

DEPARTMENT OF HEALTH AND AGED CARE

ENVIRONMENTAL HEALTH AND ECOLOGICALLY SUSTAINABLE DEVELOPMENT

There is a growing understanding that good health and well being are linked with the state of the environment. People need protection from hazards in their environment that pose a risk to their health. In addition, 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. The concept of environmental health, with its focus on hazard identification, risk assessment and risk management is critical in public health efforts to maintain health and prevent illness and underpins the basic concept of sustainable development.

The environment agencies have responsibility for managing environmental issues and they have largely had carriage of implementation of ecologically sustainable development in Australia. As one of the primary goals of ESD is the maintenance and improvement of total quality of life however, the links with the health sector should be inextricable. The division between health and environment does not work towards maximising ESD throughout Australia.

This is exacerbated by the fragmented management of environmental health issues across three levels of government and many different agencies which acts to diminish the ability to predict and control environmental threats to health. A new and actively collaborative approach is needed to improve our environment and health capacity. A national environmental health strategy is one step in this process as it will provide a unified and strategic approach to environmental health by involving Commonwealth, State/Territory and local government agencies, industry and business, the non-government sector, the health and scientific communities and the general public. However, this is only one step and a raft of approaches to increasing the collaborative efforts between health and environment are needed.

What is environmental health?

Environmental health is a multidisciplinary field ranging from engineering to epidemiology. For the purposes of the strategy we define environmental health as:

Those aspects of human health determined by physical, chemical, biological and social factors in the environment.

Environmental health practice covers the assessment, correction, control and prevention of environmental elements that can potentially adversely affect human health.

This encompasses all measures necessary to deal with the hazards in our environment which threaten human health, such as contaminated water and food, chemical exposures, polluted air and soil, and vector-borne diseases.

Effects of environmental hazards on health

Environmental hazards can impair human health in many ways. Microorganisms are a common threat to human health, particularly through contamination of food or water. Chemicals and radiation can affect health, through short-term toxic effects or longer-term effects (eg the development of cancer many years after exposure). The effects of these hazards on health vary depending on the amount of exposure, the method of exposure (eg whether ingested, inhaled, or through the skin) and the individual exposed.

Almost all human activity has the potential to degrade the environment both locally and globally. ESD, health and the environment are thus completely interdependent both at the local and global levels. To maintain and improve health within ESD it is necessary to identify key environmental issues and sectors which impact on health and to identify, plan, design and implement effective interventions to address these problems.

How is environmental health different from environment protection?

In essence, the environment portfolio is concerned with human impact on the environment. Whereas, the health portfolio is concerned with environmental impacts on human health.

The outcomes of programs in the environment sector often support improved human health and in many instances environmental performance indicators are related to human health outcomes. However, the health sector carries the cost of treatment and care of people exposed to environmental hazards and has an obligation to investigate and set health-based exposure standards to ensure public health and safety. There are times when health standards need to be different from environment standards.

Influences on environmental health in Australia

Environmental health is affected by the combined efforts of a number of sectors of the community. Sometimes this is explicitly recognised, for example, by having specific environmental health units in health departments or by environment protection authorities setting health-based outcomes. Other times, the influence on environmental health is less obvious, for example, the transport industry's impact on air quality, the impacts of economic reform, or the illegal dumping of waste.

In order to be successful, ESD must have health involved early and collaboratively in the development of proposals, policies and interventions. All too often health is seen as just one of the stakeholders and is allowed only limited role through consultation.

Health standards need to underpin policies, impact assessment etc, including those that relate to ESD.

Investing in environmental health

Australia has a strong history of investment in environmental health infrastructure. Our sewerage systems, drinking water treatment systems, waste management programs, and research and technology development, have required a significant investment to reach the **level they** are at today. The relatively high standard of environmental health enjoyed by most Australians is the result of this investment. However, further increases to existing capacity and the development of new infrastructure is needed in order to maintain our current level of health in the face of increasing pressures and a deteriorating environment.

The costs of remediating and fixing problems that arise, and compensating and caring for people affected, can be enormous. The costs of removal of asbestos from buildings, of disinfecting *Cryptosporidium* contaminated pools and of treating the hepatitis cases generated by the Wallis Lake oyster incident are examples. Measures aimed at remediation and repair of management deficits are measures of last resort. Preventing the environmental health problem at the source—through the redesign of production processes, the substitution of less toxic production materials, the screening of new chemicals and technologies before they are introduced, the development of less-polluting transportation systems, etc—is usually a far cheaper, more effective way to reduce environmental health risk and improve health outcomes, especially over the long term.

Legislation and regulation

Legislation and regulations are one of the most important tools used in environmental health management. Legislation and regulations concerning environmental health are complex and are spread throughout a range of Commonwealth, State and Territory acts covering health, environment protection, planning and local government legislation.

The Australian Constitution provides the Commonwealth with a range of specified powers that do not include public health (other than the power to make laws with respect to quarantine). State and Territory governments make laws concerning public health generally and can also make laws empowering and directing local government to conduct **public** health activities. Local government has fundamental roles in implementing and enforcing public health laws, but retains some ability to develop local laws relating to public health and planning matters.

Recently there has been a trend towards cooperative legislation between the Commonwealth, States and Territories to maximise national consistency. Several of these cooperative acts apply to environmental health including legislation covering food safety, radiation management and environment protection. However, there are

many gaps in environment health legislation resulting in inconsistencies across jurisdictions.

For much of this century environmental concerns were addressed through public health laws administered by State/Territory and local government public health authorities. However, the past few decades have seen the emergence of the environment as a separate issue with strengthened environmental legislation administered by environmental protection agencies. Currently environment protection legislation often offers a stronger and wider range of controls and penalties than does public health legislation. However, health's ability to access and use environment legislation is hampered by the lack of cooperation between the sectors and by the lack of explicit acknowledgment of health in environment legislation.

Economic instruments

In a similar fashion to environmental legislation, there are a range of economic and fiscal instruments that affect environmental health outcomes, that originate from the environment sector. The environment sector employs a raft of economic instruments to reduce the impact of development on the environment. These range from penalties associated with legislation, to environmental taxes and levies and deposit charges. There are very few specific examples where such measures are targeted at improving or protecting health directly. However, such measures can often produce a positive health outcome. It is an interesting statement of the priorities set in Australia when a company can be prosecuted and fined for polluting a waterway and affecting the aquatic life, but will often go unpunished for exposing humans to unacceptable risks. As with legislation there needs to be a stronger and more explicit acknowledgment of the health in environment economic instruments.

Linking environmental health and environment protection legislation

While it can be difficult to separate environmental health and environment protection issues, the separation of management of these two areas has seen a weakening in the focus on health as the principal concern of environmental legislation. Environment protection legislation around Australia takes a range of factors into account. However, there is usually little specific reference to public health as a principal concern.

As highlighted in the Ottawa Charter¹:

- Human health and the environment are interdependent.
- Most changes to local or global environment are likely over time to affect human health for good or ill.

Further, the current Intergovernmental Agreement on the Environment, which sets out general principles of environmental impact assessment, emphasises the point that

human health is an issue of relevance in this area Bidmeade and Reynolds in their review of public health law in Australia concluded that:

The interdependence of public health and environmental protection should be strongly emphasised in governmental practice and decision making, and a 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.²

In particular they highlighted the issue of the integration of public health concerns into environmental impact assessment. They recommended that 'public health concerns should be taken account of in the impact assessment process, during the planning stage of developments that might affect health or the environment'.

Environment and health impact assessment

Environmental impact assessment (EIA) has been a feature of the planning process in Australia for the last two decades and has been of benefit by allowing the prediction of potential damage to the environment (eg to the physical environment, the biological environment, the land use and transport systems, noise levels and health levels) by a proposed development.

Throughout most of Australia there is no formal process for examining the health impact of new and existing government policy and many developments with significant potential for adverse health effects proceed with minimal consideration of these possible effects. In order to achieve the goals of ESD it is important that health impact assessment (MIA) be **used to** provide a better appreciation of the human costs and benefits, which should lend both accounting and political power to the EIA process and result in a clearer appreciation of the best decision for the public good.

HIA is not currently mandatory, and few jurisdictions have a formal requirement for HIA as part of the EIA process. Tasmania has taken a lead in Australia with specific legislation. In the rest of Australia, HIA is usually conducted on an ad hoc basis and health assessment simply follows environmental damage and adverse health outcomes. As currently practised, HIA is frequently restricted to assessment of health impacts as a result of hazardous chemicals and radiation, and rarely are other significant determinants of health (eg social factors) considered. In addition, HIA generally does not formally involve environmental health specialists. As such, EIA appears to be no guarantee of minimal health impact. The **incorporation** of HIA in EIA would significantly enhance the validity of decision making.

Environmental health standards

Environmental health standards guide best practice and set expected outcomes in given situations. The aim is to set criteria that, if achieved and maintained, protect the community from exposure to hazards such that there is no unacceptable risk of adverse health outcomes. Standards may be used by State or Territory governments as a basis

for legislative regulation, and can be used by industry, local government and the community to assess and manage environmental health issues. There is no national health legislation for the implementation of standards, so the standards need to be reflected in State or Territory legislation and/or local government regulations in order to be enforceable.

Environmental health standards should be based on all the available scientific evidence on the risks to health and best practice in hazard reduction. In addition, standards should ideally be endorsed by an authoritative body or bodies, and reflect the needs and participation of the community and other stakeholders. At the same time, standards should reflect the capacity for the co-regulation or self-regulation of required outcomes.

As expected from the breadth of the environmental health area, responsibility for standard setting in Australia is quite fragmented. Standards can be set at the national, State or Territory, or more local level. In some areas there is a single authority, while in others, particularly in areas where an intersectoral management approach is needed, components may be managed by different sectors and there is potential for gaps and inconsistencies. Historically, the NHMRC have set national environmental health guidelines which formed the basis of the health standards adopted into state legislation. Many of the NHMRC's traditional areas are now managed by national authorities and the NHMRC's role is changing to reflect this changed framework. These statutory and national bodies include:

- the Australia New Zealand Food Authority (food standards);
- the National Occupational Health and Safety Commission (occupational standards and regulation of industrial chemicals through the National Industrial Chemical Notification and Assessment Scheme);
- the National Registration Authority for Agricultural and Veterinary Chemicals (registration and regulation of agricultural and veterinary chemicals, such as pesticides, with advice from the Therapeutic Goods Administration); the Therapeutic Goods Administration (regulation and registration of drugs and poisons); and
- the Australian Radiation Protection and Nuclear Safety Authority (radiation standards).

In addition, environmental standards have significant implications for environmental health management and often reflect human health requirements. The NHMRC has developed a number of joint standards with the Australia New Zealand Environment and Conservation Council and the Agricultural Resource Management Council of Australia and New Zealand (environmental and water quality issues, respectively). The NHMRC provides health-based advice and input into joint standards/guidelines and endorses the recommendations from a health perspective. More recently, NEPC has

been established as a national whole-of-government approach to the setting of standards through the development of national environmental protection measures (NEPMs). Both the NHMRC and NEHF provide healthbased input into NEPC deliberations on the development of specific NEPMs. However, NEPC is not necessarily the best lead agency to carry out investigations of environmental issues where the chief concern is human health. Again the division between the environment sector and the health sector needs to be highlighted. Health has the mandate to protect human health and often has the best expertise to determine human health protection standards. Accordingly a number of health authorities have expressed concern at the NEPM process.

With the evolving nature of public management and the emergence of new hazards, there is an ongoing need for a well-managed and appropriately funded system for national environmental health standard setting in Australia. While a number of jurisdictions have the authority to set standards, there is economic and administrative efficiency from maximising national consistency. This demands good cooperation and information sharing. Consistent environmental health standards have many functions. They:

- underpin services that deliver the health expectations outlined in the Environmental Health Charter;
- maximise the consistency of management and regulatory frameworks between jurisdictions;
- increase the confidence of communities and industry by providing consistency throughout Australia;
- foster international harmonisation and consistency;
- permit efficient use of technical and scientific resources and data and ensure evidencebased standards;
- provide a framework to protect health while minimising adverse economic impacts;
- provide a health focus that is reflected in the management direction of related sectors, such as the environment;
- provide a consistent base for community negotiation with industry and other stakeholders about management outcomes; and
- reflect community expectations and set performance requirements for service providers and industry alike.

Research and technological development

The changing nature of environmental health management into the new millennium demands a strong research base to characterise both emerging hazards, and, more importantly, management strategies and methodologies. Environmental health research is fundamental to a full understanding of ESD.

Environmental health training sits largely within the applied health science disciplines, interfacing with environmental management and health. Its development and focus has sprung from training for environmental health officers at local government level. The

focus on evidence-based decision making for both policy and management direction, supported by properly evaluated scientific data, requires a sophisticated and research-literate workforce and demands that current training includes a strong investigative and research focus. The research base for environmental health management lies in established research centres (cooperative research centres [CRCs] and the NHMRC National Research Centre in Environmental Toxicology), university schools of applied science, consultants, environmental health professionals and governments. The latter utilise research to evaluate programs and management options on specific issues. The research information from government programs, and particularly the investigation and management of issues at local government level, are largely untapped. All of these sources need to be fostered and brought actively and systematically into the evidence base for environmental health decision making.

Environmental health research has had little success in gaining funding from traditional government research programs such as the NHMRC and the Australian Research Council (ARC). Because environmental health issues often straddle health and non-health disciplines (eg environment, housing, transport, engineering), highly relevant research proposals often fail to meet the requirements of either of the major funding programs. Furthermore, applied research and development for strategic management and interventions have generally had poor success within health research funding programs. This imbalance needs to be addressed.

Many of the planning, design and research frameworks vital to the further development of environmental health interventions are well established within non-health disciplines. Urban planning, engineering and environmental management cover many important topics for environmental health management (though usually from the perspective of the particular discipline, and without sufficient attention to the health impacts). The health sector must engage constructively with these programs and disciplines to ensure that the research findings are integrated into the evidence base for environmental health decisions.

Environmental health research must actively identify and characterise emerging threats, and examine methods for improved management (identification, prevention and remediation) of known hazards. This requires adequate levels of funding and strong links to the international research effort.

SUMMARY POINTS

1. The interdependence of public health and environmental protection should be strongly emphasised in all governmental practice and decision making, and a dichotomy between the two should not be allowed to exist.
2. The concept of environmental health, with its focus on hazard identification, risk assessment and risk management is critical in public health efforts to maintain health and prevent illness and underpins the basic concept of sustainable development.

3. Environmental health is different from environment protection with the environment portfolio being concerned with human impact on the environment and the health portfolio being concerned with environmental impacts on human health
4. In order to be successful, ESD must have health involved early and collaboratively in the development of proposals, policies and interventions.
5. Environmental health capacity and needs to be maintained and new infrastructure developed in order to maintain our current level of health in the face of increasing pressures and a deteriorating environment.
6. In order to increase health protection environment legislation needs explicit acknowledgment of health in environment legislation and development of environment legislation needs to be underpinned by more cooperation between the health and environment sectors.
7. There needs to be a stronger and more explicit acknowledgment of the health in environment economic instruments
8. Public health concerns should be taken account of in the impact assessment process, during the planning stage of developments that might affect health or the environment.
9. Adequate levels of environmental health research are fundamental to a full understanding of ESD.

¹ Ottawa Charter for Health Promotion. In: *Health promotion in the workplace: alcohol and drug abuse. Report of a WHO Expert Committee.* Geneva, WHO. 1993

² *Public Health Law in Australia. Its current state and future directions.* Ian Bidmeade and Chris Reynolds. Department of Health and Family Services. 1997. p 82