

Through ALGA, local government is also involved with sustainable development oriented organisations such as the Australian Land Care Council and the Biological Diversity Advisory Committee (ALGA, 1998). In Australia, depending upon the State under which they operate, local governments have responsibility for a wide range of issues that impact upon the environment and health. These include waste management, housing design, land use planning, local transport networks, water and wetlands management.

### ***Sustainable Development***

Sustainable development was defined by the World Commission on Environment and Development in 1987 as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” This definition has become the most widely cited.

*Our Common Future* (Brundtland, 1987) substantively documented the links between environmental destruction and economic development. This report discussed the principles of sustainable development and the need for intersectoral collaboration between the traditionally separate practitioner domains of health and the environment. It also provided the impetus to make *sustainable development* the dominant theme for society's interactions with the environment into the 21<sup>st</sup> Century.

The United Nations Conference on Environment and Development (Earth Summit) 1992 was subsequently convened to discuss the problems of environmental protection and socio-economic development as outlined in the Brundtland report. At the summit, over 100 heads of state signed the Framework Convention on Climate Change, the Convention on Biological Diversity, endorsed the Rio Declaration and the Forest Principles, and adopted Agenda 21. The tenth anniversary of the Rio Summit was marked by the World Summit on Sustainable Development in Johannesburg, September 2002 at which poverty was the recognised largest barrier to sustainable development.

Whilst only a small proportion of the population live in poverty in Australia, this is not the case for developing countries. Of the 4.8 billion people who live in developing countries, nearly three-fifths lack basic sanitation. Almost one-third have no access to clean water. One-quarter do not have adequate housing, and one-fifth have no access to modern health services. From a health perspective, these statistics directly impact on conditions such as communicable diseases, diarrhoeal disease and respiratory disease. From an environmental perspective, there is increasing demand on the planet due to unbalanced consumption patterns, rising demand for food and water and a strain on natural resources and the environment (Martens, Sloof & Jackson, 1997).

Sustainable development remains a key paradigm for the integration of policies of effective environmental health management and policies for economic development. Australia's response to the Rio Earth Summit states that “there are two main features that distinguish an ecologically sustainable approach to development:

- 1 The need to consider, in an integrated way, the wider economic, social and environmental implications of our decisions and actions for Australia, the international community and the biosphere; and
- 2 The need to take a long-term rather than a short-term view when taking those decisions and actions.” (CoA, 1992)

There is a growing public appreciation of the increasing impact of human lifestyles, consumption patterns, development and the continuous growth of settlements on the state of the environment, and realisation that this environmental degradation and overload may lead to new hazards and diseases. Indeed, the World Health Organization (WHO) Commission on Health and Environment stated very explicitly that no development can be called sustainable if it inflicts damage to human health and well-being (WHO, 1992b; Martens, Sloof & Jackson, 1997). In 1980 the World Conservation Union (IUCN) discussed sustainable development and identified three key areas that must be taken into account when reviewing development. These include:

- social, ecological, and economic factors;
- the living and non-living resource base, and
- long and short term advantages and disadvantages of alternative actions.

An illustration of unsustainable development that affects human health and wellbeing, is that of continued urbanisation and population growth. McMichael (2001) notes that cities affect patterns of infectious diseases in the developed world, especially sexually transmitted infections and the poverty-associated diseases such as tuberculosis and cholera. The incidence of childhood tuberculosis in the residentially crowded sections of the Bronx in New York City is six times higher than the city’s average, while in London tuberculosis rates are markedly higher in the unemployed and in those living in cheap rented accommodation. The United Nations Population Fund (UNFPA)(1999) stated that the world’s population had recently passed six billion and there was an urgent need for family planning measures and funds to provide food and shelter.

### **Sustainable Development Principles**

Sustainable development is a concept of balancing different human needs i.e. while striving for progress in one area of endeavour, humans should not create problems (externalities) in other areas now or for future generations. The reasons for implementing sustainable development are derived from its promise to minimise or prevent problems, obtain solutions to multiple problems through effective targeting and on our need to overcome the predicted inability to survive unless change occurs. Sustainable development relies on collaboration, community involvement, shared responsibility and integration of activities. Its effects should be equitable across current and future generations.

Sustainability thinking must be continuously incorporated into our work strategies and practices and used as a tool for taking a truly integrated process in achieving our health objectives, particularly in health inequalities. In discussing its application as a tool, it is helpful to consider the guiding principles that the sustainable model implies.

There are actually several different sets of “Principles” to be found in the literature and on the web, each taking a different interpretation, depending on the task at hand. Indeed, since the Rio de Janeiro Declaration on Environment and Development (1992), various groups and organisations have worked towards developing their own principles on sustainable

development or rendering the Rio de Janeiro principles into a format more readily applicable to particular circumstances. The common threads elaborate on the practical interpretation of the philosophy: the why, the how and the people involved.

It is reasonable to begin with the 27 principles adopted at the UNCED conference which were drafted for balance in achieving the objectives of sustainable development (<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> ). Health workers should be able to apply ideas of:

- sustainable development as a tool for improvement for human interests;
- inter-generational equity;
- the spirit of a global partnership with common but differentiated responsibilities for developed and developing nations;
- increased community awareness and participation, and the
- the 'precautionary principle' - where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Principle 15, UNCED Rio Declaration).

Since 1992, the pursuit of ecologically sustainable development has been increasingly incorporated into the policies and programs of Australian governments as a significant policy objective (for example, the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999*) see Box (*on next page*).

#### **Sustainability and the integrated triple bottom line**

*"A Nation's wealth lies predominantly in its people and the amalgam of individual and institutional relationships. Building people's capabilities through education and health can enhance a nation's human resource and help in realising a sustainable path to development" (World Bank, 1998)*

We have said that the environment can have direct positive and negative effects on human health. The environment and human health cannot be maintained or improved, however, in isolation from other problems of economy and society. There is a clear acknowledgement that economic development is necessary to achieve social goals of meeting needs and equity, to meet the quality of life aspirations of some communities and to ensure stocks of natural capital are not depreciated through time. The application of sustainable development thinking should include integration of economic, environmental and social considerations in decision-making processes - called the Triple Bottom Line for organisational reporting.

We need the development of a robust, growing and diversified economy that can enhance the capacity for environmental protection. Without a sound economy, it is difficult to pay for health, education and other social services that provide for our way of life. We must pursue environmental goals in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs (full societal costs and benefits) to develop their own solutions and responses to environmental problems.

Achievement of sustainability solutions also requires engagement of the broad community (individuals, groups and businesses) in decisions and actions that affect them. It is important to address environment, economic and community issues in a cooperative and consultative

manner, recognising that the shift to sustainability requires time, continuing support and regular exchange of information.

Social and cultural conditions profoundly affect health status. Investments in special at risk groups, such as early childhood and indigenous, provides for later dividends in greater health and participation in society. Sustainable development activities can create health-promoting environments for children and reduce inequalities.

### **National Strategy for Ecologically Sustainable Development**

All Australian Governments in 1992 endorsed the National Strategy for Ecologically Sustainable Development (NSES D). The Strategy (CoA,1992) states that ecologically sustainable development:

.....aims to meet the needs of Australians today, while conserving our ecosystem for the benefit of future generations.

The Core Objectives are:

- to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- to provide for equity within and between generations; and
- to protect biological diversity and maintain essential ecological processes and life-support systems

The Guiding Principles are:

- decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations;
- where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the global dimension of environmental impacts of actions and policies should be recognised and considered;
- the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised;
- the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised;
- cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms; and
- decisions and actions should provide for broad community involvement on issues which affect them.

The NSES D also sets out the broad strategic and policy framework under which governments should pursue ESD. It acknowledges that governments need to change their institutional arrangements to ensure that ESD principles and objectives are taken into account in relevant policy making processes.

## Chapter two

### The transition to sustainable development within environmental health practice

This chapter focuses on the current and most successful applications of sustainable development principles in environmental health practice. The four approaches are the National Strategy on Ecologically Sustainable Development, Agenda 21, Healthy Cities and the National Environmental Health Strategy.

#### National Strategy for Ecologically Sustainable Development

Australia deliberately added the word ecological to its interpretation of the principles of sustainable development to emphasise the dependency of humans on the complex relationship between living things and between living things and the physical environment. Objective 24.1 of the National Strategy for Ecologically Sustainable Development (NSES) places a requirement on governments "... to develop effective options for predicting, preventing, controlling and communicating the health implications of ESD-related decisions."

Actions to achieve this involve: examining mechanisms for incorporating health impact assessment into relevant environmental or economic decisions making processes; systematic identification, development, analysis and monitoring of agreed environmental health indicators; monitoring the state of the environment and population health; improving public understanding of health risks and benefits; and improving the scientific assessment of these risks and benefits; and ensuring cooperation and coordination between levels of governments, across all sectors.

Section 516A(6) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires all Commonwealth agencies to advise in their Annual Report how activities accord with, or contribute to, the principles of ESD.

#### Local Agenda 21

*"There is consensus that sustainable development can only occur at global level if it first occurs at local level" (WHO, 1997)*

Local Agenda 21 is a program agreed to at the Summit in Rio de Janeiro in June 1992. Specifically, Agenda 21 recognises the fundamental importance and central role that communities can play in bringing about change. Some of the key themes addressed by Agenda 21 are related to quality of life, natural resource usage, protection of global commons, management of human settlements, chemical and waste management and fundamentally, sustainability and economic growth.

Agenda 21 called upon local governments to enter a dialogue with its citizens, local organisations and private enterprise to adopt Local Agenda 21. Between 1991 and 1997, more than 1800 local government authorities in 64 countries had established Local Agenda 21 implementation processes at a local level (International Council for Local Environment Initiatives, 1997).

Whittaker (1996a) stressed the importance of local action, describing Local Agenda 21 as an excellent framework for bringing together existing local conservation strategies, state of the environment reporting and environmental management programs into a coherent strategy. This process is directed towards more sustainable operations of the Local Government and the community. von Schirnding (1997) documented Local Agenda 21 implementation by local governments, including ongoing initiatives and accomplishments in urban environmental management, improved implementation of policies and strategies, enhanced institutional and participatory capacities and more effective use of scarce resources.

Criticisms of Agenda 21 include the lack of clarity and difficulty in implementing these principles at the local level. In response to these criticisms, the National Local Leaders in Sustainability Forum in 2000 recommended the development of a national local Agenda 21 milestone framework for Local Government. The purpose of the milestone framework – *Australian Local Sustainability Initiative: An Achievement Recognition Matrix* – is to provide a structured approach or a tool for local governments to deliver strategic sustainability outcomes. It is intended as the basis for a national local government sustainable development program, and is available on Environment Australia’s website. Additionally, a guide – *Our Community Our Future: A Guide to Local Agenda 21* – is available to provide local councils with guidance and direction in planning and implementing a Local Agenda 21 approach (Cotter, B & Hannan, K, 1999). The guide is intended for:

- individuals and groups who want to know how to gain commitment from key decision makers to establish a Local Agenda 21;
- councils that have committed to sustainable development and need guidance on how to commence a Local Agenda 21;
- councils that have started to develop a strategy or who are actively working towards sustainable development but who need further direction; and
- councils that are progressing well and want some further ideas.

There has been a good deal of activity at the local level under Local Agenda 21 and Healthy Cities in Australia, New Zealand, Canada, the United States and in Europe. Agenda 21 specifically addresses the importance and role of local government. Between 1991 and 1997, more than 1800 local government authorities in 64 countries had established Local Agenda 21 planning processes to implement Agenda 21 at a local level (International Council for Local Environmental initiatives ICLEI, 1997).

One example of successful integration of Agenda 21 into Local Government practice is from Mandurah, Western Australia, outlined in the following box. Its Sustainable City Plan was launched in March 1999. Cotter, B & Hannan, K (1999) provide a precis of Mandurah’s approach to Local Agenda 21 and the lessons learnt, as well as several case studies used to illustrate a variety of approaches by other city councils.

## **Healthy Cities**

WHO defines a healthy city as “one that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and in developing to their maximum potential”. A healthy city is defined by a *process* not an *outcome*. A healthy city is not one that has achieved a particular health status. A healthy city is conscious of health and striving to improve it. Thus any city can be a “healthy” city, regardless of its current health status. What is required is a commitment to health and a process and structure to achieve it.

The Healthy Cities movement originated from WHO in 1985. The concept of Healthy Cities is to place health high on the agendas of political decision-makers, key groups and communities within cities. Programs under Healthy Cities develop feasible strategies for reorienting public health endeavours on a local scale and make prevention and sustainable development highly visible and a basis for community-oriented enterprises (Kickbusch, 1989). Healthy Cities is referred to in Agenda 21 as a mechanism for implementing the health agenda at a local level.

This movement has succeeded in collaborating with diverse policy sectors, in recognition that health is affected by many factors that lie external to the health sector. The Healthy Cities program calls for collaboration with the policy sectors of education, social services, housing and income maintenance, explicitly recognising that the origins of health and illness are too complex to leave individuals solely responsible for their health and wellbeing.

Millie (1990) described Healthy Cities as the creation of a public health movement for a sustainable healthy world, that addresses many issues such as the widening of the scope of health problems beyond specific diseases or risks, utilising the full range of policy instruments to nurture health, and developing strategic organs and methods that can promote and deploy, monitor and assess health supporting policies.

In 1991, the European Commission established the Expert Group on Urban Environment whose aim was to identify principles of sustainable development and the mechanisms needed to pursue it, at all levels of urban settlement. This Group espoused that sustainable urban management should challenge the problems both caused and experienced by cities, recognising that cities themselves provide many potential solutions, instead of shifting problems to deal with spatial levels, or shifting them to future generations (European Commission, 1996).

Australia has developed a number of Healthy Cities, with the first cities to undertake this initiative including Canberra, Illawarra and Noarlunga. Australia's National Healthy Cities office was closed in 1992, but despite this, a number of Healthy Cities projects have been maintained. Recently in Australia, proponents of the Healthy Cities program have advocated for the development of Municipal Public Health Plans (MPHP). These Plans encourage Local Government, in partnership with their communities, to look broader than traditional environmental health responsibilities and use health promoting strategies to address locally relevant priorities. They advocate for participative planning for health and sustainability, to create an environment that enables people to maximise wellbeing.

The Department of Human Services, in partnership with the Municipal Association of Victoria, Victorian Local Governance Association, local governments and other stakeholders, has developed "*Environments for Health*". This new framework for municipal public health planning incorporates an awareness of the social, economic, natural and built environments and their impact on health and well-being. It encourages municipal public health planning of a high standard and consistency in scope and approach across the State, while still valuing diversity. Importantly, it is also aimed at improving community health and well-being by promoting the integration of Municipal Public Health Plans as an essential component of municipal corporate planning (State Government of Victoria, 2001).

The most useful document for newcomers is *Twenty Steps for developing a Healthy Cities project* (WHO, 1997). This booklet describes the essential steps to be taken, with the process grouped into three main phases - getting started, getting organised and taking action.

## **National Environmental Health Strategy (NEHS)**

The National Environmental Health Strategy (NEHS) has provided the guiding set of principles for action for environmental health policy and program development since its publication in 1999. It was produced after extensive consultation with professionals, academics, communities and industry and is being reviewed in 2003. The NEHS provides direction and a framework that environmental health practice throughout Australia.

Sustainable development is one of the guiding philosophies for the NEHS. The NEHS takes into consideration the health of both current and future generations as part of its key objectives and principles, and is included in the discussion of specific issues. One of the key objectives is promoting healthy environments through recognising the central role of sustainable development and the interrelationship of health and environment.

The NEHS identifies health as a social resource and highlights the investment that the Commonwealth, State and Territory Governments are willing to make in the future health of this country. The Strategy and its Implementation Plan attempt to clarify steps in an integrative effort to create new alliances for environmental health.

## **Health Impact Assessment**

The World Health Organization (WHO) has defined it as:

*A combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.*

Health Impact Assessment (HIA) refers to the systematic assessment of the likely health impacts of activities on a population (e.g. policy decisions and proposed development actions), in order to identify changes to these activities that may be made to protect and enhance health. By ensuring that immediate and future human health concerns can be protected, the possibility of sustainable development can be strengthened by the use of HIA.

Internationally, HIA has become a key component of informed decision making and is being undertaken by governments world wide in a variety of circumstances and situations.

The NEHS stressed the need for the wider use of HIA in Australia "...health considerations should form part of any impact assessment for developments or decisions that could have health consequences".

In 2001 the enHealth Council published *Health Impact Assessment Guidelines* for the conduct of HIA in the context of Environmental Impact Assessment. In this planning context the findings of HIA provide the ideal starting point for efforts to optimise positive health impacts and avoid or minimise negative impacts. Rectifying potential problems during planning being the preferred approach; rather than having to deal with them once a development is under construction or in place.

It is anticipated that the Guidelines will further promote and enhance the effective incorporation of HIA into environmental and planning impact assessment generally and as a consequence improve moves towards sustainability.

Health Impact Assessment can be used in the policy development process using the same general principles as within environmental impact assessment. Further, Health Impact Assessment can be employed outside government where community activities affect sustainability. The Triple Bottom Line (TBL) reporting system provides a framework for organisations to check that they integrate economic, environmental and social considerations into their activities. Health Impact Assessment is a tool for gathering information for such integrated reporting.

## **How well are we doing?**

Over the intervening years since Rio, local governments have received increasing responsibility for environmental and social programs but without a concomitant review of their institutional or financial capacity to deal with these matters. The ICLEI analysis of local governments during the period 1992-1996 concluded that local government impacts have been greatest in areas of institutional development, public participation and improved management systems, but there has been little dramatic improvement in social and environmental trends. ICLEI concluded that:

- sustainable development strategies are generally isolated from the municipal planning, budgeting, land use and economic development activities resulting in little change to urban development;
- national governments have handed down responsibilities for social development and environmental planning to local governments without a concomitant access to new revenues resulting in increasing financial burden on local governments;
- reduced or poor national regulation of economic activities has weakened the ability of local government to force industry and other institutions to be more accountable for the impacts of their activities;
- governments at all levels maintain networks and frameworks that inhibit effective resource use and development at a local level; and
- minimal incentives exist to force accountability for and commitment by larger corporations to local sustainable development activities (ICLEI, 1997).

In addressing some of the local efforts in Australia, which have moved towards integration, Brown (1999) provides the following cases:

- Shoalhaven City has tied its structural and development plans to its community's vision for the area;
- The City of the Gold Coast has built on a strong technical Geographic Information System base to consult with key decision-makers and build Council policy in constructing a Local Agenda 21 plan; and
- Sutherland City Council in Sydney has employed a full-time community Ambassador for Local Sustainability to expedite its monitoring process.

The Tweed Shire Council provides another example of the integration of sustainable development principles and environmental health practice. This Council is in northern New South Wales, and has implemented an exercise in managing and improving the Council's environmental and community agenda. Over 500 initiatives that aim to promote sustainability are being carried out under the "Sustaining the Tweed" program. Through these programs, the Council aims to create a balance between environmental concerns, economic growth, social development and quality of life. The objectives of the "Sustaining the Tweed" program are:

- to act as an umbrella for all Council's environmental activities, managing and improving Council's own environmental performance;
- complement and enhance existing programs while concentrating on activities not being addressed by current programs;
- integrate sustainable development into all planning legislation and activities; and
- to involve the general public in the "Sustaining the Tweed" program.

Examples of initiatives within this program include the construction of energy efficient housing, a green waste program, greenhouse gas emission reduction program and reducing the community's reliance on private transport systems.

Canada appears to offer the best example at a national level of achieving some measure of integration of concepts. Health Canada's second Sustainable Development Strategy *Sustainable Health* (2000), builds on the lessons learnt from implementing its first strategy in 1997, and focuses on three priority areas:

- helping to create healthy social and physical environments;
- integrating sustainable development into Departmental decision-making and management processes; and
- minimising the environmental and health effects of the Department's physical operations and activities.

A significant aspect of the Canadian model is the requirement for all federal government departments to develop and lodge sustainable development action plans. This, and placing the responsibility for overseeing sustainable development plans in the Department of the Auditor General, gives the concept of sustainability a strong platform from which to be implemented. Health Canada has recognised the primary importance of establishing sustainable health indicators. In addition, they have made a resource commitment to researching and implementing best practice in the field rather than relying on individuals to automatically know what current best practice is.

## **Business and Sustainability**

Businesses are increasingly facing a new set of societal expectations, including the need to contribute to moves toward a more sustainable future through giving adequate attention to social and environmental responsibility.

Globally, the World Business Council for Sustainable Development (WBCSD) represents about 160 larger international companies working together to provide leadership for businesses to move toward sustainability through balanced attention to economic growth, ecological balance and social progress. The WBCSD encourages high standards of environmental management in business; encourages business leadership; undertakes policy development to create a sustainability framework for business; shares best practice; and has developed a global collaboration network. The Council's work program includes:

- improving the effectiveness and relevance of sustainable development reporting (triple bottom line reporting);
- corporate social responsibility;
- energy and climate;
- natural resources; and,
- working directly with particular sectors (mining/metals, electricity, financial, forestry etc).

In addition, the International Business Leaders Forum is a not-for-profit organisation that promotes international leadership in responsible business practices, to benefit business and society. Founded in 1990 as a personal initiative of HRH The Prince of Wales, the Forum works in over 60 countries and has a membership of more than 60 multi-national companies. The Forum works strategically with leaders in business, civil society and the public sector in transition and emerging economies in order to achieve social, economic and environmentally sustainable development.

Specific examples of business involvement with sustainability in Australia include:

- The national Business Leaders' Forums on Sustainable Development (3<sup>rd</sup> Forum held February 2002);
- The Australian Chamber of Commerce and Industry Eco-efficiency Agreement with Environment Australia to promote increased efficiency, cleaner production and improved waste management;
- A number of larger companies sponsoring seminars promoting the link between business and sustainability (national and international speakers);
- Collaborations with state and territory governments, such as:
  - the Western Australia Sustainable Industry Group (a member of the WBCSD regional network); and
  - the Premier's Business Sustainability Awards, to recognise groundbreaking business innovation that promotes sustainable development in Victoria;
- Australian corporations working with Earthwatch (an international NGO that promotes the sustainability of the world's natural and cultural heritage) to develop skills and competencies within their organisation to improve understanding and new ways of thinking about sustainability and the environmental and social impacts of a company's operations;
- The sustainable Energy Industry Association promoting greater use of sustainable energy technologies;
- The Sustainability Conference managed by the Shire of Yarra Ranges and Swinburne University in 2001. The conference provided the forum for demonstrating to the regional community the business case for sustainability. Businesses involved in the Conference committed to becoming the founding members of a regional business sustainability network;
- The City of Melbourne maintaining the Melbourne Sustainable Business Directory as a free source of information on businesses in metropolitan Melbourne that are contributing to a more sustainable world (either through the services they offer or the way they conduct their business);
- The National Farmers Federation working with governments and NGOs to promote environment protection and biodiversity conservation and the sustainable use of Australia's water resources; and
- Westpac Banking Corporation and Monash University were the inaugural winners of the Banksia Environmental Foundation Award for Socially Responsible Investment in 2001. The award recognises innovation and leadership in the field of socially responsible investment practices and services;

## **CHAPTER THREE**

### **Facilitating the Integration of Sustainable Development Thinking into Environmental Health Practice**

*An ethical principle of sustainable development is the Proximity Principle, which states that environmental problems should be solved as near to their source as possible*  
(Earth summit 1992)

The changing nature of environmental health practice has led to a greater focus on global issues such as climate change, urbanisation and biological diversity. Application of standards and regulations to design of the built environment is no longer sufficient. The direct and indirect effects from social inequalities, environmental degradation and industrial activity have compounded environmental health management issues.

If environmental health professionals are still using old tools such as legislative controls to manage emerging challenges in a new social environment, they are missing opportunities to harness the power of partnerships to find integrated solutions and synergies in action. To successfully use the sustainable development model to improve environmental health practice, we need more information on the consequences of environmental health problems on the social and economic status of a community.

#### **Leadership**

Leadership for environmental health professionals in the context of the multitude of stakeholders and players, is required to facilitate the use of sustainable development as a tool for better environmental health practice. Environmental health practitioners can take the lead in working with other sectors for an integrated push for sustainable outcomes.

#### **Partnerships**

The development of partnerships is identified as an important strategy as integrating sustainable development principles and environmental health practice is a shared responsibility. Community groups, government agencies and other stakeholders, including industry, must be involved in this integration, not only to ensure a match between local needs and priorities, but because participation itself promotes health.

As was noted by World Commission for Economic Development (WCED) in 1987, "Co-operation between governments and industry would be further facilitated if they established joint advisory councils for sustainable development - for mutual advice, assistance, and co-operation in helping to shape and implement policy, laws and regulations for more sustainable forms of development." The development of an "integrated view of ecologically sustainable health" by government would create a fertile ground for fostering co-operation within government and between government, industry and the community.

### **Across governments and sectors**

A whole of government approach is advocated to increase partnerships, and overcome any previously failed attempts at integrating sustainable development and environmental health practice.

In Australia, all governments are responsible for the implementation of ESD principles. As the national government, the Commonwealth has an added responsibility to provide leadership and, to date, has accepted significant management responsibilities for facilitating and implementing ESD. In conjunction with other Australian governments, the Commonwealth has implemented several initiatives, eg the NSESD. Many of the activities requiring national coordination are implemented by State, Territory and, in some cases, Local Governments.

The State and Territory Governments administer around 150 separate pieces of environmental legislation. Furthermore, local governments have a considerable influence on environmental management as they undertake the majority of planning, land use and development decisions, delivery of services such as waste management, pollution and noise control, and management of parks and gardens (Productivity Commission, 1999).

Recently Commonwealth legislation, through the EPBC Act 1999, provides a national framework for environment protection through a focus on protecting matters of national environmental significance and the conservation of Australia's biodiversity. State and Territory assessment processes can be accredited if they meet benchmarks set out in the Act, but the Commonwealth Environment Minister grants the environmental approvals.

Canada created a Commissioner of the Environment and Sustainable Development (CESD) in 1994, and the Government recommended three initiatives. These initiatives included:

1. Amendment of the *Auditor General Act* to provide for the Commissioner position and a requirement that all Ministers table in Parliament, sustainable development strategies for their Departments;
2. Encouragement of openness, transparency and leadership to ensure that departments prepare their sustainable development strategies in consultation with external stakeholders; and
3. Integration of the environment in the development of new initiatives and continuous identification of barriers and disincentives to sound environmental practices in existing policies, programs, laws and regulations.

In 1999, the CESD released a report that acknowledged that Environment Canada, in partnership with other federal departments and provincial and territorial governments, has moved far in addressing many of the CESD's recommendations for sustainable development. A key strategy of the Canadian approach was placing the responsibility for SD in an overarching area that is within the Department of the Auditor General rather than a single sector. One of the key tools used to advance sustainable development is the implementation of Sustainable Development Strategies (SDSs).

## Implementation

The issue of jurisdictional divide has also been identified as a potential barrier to successful integration of sustainable development thinking into environmental health practice. There is a lack of clarity regarding what sustainable development and environmental health means for government policy. Sustainable development is often equated with the environment, which has led to compartmentalisation or the complete absence of sustainable development on broad policy agendas.

Supportive policy development should be at all levels of government, and the major influences on policy at each of these levels needs to be fully understood and implemented.

### Information on which to develop policy

High quality and relevant information is needed to ensure effective decision-making in environmental health practice. Evidence based decision-making should be promoted, involving disseminating what evidence is available, developing sustainable environmental health indicators and investigating the potential for an environmental health surveillance system. The limited accessibility of information using environmental health indicators has been identified as a barrier to the successful integration of the sustainable development model into environmental health practice.

The NHMRC asserted in 1992 that “good planning depends on good data. The systematic identification, development, analysis and monitoring of agreed environmental health indicators is necessary, and provision must be made at regional, national and international levels for the collation and sharing of data.” Environmental health indicators may have a fundamental role in the integration of sustainable development and environmental health practice.

Corvalan, Briggs and Kjellstrom (1996) describe an environmental health indicator as “an environmental indicator or a health indicator **plus** a known environmental-exposure health-effect relationship.” “To be useful, the environmental health indicator must relate to aspects of environmental health which are both of relevance to the decision-maker and amenable to control.” “Providing information in a form useful for decision-makers requires the *selection* of relevant information, the *translation* of this information into a consistent and coherent form, and the *presentation* of the information in an accessible and acceptable manner.” (Corvalan, Briggs, Kjellstrom, 1996)

DoHA and the enHealth Council are currently developing a core set of environmental health indicators for Australia. The indicators are being developed through consultation with key stakeholders at all jurisdictional levels. When finalised, the indicators will report on core environmental health issues and provide for greater consistency in the collection and analysis of data and subsequent reporting. The core set of indicators is expected to be recommended to stakeholders by late 2003.

## Legislative Framework

In their 1997 review of public health law in Australia, Bidmeade and Reynolds (1997) concluded that:

*The interdependence of public health and environmental protection should be strongly emphasised in governmental practice and decision making, and the dichotomy between the two should not be allowed to exist. We believe that administrative and operational links between the two areas should be explored and developed.*

While this seems obvious, it is not current practice. There needs to be an increased acknowledgment of the roles of environmental protection in environmental health legislation, and of both public and environmental health in environmental legislation.

Any current legislation that is grounded in sustainable development principles, such as the *Environmental Protection Act 1994* (Qld), should link health outcomes to environmental outcomes so as to maintain and improve the environmental health of populations. Canada's Sustainable Development Strategy may be a useful model upon which to reflect. Under the *Canadian Environmental Protection Act*, Health Canada has responsibility for protecting the health of Canadians from the effects of environmental pollution. The Minister of Environment and the Minister of Health share responsibility for this Act, and both Ministers are responsible for key decisions concerning risk assessment and management of toxic substances, thus reflecting the important link between environmental and human health protection.

Health Impact Assessment (HIA) is a broad concept that extends from a component of Environmental Impact Assessment required by legislation to consideration of health impacts when making government policy decisions. HIA is currently the focus of considerable international interest and for example, in Canada, HIA has effectively been defined as environmental health impact assessment (EHIA) and has provided valuable information on the health elements of the environmental assessment process. There has also been increasing attention on how it can be most effectively incorporated into broader government activities.

The need for HIA to be incorporated explicitly into environmental or economic decision making process was strongly endorsed by the National Health and Medical Research Council (NHMRC) in 1994 when it published a report on *National Framework for Environmental and Health Impact Assessment*.

The National Environmental Health Strategy includes a commitment to strengthening HIA processes and practices. Tasmania has introduced a formal requirement for HIA. Under Tasmania's *Environmental Management and Pollution Control Act 1994*, all significant proposed developments must have their potential health impacts assessed, in accordance with requirements of the Director of Public Health.

The enHealth Council released the document *Health Impact Assessment - Implementation Guidelines* in 2001 to give guidance for improving integration of HIA within Environmental Impact Assessment. The National Public Health Partnership's Legislation Reference Network is working on another document *Health Impact Assessments – Incorporating Environmental Health into Environmental Protection Legislation*.

An issue that could be progressed quickly is the integration of health impact assessment (HIA) into environment impact assessment (EIA) legislative requirements in every State. Access to funding to effectively achieve this would be an advantage. Best practice guidelines for the performance of HIA during the EIA process, and the adoption of these guidelines as a formal part of the EIA process would overcome these shortcomings. The recent Tasmanian legislation concerning EIA and HIA – which is referred to in both the Public Health and the Environment Acts - may be a useful starting point for discussion.

## **Skills and awareness raising**

Agenda 21 stresses the need to teach environmental health in secondary schools and universities so as to train professionals in this field.

Mention is made of the need to strengthen the skill base of environmental health professionals to include amongst other things, a better understanding of the core principles of sustainable development and parallel issues such as the new public health and environmental health implications of decision making. In general, commentary focuses on the value of the concept of sustainability – its flexibility and utility, and the difficulties of the concept, including the amount of jargon affiliated with it, and the inability to precisely define actions and outcomes.

People within their professional role do not automatically consider sustainable development principles. Ongoing professional development, short courses and a review of undergraduate program curriculum are possible avenues to rectify this.

Inclusion of sustainable development thinking in decision making for environmental health involves practitioners in working with others through a change process. Practitioners will therefore need skills in change management. There are numerous publications and courses on the essential of change management that could be applied to the desired process. Grootjans (2002) describes the P4D4 decision-making framework that can be used as a guide in the management of change, such as the redesign of university curricula.

## **Research in Sustainable Development & Environmental Health**

One of the keys to improving environmental health outcomes is a strong research effort, both basic and applied, that is directed not only at scientific and technological matters, but also to such areas as management systems and service delivery. In addition, research is vital for developing the capacity to identify and effectively respond to newly emerging hazards, and to provide the evidence base for best practice environmental health management.

## **Community**

The integration of sustainable development principles and environmental health practice requires collaboration at all sectors, including effective communication channels and public participation. The community needs to understand the issues at hand and have a sense of ownership, to enable both themselves and future generations to live in a safe and healthy environment.

An international study to measure public perception on the links between the environment and health found that a majority of people in all but one of the 17 countries studied believed that environmental problems now affect their health (International Research Institute, 1999). Community perception of environmental health issues is increasing, and the community must be provided with appropriate information and be given the opportunity to participate at all levels of policy development and decision making (NEHS, 1999). The Australian Charter for Environmental Health contained within the NEHS reiterates these points. The Environmental

Health Risk Perception in Australia Survey reports on the perceived risks to health of a large number of hazards in the environment, people's views about who has responsibility for protecting the public from these health hazards, and whether these responsibilities have been met (enHealth Council, 2000).

Local government has been identified as an important service provider for environmental health. In many cases local governments already work in sustainable development, but a consistent approach is needed. Reuniting and strengthening the environmental health and sustainable development responsibilities under Local Government leadership and allowing Local Government to legitimately develop a broad scope to achieve this is necessary. Support to ensure this occurs is needed.

General information and community education about sustainable development and environmental health and how they can contribute to a better world for children and grandchildren is a further strategy.

## **Appendix One:**

### **First International Congress on Integrating Sustainable Development and Environmental Health Practice**

The Queensland University of Technology hosted the First International Congress on Integrating Sustainable Development and Environmental Health Practice in 1999 during its International Summer School program. The Congress attracted participants from around Australia and the world, with visitors from Mozambique, New Zealand, Vanuatu, Papua New Guinea, United Kingdom, Korea, Canada and China. A copy of the conference program is attached as Appendix Four.

The Congress included four key international speakers on sustainable development and environmental health, including:

- Professor Anthony McMichael : Department of Epidemiology and Population Sciences - London School of Hygiene and Tropical Medicine;
- Professor Yung Chung : Yonsai University, Seoul (formerly Director-General of National Institute of Environment Research, Ministry of Environment, Korea);
- Dr Andrew Gilman : Director of Sustainable Development, Health Canada, and
- Mr Ian MacArthur : Chartered Institute of Environmental Health and WHO Collaborating Centre on Environmental Health Management (UK).

The Congress included five main themes for discussion and subsequently, a number of national speakers were invited to present theme papers at this Congress. The theme topics and speakers included:

- Natural and built environment : Associate Professor Rod Simpson - Griffith University;
- Strategies for a sustainable and healthy environment : Professor Valerie Brown - University of Western Sydney;
- Sustainable economics : Mr Gary Stoneham - Victorian Department of Environment and Natural Resources;
- Social, cultural and community perspectives on sustainable development : Ms Lily O'Hara - President of the Australian Health Promotion Association; and
- Sustainable food : Dr Joe Baker - Department of Primary Industries.

### **Post Congress Workshop**

The Congress (1999) was followed by a two-day intensive workshop. Invitations were forwarded to a range of academics and practitioners from industry, universities and all three levels of Government. A list of workshop attendees is outlined in Appendix Three.

Five strategic issues were identified in the workshop as key management areas. These strategic issues include:

- Leadership;
- Policy;
- Skills and Awareness;
- Supportive environments; and
- Community.

The list of plenary key speakers included some well-known Australians such as:

- Professor Michael Moore - National Research Centre for Environmental Toxicology (mirrored Tony McMichael);
- Mr Rod Williams - Brisbane Water (mirrored Yung Chung);
- Professor Christine Ewan - Chair of enHealth Council; and
- Dr Neil Byron - Productivity Commission (mirrored Andrew Gilman).

The total number of delegates at the Congress was 141.

## Appendix Two

### Focus Group Participants (part of information gathering 1999 – 2000)

Focus Group	Participant	Affiliation
<b>Adelaide</b>  Facilitator - Anne Neller Notetaker - Belinda Tassone	Andrew Langely	A/Director Environmental Health Branch, Department of Human Services SA
	Belinda Tassone	Scientific Officer, Environmental Health Branch, Department of Human Services SA
	Maggie Hines	Local Agenda 21 Coordinator, Department of Environment and Heritage
	Andrew Lothian	Policy Adviser, Department of Environment and Heritage
	Shiela Brown	Smog Busters Project Officer, Conservation Council of South Australia.
	Naomi Goodman	Stormwater Protection Officer, City of Adelaide
	Jack Darzanos	Principal Health Officer, Adelaide City Council
	Chris Kavanagh	Coordinator of Environmental Health, City of Marion
	Sue Dunn	Health Development Officer for Physical Activity, Heart Foundation
<b>Brisbane</b> (Government - Health Sector)  Facilitator - Anne Neller Notetaker - Dot Kelly	Jim Dodds	Manager, Environmental Health Unit of Queensland Health
	Gary Photinos	Environmental Health, Redland Shire Council
	Gerard Neville	Senior Medical Officer, Environmental Health Unit, Queensland Health
	George Hapgood	Communicable Diseases Unit, Queensland Health Department
	Michael Tilse	Health Promotion Unit Queensland Health Corporate Office.
	Paul Florian	Environmental Health Unit, Queensland Health Corporate Office
	David Logan	Director of Environmental Health, Brisbane Southside Public Health Unit.
	Thomas Tenkate	Acting Director of Environmental Health of the Brisbane Northside Public Health Unit.
<b>Brisbane</b> (Whole of Government)  Facilitator - Anne Neller Notetaker - Dot Kelly	Michael Ball	Public Works, Building Division, Build Environment Research Unit
	Jim Dodds	Manager, Environmental Health Unit of Queensland Health
	Michael Dart	Environmental Health and Waste Management policy, Local Government Association of Queensland
	Paula Thompson,	Department of Family, Youth and Community Care in Queensland in the Social Impact Assessment Unit.
	Paul Florian	Environmental Health Unit, Queensland Health Corporate Office
	David Strain	Central Public Health Unit, Queensland Health
	David Larkings	Food Services Section, Environmental Health Unit, Queensland Health
	Lily O'Hara	University of the Sunshine Coast
	Rosemary Karas	Department of State Development

<b>Brisbane</b> (Academics/researchers)	Ian Lowe	Professor, Griffith University
	Michael Moore	Director, National Research Centre for Environmental Toxicology
	Elizabeth Baker	Faculty of Science, University of the Sunshine Coast
	Pamela Dyer	Faculty of Arts, University of the Sunshine Coast
	Arthur Brownlea	Emeritus Professor, Griffith University
	Brendan Callen	Queensland University of Technology
	Peter O'Rourke	Department of Social & Preventive Medicine, University of Queensland
	Zoe Murray	School of Public Health, Griffith University
	Cordia Chu	School of Public Health, Griffith University
	Bruce Hooper	Dept. of Geography & Planning, University of Queensland
	Mike Capra	School of Public Health, Queensland University of Technology
<b>Sydney</b> (University of Western Sydney)  Co-Facilitators - Anne Neller and Valerie Brown	Valerie Brown	Chair in Environmental Health, UWSH
	Esther Chang	Dean, Faculty of Health, UWSH
	Yit Yok Heung	EH Research Centre, Kuala Lumpur and MAS student, UWSH
	Asmaliza Ismail	EH Research Centre, Kuala Lumpur and PhD student, UWSH
	Mazrura Sahani	EH Research Centre, Kuala Lumpur and PhD student, UWSH
	Annette James	lecturer in EH, UWSH
	Zina O'Leary	lecturer in EH, UWSH
	Peter Stephenson	lecturer in EH and research officer, Indigenous Communities' EH Research and Development Program, UWSH
	Rosemary Nicholson	Lecturer in EH, UWSH
	Brent Powis	Senior lecturer and Director, WHO Collaborating Centre for EH, UWSH
<b>Perth</b>  Facilitator - Anne Neller Notetaker - Ron Neller	Owen Ashby	Manager, Applied Environmental Health, Health Department, WA AIEH National President
	Phil Swain	Manager Health Services, City of Nedlands,
	Angas Hopkins	Department of Conservation and Land Management
	Vic Andrich	International Federation of Environmental Health
	Elizabeth Cox	Manager, Corporate Projects City of Stirling
	Elaine Lindars	Curtin University of Technology
	Lillias Bovell	Policy Manager, Western Australian Municipal Association
<b>Darwin</b> (PHAA Conference)  Facilitator - Anne Neller Notetaker - Dot Kelly	Jan Ritchie	Senior Lecturer, Centre for Public Health, University of New South Wales.
	Xavier Schobben	Acting Director, Environmental Health Unit, NT
	Phil Donohoe	Environmental Health, Darwin
	Peter Tait	General Physician, Aboriginal/Indigenous Communities - Alice Springs

<b>Hobart</b>  Facilitator - Anne Neller Notetaker - Melissa Stoneham (QUT)	Scott Burton	Senior Adviser and Health Officer with the Department of Health and Community Services
	Adele Gliddon	National President, Australian Institute of Environmental Health
	Mark Jacobs	Director of Environmental and Public Health, Dept. of Community and Health Services.
	Alistair Dewells	Tasmanian State of the Environmental Unit
	Sarah Boyle	Transport Division in the Department of Infrastructure and Energy Resources.
	Edna.	Manager of Environment for the Smelter
	James Rundell	Environmental Consultant, Hydro Electric Corporation, environmental services group
	Frank Copella	Manager, Environmental Operations, Department of Primary Industries.
	Sue Moir	State Health Coordinator of Environmental Health, Dept. of Community and Health Services.
John Todd	University of Tasmania, Statistical and Environmental Studies	
<b>Melbourne</b>  Facilitator - Anne Neller Notetaker - Melissa Stoneham (QUT)	Irene Baker	Environmental Protection Agency (Atmospheric and Energy Policy)
	Trevor Blake	Department of Infrastructure (Planning Policy)
	Ian Thomas	Royal Melbourne Institute of Technology
	Brian Kirby	Environmental Health Unit Department of Human Services
	Jan Bowman	Manager, Environmental Health Unit, Department of Human Services
	Frank Fischer	Monash University (Grad School - Environment)
	Anne Geschke	Environmental Health Unit Department of Human Services

## Appendix Three

### List of Post-Congress Workshop Attendees

Dr Cordia Chu	Griffith University
Paul Florian	Queensland Health
Ass Prof Mike Capra	Queensland University of Technology
Melissa Stoneham	Queensland University of Technology
Jim Dodds	Queensland Health
Marcelino Lucas	Ministry of Health : Mozambique
Prof Ian Lowe	Consultant
Prof Tony McMichael	Department of Epidemiology and Population Sciences - London School of Hygiene and Tropical Medicine
Ian MacArthur	Chartered Institute of Environmental Health - UK, and WHO Collaborating Centre of Environmental Health Management (UK).
Dr Andy Gilman	Health Canada
Dr Mark Jacobs	Tasmania Health
Dr Steve Corbett	NSW Health
Dr Roscoe Taylor	Rockhampton Public Health Unit
Prof Michael Moore	National Research Centre for Environmental Toxicology
Dr Anne Neller	University of Sunshine Coast
Dr Ron Neller	University of Sunshine Coast
Lily O'Hara	Australian Health Promotion Association
Ass Prof Peter O'Rourke	University of Queensland
Prof Christine Ewan	University of Wollongong, Chair of enHealth
Prof Valerie Brown	University of Western Sydney
Brendan Callen	Health Department - Victoria
Brian Kirkby	Health Department - Victoria
Evan Thomas	Gold Coast City Council
Gary Stoneham	Victoria Dept of Environment
Prof Yung Chung	Yonsei University - Korea
Rick Williams	Gold Coast City Council
Vic Andrich	Western Australia (Local Government)
Michael Skinner	Commonwealth Department of Health and Aged Care
Ms Sharon Tuffin	Commonwealth Department of Health and Aged Care
Dr Kevin Buckett	Commonwealth Department of Health and Aged Care
Clare Bailey	Australian Institute of Environmental Health (Qld Div)
Michael Dart	Local Government Association Of Queensland
Tim Strickland	Queensland University of Technology
Keith Halford	Incitec
Dr Shilu Tong	Queensland University of Technology

## Appendix Four

### Environmental Health Core Values

Environmental health is focused upon the impact that the environment has upon the health status of the population. Guest, Douglas, Woodruff, and McMichael (1999) enumerated eight propositions that outline the relationship between the environment and public health (refer Table 1).

<b>Table 1</b>	
<b>Proposition</b>	<b>Relationship Between The Environment and Public Health</b>
1	The health of human populations, especially over decadal time, depends fundamentally on the quality of the environment in which they reside and upon the capacity of the surrounding environment to provide goods and services.
2	In the industrialised countries basic improvements in housing, sanitation, fuel use and nutrition have been responsible for dramatic improvements in public health and life expectancy over the past 150 years.
3	The environmental pressures arising from continued population growth, economic globalisation, industrialisation and the spread of consumerism are now causing large-scale changes to the ecosystems of the planet.
4	Protection of the environment and its ecosystems is a fundamental public health strategy for promoting wellbeing and preventing illness
5	Historically, an anthropocentric view of the world has predominated...(and) is still integral to today's prevailing model of economic growth (and) has lead recently to extensive environmental degradation.
6	To halt further environmental degradation will require us to shift from policies that limit and ameliorate pollution to policies that will prevent it.
7	Many of the world's environmental and health problems are exacerbated by social, economic and other inequalities as contributing factors
8	To sustain the world's health gains of recent decades will necessitate the reorientation of social policies towards sustaining the environment - and its support systems for human health and well-being.

Table 1: Propositions for the Relationship between Environment and Public Health. (Guest, Douglas, Woodruff, and McMichael, 1999).

The Chartered Institute of Environmental Health (1997) developed five principles of environmental health that aim to guide the most progressive thinking within the professions which are found within environmental health practice, and to form a foundation for a new environmental health framework. Those principles of environmental health include:

- prevention is better than cure;
- promoting intersectoral collaboration and partnerships;
- reducing inequalities in environmental health;
- securing civic participation and engagement; and
- integrating sustainable development and environmental health practice.

## Appendix Five

### Selected Topics and related websites on Environmental Health Impacts

#### Transport

- impact of transport on health
  - [http://www.euro.who.int/eprise/main/who/progs/hcp/UrbanHealthTopics/20020107\\_1](http://www.euro.who.int/eprise/main/who/progs/hcp/UrbanHealthTopics/20020107_1)
  - <http://bmj.com/cgi/content/full/318/7199/1686?ijkey=R67miHqwPO02Q>
  - [http://www.euro.who.int/transport/MainActs/20010904\\_4](http://www.euro.who.int/transport/MainActs/20010904_4)
  - <http://www.isde.org/>
  - <http://www.psr.org/breathe.htm>
- air pollution
  - respiratory disease
    - [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=retrieve&db=pubmed&list\\_uids=11022926&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=retrieve&db=pubmed&list_uids=11022926&dopt=Abstract)
  - cardiovascular disease
    - <http://www.arb.ca.gov/research/cardio/cardio.htm>
  - cancer
    - <http://healthyamericans.org/resources/factsheets/index.php?ID=16>
- global warming
  - <http://www.greenhouse.gov.au/transport/index.html>
  - <http://www.greenhouse.gov.au/pubs/ngs/factsheets/mod5.html>
  - <http://www.acfonline.org.au/asp/pages/document.asp?IdDoc=1040>
- road accidents
  - <http://www.atsb.gov.au/road/stats/pdf/rfa2001.pdf>
- sleep disturbance
  - <http://www.scotland.gov.uk/library/pan/pan56-17.htm>

#### Water Use and Quality

- availability
  - [http://audit.ea.gov.au/anra/water/docs/national/Water\\_Availability.html](http://audit.ea.gov.au/anra/water/docs/national/Water_Availability.html)
  - <http://www.ea.gov.au/water/quality/waterdryland.html>
- management
  - <http://www.ea.gov.au/soe/2001/inland/index.html>
  - <http://www.ea.gov.au/water/policy/index.html>
  - <http://www.waterwatch.org.au/welcome.html>
  - [http://www.catchment.crc.org.au/focus\\_cat/](http://www.catchment.crc.org.au/focus_cat/)
- use
  - [http://audit.ea.gov.au/anra/water/docs/national/Water\\_Use.html](http://audit.ea.gov.au/anra/water/docs/national/Water_Use.html)
- quality
  - [http://audit.ea.gov.au/anra/water/docs/national/Water\\_Quality.html](http://audit.ea.gov.au/anra/water/docs/national/Water_Quality.html)
  - <http://www.waterquality.crc.org.au/>

- **drinking water guidelines**  
<http://www.waterquality.crc.org.au/guide.htm>  
[http://www.who.int/water\\_sanitation\\_health/Water\\_quality/drinkwat.htm](http://www.who.int/water_sanitation_health/Water_quality/drinkwat.htm)
- **salinity**  
<http://www.ea.gov.au/soe/2001/fact-sheets/salinity.html>  
[http://www.ndsp.gov.au/05\\_about\\_the\\_NDSP/about\\_the\\_NDSP.html](http://www.ndsp.gov.au/05_about_the_NDSP/about_the_NDSP.html)
- **effects of contaminants**  
<http://www.psr.org/DWATER.HTML>  
<http://www.psr.org/toxics.html>  
<http://www.epa.gov/OGWDW/mcl.html>  
<http://www.cyber-nook.com/water/concerns.html#pregnancy>

## **Waste**

- **management strategies**  
<http://www.nohsc.gov.au/OHSInformation/Databases/PracticalGuidanceMaterial/t/003564.htm>  
<http://www.safesci.unsw.edu.au/gens8005/module9/disposal.htm>
- **hazardous waste**  
<http://www.epa.gov/international/toxics/pop.pdf>  
<http://www.ea.gov.au/about/annual-report/01-02/pubs/reports-hazardous.pdf>  
<http://www.ea.gov.au/commitments/uncsd/csd1994/part3-4.html>  
<http://ipen.ecn.cz/>  
<http://www.isde.org/>
- **health-care waste**  
[http://www.who.int/water\\_sanitation\\_health/Environmental\\_sanit/MHCWHanbook.htm](http://www.who.int/water_sanitation_health/Environmental_sanit/MHCWHanbook.htm)  
<http://www.who.int/inf-fs/en/fact253.html>
- **water-borne diseases**  
<http://www.prostarwater.com/water-pollution-articles.html>  
[http://www.jhuccp.org/pr/m14/m14chap5\\_1.shtml](http://www.jhuccp.org/pr/m14/m14chap5_1.shtml)
- **recycling**  
<http://www.ea.gov.au/industry/waste/index.html>  
[http://www.arrnetwork.com.au/pls/workplace/sb\\_sab.main](http://www.arrnetwork.com.au/pls/workplace/sb_sab.main)

## **Electricity generation (coal-burning power plants)**

- **use in electricity generation**  
<http://www.greenhouse.gov.au/lgmodules/wep/supply/information/coal.html>  
<http://www.aph.gov.au/library/pubs/rp/2000-01/01RP08.htm#major>  
<http://www.ieej.or.jp/aperc/o/Australia.PDF>
- **greenhouse emissions**  
<http://www.greenhouse.gov.au/education/what.html>  
<http://www.greenhouse.gov.au/lgmodules/wep/supply/information/coal.html>  
<http://www.greenhouse.gov.au/inventory/2000/trends/trendsstatenergy2000.html>
- **health effects**  
[http://sol.crest.org/efficiency/joe\\_romm/health/main.html](http://sol.crest.org/efficiency/joe_romm/health/main.html)  
<http://www.who.int/dsa/cat98/env8.htm#Climate Change>  
<http://www.smfrancis.demon.co.uk/airwolv/23health.html>  
<http://www.olmstedcounty.com/docs/Medical%20literature%20regarding%20coal%20dust%20exposures%20.pdf>

<http://www.nutramed.com/environment/particles.htm>  
<http://www.psr.org/ChildrenatRisk.pdf>

- sustainable energy  
[http://www.greenhouse.gov.au/ago/annual-report/2000-01/output3\\_sustainable\\_energy.html](http://www.greenhouse.gov.au/ago/annual-report/2000-01/output3_sustainable_energy.html)  
<http://www.ata.org.au/>  
<http://www.greenhouse.gov.au/renewable/index.html>  
F:\pdfs\w67.pdf  
<http://www.greenpower.com.au/>

## Clinical practice

- improvements to health  
<http://www.acfonline.org.au/docs/publications/tp002.pdf>  
<http://www.drs.org.au/policies/policy13.htm>  
<http://www.cehn.org/>  
<http://www.inchesnetwork.org/>
- medical waste
  - reduction  
<http://www.p2pays.org/ref/04/03123.htm>  
<http://www.ecorecycle.vic.gov.au/>
  - disposal  
<http://www.healthcarewaste.org/>  
<http://www.who.int/inf-fs/en/fact253.html>  
<http://psr.igc.org/hcwh.htm>  
[http://www.who.int/water\\_sanitation\\_health/Environmental\\_sanit/MHCWHanbook.htm](http://www.who.int/water_sanitation_health/Environmental_sanit/MHCWHanbook.htm)

## Agriculture

- sustainability issues  
<http://www.sarep.ucdavis.edu/concept.htm>  
<http://www.acfonline.org.au/docs/publications/bk01.pdf>  
<http://www.banrockstation.com.au/au/about.asp?UID=0.533424>  
<http://www.msu.edu/user/dunnjef1/rd491/project.htm>
- impacts of climate change  
F:\pdfs\impacts2001.pdf  
<http://www.globalchange.org/featall/2000winter2.htm>  
<http://www.fao.org/NEWS/1997/971201-e.htm>  
[http://iisd.ca/pdf/agriculture\\_climate.pdf](http://iisd.ca/pdf/agriculture_climate.pdf)
- pesticides  
<http://www.epa.gov/pesticides/food/>  
<http://www.pesticides.gov.uk/>  
<http://www.pesticideinfo.org/index.html>  
<http://www.nlm.nih.gov/medlineplus/pesticides.html>

## The Home

- health issues
  - indoor air  
<http://www.epa.gov/iaq/ia-intro.html>  
<http://www.wri.org/wri/wr-98-99/airpoll.htm>

<http://infoventures.com/osh/abs/resp0003.html>  
<http://www.osha-slc.gov/SLTC/indoorairquality/>

- reducing impacts
  - energy efficient homes
    - <http://www.energyrating.gov.au/>
    - F:\pdfs\w67.pdf
    - <http://www.abcb.gov.au/content/energy/>
    - <http://www.seda.nsw.gov.au/>
    - <http://www.greenhouse.gov.au/household/>
  - residential design
    - <http://www.greenhouse.gov.au/coolcommunities/motivating/always.html>
    - <http://www.greenhouse.gov.au/yourhome/technical/fs33.htm>
    - <http://www.greensmart.com.au/>
  - watering gardens
    - [http://www.brisbane.qld.gov.au/home\\_garden/water\\_sewerage/water\\_conservation/more\\_waterwise/garden.shtml](http://www.brisbane.qld.gov.au/home_garden/water_sewerage/water_conservation/more_waterwise/garden.shtml)

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