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Are Decision-makers Too Cautious With The Precautionary Principle?

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 Delivered at the
 Land and Environment Court of New South Wales Annual Conference
 Peppers Hydro Majestic, Medlow Bath, Blue Mountains
 14 & 15 October 1999

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Precaution, (1603) a measure taken beforehand to ward off an evil.
 Shorter Oxford English Dictionary

Overview

Over the last decade the principles of ecologically sustainable development (ESD) have permeated inexorably into the interstices of environmental law. Many of the principles, particularly the precautionary principle, have become part and parcel of international, national and domestic laws and custom.

The core principles of ESD have come into regular use by decision-makers at a federal, state and local government level. This is partly because of governmental policies and practices and in part because of statute law, the highest form of expression of government policy. The legislation of all nine governments in Australia contain numerous references to ESD and its core principles, see the appendix to this paper. There are more Acts which include ESD in New South Wales than anywhere else in Australia. Most important for our purposes are those now contained in the objects of the *Environmental Planning and Assessment Act 1979* and the *Protection of the Environment Administration Act 1991*, as well as the new federal environmental legislation.

What may be noted, however, is that the inclusion of the principles in Australian legislation has been largely confined to objectives of statutes or agencies without any real guidance to decision-makers as to whether and how to apply the core principles or what weight to give them. Moreover, some of the principles contain vague statements, some might call them aspirations, as well as ambiguities, inconsistencies and uncertainties. Difficulties of interpretation and application are manifest. There is even discussion on whether the principles are merely guiding or whether they are also operational. In these circumstances, who can blame the courts for proceeding, like the precautionary principle, with a degree of caution. Nonetheless, my thesis is that there is the opportunity, if not the obligation, in the absence of clear legislative guidance, to apply the common law and assist in the development and fleshing out of the principles. Our task is to turn soft law into hard law. This is an opportunity to be bold spirits rather than timorous souls and provide a lead for the common law world. It will make a contribution to the ongoing development of environmental law.

Introduction

The origins of the precautionary principle

The origin of the precautionary principle lies in the German concept of *Vorsorgeprinzip*, literally translated as meaning the 'foresight principle' or 'precautionary principle'. The principle first appeared in the mid 1960's when environmental issues were becoming a major political theme in Germany. At around the same time the hypothesis of 'implementation shortfalls' emerged. The hypothesis identified that there existed a clear discrepancy between legal provisions and the goals of environmental policy, on the one hand, and its practical application on the other. The precautionary principle was originally used as a yardstick by which to judge political decisions. By the early 1970's the principle could be found in domestic West German legislation in respect of environmental policies aimed at combating the problems of global warming, acid rain and maritime pollution.(1)

The precautionary principle has played an instrumental role in the policy reform of marine pollution. Despite regulation of both land based pollution and ocean dumping by regional bodies, the quality of the North Sea was seen to be continuing to decline. The German government, when calling the first North Sea meeting in 1984, had as a negotiating aim, the inclusion of the precautionary principle, *vorsorgeprinzip*.

The earliest international agreement which explicitly refers to the precautionary principle is the Ministerial Declaration of the Second International Conference on the Protection of the North Sea, issued in London in November 1987. It was accepted that:

... in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence.(2)

The precautionary principle has since been widely used in international environmental law and has been applied to areas such as climate change, hazardous waste and ozone layer depletion, biodiversity, fisheries management and general environmental management. Many treaties, some of which are extracted below, illustrate the various circumstances in which the precautionary principle has been utilised.

The precautionary principle received strong endorsement in the Rio Declaration on Environment and Development (adopted in 1992 by the United Nations Conference on Environment and Development [UNCED] in Rio de Janeiro). The Rio Declaration contains 27 principles to guide the International Community in the promotion of sustainable development.

Principle 15 states:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. 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.

The revision to the Treaty of Rome as agreed at Maastricht states:

The Community policy on the environment *shall* be based on the precautionary principle and on the principle that preventative action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. Environmental protection requirements must be integrated into the definition and implementation of other Community policies.(3) [Emphasis added]

Article 3.3 of the 1992 U.N. Framework Convention on Climate Change states:

The parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost effective so as to ensure global benefits at the lowest possible cost.

Agenda 21, agreed to at the 1992 Rio conference, recommends in relation to radioactive waste that States should not:

... promote or allow the storage or disposal of high-level, intermediate level and low-level radioactive waste near the marine environment unless they determine that scientific evidence, consistent with the internationally agreed principles and guidelines, shows that such storage or disposal poses no unacceptable risk to people and the marine environment or does not interfere with other legitimate uses of the sea, making, in the process of consideration, appropriate use of the concept of the precautionary approach.

Agenda 21 on the Protection of the Oceans expressly requires:

new approaches to marine and coastal area management and development at the national, subregional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit.

The June 1990 Amendments to the Montreal Protocol on Substances that Deplete the

Ozone Layer states:

[The Parties to this Protocol are] determined to protect the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete it, with the ultimate objective of their elimination on the basis of developments in scientific knowledge, taking into account technical and economic considerations and bearing in mind the developmental needs of developing countries.

The 1992 OSPAR Convention (Convention for the Protection of the Marine Environment of the North East Atlantic) provides in Article 2 that Contracting Parties *shall* apply:

... the precautionary principle, by virtue of which preventative measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and effects.

The Convention on Biological Diversity signed at the United Nations Conference on Environment and Development in 1992 notes in its preamble:

... that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimise such a threat.

These are but a few of the international instruments which have incorporated the precautionary principle. Australia has ratified almost all of these environmental treaties and conventions which are relevant to our part of the world.

Defining the precautionary principle

The Intergovernmental Agreement on the Environment (the IGAE) endorses the precautionary principle in the following terms:

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*. In the application of the precautionary principle, public and private decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
 - (ii) an assessment of the risk-weighted consequences of various options
- (4) [Emphasis added]

Defining the application of the precautionary principle with any degree of precision has proved problematic because of the rapidly evolving nature of the concept. (5) While the precautionary principle has proved to be useful in reformulating the way in which the law structures decision-making processes, 'ambiguity in the conceptualisation of the precautionary principle at the policy level has led to it being given a wide range of divergent meanings, providing a fundamental barrier to attempts at implementation'.(6)

The precautionary principle has been described as a decision-making approach which ensures that a substance or activity posing a threat to the environment is prevented

from adversely affecting the environment, even if there is no conclusive scientific proof linking that particular substance or activity to environmental damage.(7) Briefly stated, the precautionary principle, both in its conceptual core and its practical implications, is preventative. The principle provides the philosophical authority to make decisions in the face of uncertainty. In this way, it is symbolic of the need for change in human behaviour towards the ecological sustainability of the environment.

It is accepted that the precautionary principle is a guiding principle. As I mention later, the principle also has operational effect. The purpose of the principle is to 'encourage, perhaps even oblige, decision-makers to consider the likely harmful effects of their activities on the environment before they pursue those activities'. (8) The concept is linked to ideas of acceptable risk in attempting to deal with scientific uncertainty. It challenges scientific understanding and advocates caution in dealing with risk. Proponents of the precautionary principle acknowledge that the principle does contain some ambiguities and uncertainties but strongly maintain that such problems do not discredit the principle. An understanding of the principle is more easily facilitated by considering the conceptual elements that form the basis of the concept.

The threshold - threats of serious or irreversible environmental damage

The existence of threats of irreversible environmental damage is the threshold which must be satisfied before the precautionary principle is deemed appropriate for use in decision-making. Not only do uncertainties associated with scientific investigation exist, but there are also different disciplinary approaches adopted by scientists in assessing evidence and the possibility of environmental damage. Science does not present a unified view of the consequences of a particular action. The precautionary principle takes into account the conflict within science and the social construction of acceptable risk.

According to Farrier, the precautionary principle is 'triggered by proof of threats falling short of the degree of probability currently *recognised by science* as constituting proof'.(9) [Emphasis added] However, the principle fails to offer any clear guidance in respect of what degree of proof is required before the principle becomes operational. In this respect, the application of the concept becomes somewhat problematic. However, it is submitted that in utilising the principle *in a legal setting*, the civil standard of proof on the balance of probabilities is apposite.

Lack of full scientific certainty

No scientific method will be able to ask all the right questions about what we do to the environment, let alone find the answers. Science does not give absolute proof; it is intrinsically 'soft' and its results are always open to interpretation ... Rather than commit society to a blind faith that scientific knowledge can and does address all uncertainties, mature and rational policy should recognise the inherent limitations of scientific knowledge. A greener science would make these limitations explicit, and so promote more critical public debate about the interventions in nature that are made in the name of economic necessity. (10)

The ongoing dilemma of decision-makers, in both the public and private sector, is how environmental uncertainty should be addressed in decision-making. Lack of full scientific certainty will always exist because full scientific certainty is neither achievable nor provable. 'Science and the data on which it is built contains inherent uncertainties which may be ignored or misunderstood' by decision-makers.(11) The precautionary principle highlights the fundamental fact that the interpretation of environmental uncertainties is not only a scientific issue but also has far reaching social and political implications requiring further debate. The precautionary principle is a step forward in the development of an environmental framework within which 'soundly based scientific data can be integrated with the political, economic and social processes and considerations upon which policy must ultimately rest'.(12)

Measures to prevent environmental degradation

The precautionary principle offers little guidance on precisely what measures ought to be taken when posed with a threat of serious or irreversible environmental damage. An important question confronting decision-makers is what type of measures does the precautionary principle advocate? At what point in time and at what stage of a process should these measures be taken? Is the principle aimed at the beginning stages of a development activity or is it aimed at a continuing process of actions?

Not to be used as a reason for postponing measures

'Once the threshold test has been satisfied (ie. proof of threats of serious or irreversible environmental damage falling short of scientific certainty) the burden of proof in relation to scientific questions falls on those wishing to engage in the activity. If the suggested threat cannot be disproved by evidence advanced by the proponent, then it is a factor to be taken into account in the cost benefit calculus'.(13)

The threat of serious or irreversible environmental harm is clearly an important factor to be taken into account but there is no guidance (in the principle) as to the weight to be given to such a factor in reaching a final decision. Neither does the precautionary principle provide any guidance about how decision-makers should approach conflict between environmental and economic values, ie. how to balance them. Farrier identifies that 'even if the proponent fails to undermine the prima facie case in favour of a threat of serious or irreversible environmental damage, it apparently remains open to the decision-maker to decide that the activity should be allowed to go ahead because of economic imperative'.(14) Once the effect of an activity is scientifically proved, the precautionary principle does not appear to mandate the decision.

The precautionary principle and ecologically sustainable development

The precautionary principle needs to be considered in the broader context of the wider principles and philosophies forming the concept of ecologically sustainable development (ESD).(15) It is accepted that ESD should be treated as a complete package where no one principle should dominate over any other.(16) This requires that the precautionary principle be applied with consideration of other principles forming part of ESD.

The modern manifestation of ESD stems from the 1987 report of the World Commission of Environment and Development (The Brundtland Report)(17) where development was defined as sustainable:

... if it meets the needs of the present without compromising the ability of future generations to meet their own needs.

The idea is premised on the integration of economic and environmental processes in decision-making. In 1992, the IGAE committed all nine Australian governments to the concept, as well as local government. ESD has since been incorporated into almost all Australian environmental legislation as an appropriate objective for environmental agencies and decision-makers. Often core principles are extracted for particular emphasis and utilisation, especially the precautionary principle. See, in particular, s 6(2) of the *Protection of the Environment Administration Act* 1991, adopted in many New South Wales statutes.

In essence, ESD is development which aims to conserve and effectively manage the environment for the benefit of future generations. In 1990 the Commonwealth Government suggested the following definition for ESD:

... using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.(18)

Two features are characteristic of an ESD approach. First, decision-makers need to

consider the economic, social and environmental implications of actions for the local and international community and biosphere. Second, in reaching decisions, decision-makers must adopt a long-term rather than short-term view.(19) In this sense, the precautionary principle ensures a better integration of environmental considerations in decision-making.

The core concepts of ESD include:

- the conservation of biological diversity and ecological integrity
- inter-generational equity
- the precautionary principle
- improved valuation, pricing and incentive mechanisms

According to the 1992 National Strategy for ESD the guiding principles include:

- 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
- decisions and actions should provide for broad community involvement on issues which affect them.(20)

The central objectives of ESD 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 [inter and intra generational equity]
- to protect biological diversity and maintain essential ecological processes and life-support systems. (21)

ESD represents a delicate balancing of the often competing interests of development and environmental protection.(22) Application of the precautionary principle is considered appropriate in circumstances where a proposed activity carries with it a risk of potentially serious environmental damage which may threaten the interests of present and future generations. Properly evaluating risks is likely to be aided by the guiding principles and indicators of sustainability.(23)

Legislation incorporating ESD and the precautionary principle

As shown by the appendix to this paper, an astounding number of federal, state and territory statutes have expressly referred to or incorporated ESD principles. However, an analysis of the legislation reveals that much of it adopts ESD in general terms without necessarily assigning a specific role to the principles. The following examples

of centrally relevant environmental legislation are indicative of the lack of consistency in the approach to inclusion of ESD principles within Acts of Parliament. It will be readily appreciated that ESD is often included among the objects of an Act without further reference, whereas some legislation requires all decisions or specific decisions to take into consideration core principles or to have regard to principles of ESD. It will be seen that no statute gives any precise guidance as to the weight to be given to the principles, nor their particular role in the balancing of considerations in arriving at a decision.

Status of the precautionary principle in Commonwealth legislation

The *Environment Protection and Biodiversity Conservation Act 1999* provides the most detailed legislative exercise in its reference to ESD and the precautionary principle. It lists, among the objects in s 3, the promotion of *ecologically sustainable development through the conservation and ecologically sustainable use of natural resources*. The principles of ESD, including the precautionary principle, are then defined in s 3A. Section 391 is important and requires that the Minister *must take account of the precautionary principle* in making a decision listed under s 391(3) which relates to: whether or not to grant a permit under s 237 and s 238; making a recovery plan or adopting a plan as a recovery plan under s 269A; whether or not to have a threat abatement plan for a key threatening process under s 270A; making a threat abatement plan or adopting a plan as a threat abatement plan under s 270B; approving a variation of a plan adopted as a recovery plan or threat abatement plan under s 280; making a wildlife conservation plan or adopting a plan as a wildlife conservation plan under s 285; approving a variation of a plan adopted as a wildlife conservation plan under s 295; making a plan for managing a property that is included in the World Heritage List and is entirely within one or more Commonwealth areas under s 316; making a plan for managing a wetland that is designated for inclusion in the List of Wetlands of International Importance kept under the Ramsar Convention and is entirely within one or more Commonwealth areas under s 328; making a plan for managing a biosphere reserve entirely within one or more Commonwealth areas and approving a management plan for a Commonwealth reserve under s 370. It will be most interesting to see how these provisions work in practice.

Status of the precautionary principle in New South Wales legislation

At the last count 47 Acts of the New South Wales Parliament included ESD principles! The *Protection of the Environment Administration Act 1991* establishes the EPA, making provisions with respect to its general responsibilities and management. Section 6(1) of the Act lists the *need to maintain ecologically sustainable development* as one of many objectives of the EPA. The defining principles of ESD, including the precautionary principle, are defined in s 6(2). Many other NSW statutes define ESD by reference to this section. Some of the more important references are extracted below.

Section 3 of the *Protection of the Environment Operations Act 1997* lists the protection, restoration and enhancement of the quality of the environment in NSW, with *regard to the need to maintain ecologically sustainable development*, as one of many objectives of the Act. Indirect reference is made to ESD principles in s 13 which requires that, in preparing a draft policy, the EPA *must take into consideration*, inter alia, the principles of environmental policy set out in the IGAE. Under s 45 the EPA is further *required to take into consideration the objectives of the EPA as referred to in s 6 of the Protection of the Environment Administration Act 1991* in relation to its licensing functions under Chapter 3 of the Act.

Section 37A of the *Coastal Protection Act 1979* provides that the Minister is to *have regard to the principles of ecologically sustainable development* in exercising functions under Part 3 of the Act which concerns the use of the coastal zone. Principles of ESD are defined by reference to the definition contained in s 6(2) of the *Protection of the Environment Administration Act 1991*.

The *Contaminated Land Management Act 1997* establishes a process for investigating and remediating land areas where contamination presents a significant risk of harm to human health or some other aspect of the environment. Section 10(1) provides that the EPA is to *have regard to the principles of ecologically sustainable development in the*

exercise of its functions under the Act and is *to seek the implementation of those principles* in the management of contaminated land. Core ESD principles are defined in s 10(2).

The *Threatened Species Conservation Act 1995* attempts to conserve threatened species, populations and ecological communities of animals and plants. The conservation of *biological diversity* and the promotion of *ecologically sustainable development* is listed in s 3 as being amongst the objects of the Act. Section 4 defines references to ESD made in the Act as having the same meaning as under s 6(2) of the *Protection of the Environment Administration Act 1991*. Section 44(2) provides that the Minister, upon receiving a recommendation from the Director-General, *must* consider, along with factors listed in s 44(1), whether consistent with the principles of ESD the recommendation might be amended to avoid or lessen any adverse consequences of the making of a declaration of critical habitat. By way of s 97, in considering whether to grant or to refuse to grant a license application, the Director-General must take into account, inter alia, the principles of ESD.

Section 110(2)(h) provides that a species impact statement must include, a description of 'any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ESD'.

Section 116(1) provides that a person against whom an order is made may appeal to the Minister against the making of the order. Pursuant to ss 2(b) on hearing an appeal the Minister *may* 'modify or rescind the order, but only if this is consistent with the principles of ESD'.

Section 140(1) provides that the Director-General is to prepare a Biological Diversity Strategy setting out how the objects of the Act are to be achieved. Sub section (2)(b) requires that the strategy is to include proposals for preparing or contributing to the preparation of strategies for ESD in New South Wales, including the integration of biological diversity and natural resource management.

The *Native Vegetation Conservation Act 1997* relates to the conservation and sustainable management of native vegetation and the clearing of land. Section 3 provides that the objects of the Act are to be *considered in accordance with the principles of ecologically sustainable development*. Section 4 defines references to ESD made in the Act as having the same meaning as under s 6(2) of the *Protection of the Environment Administration Act 1991*.

Section 7 of the *Local Government Act 1993* lists, among the purposes of the Act, that councils, councillors and council employees *have regard to the principles of ecologically sustainable development in carrying out their responsibilities* under the Act. Section 8, which contains the council's charter, refers to ESD in properly managing, developing, protecting, restoring, enhancing and conserving the environment. Section 89(1)(c) also refers to council's obligation to *take into consideration the principles of ecologically sustainable development* in determining applications lodged for approval.

The *Fisheries Management Act 1994* lists the promotion of *ecologically sustainable development* as one of the objects of the Act in s 3. Section 4 defines ESD as having the same meaning as under s 6 of the *Protection of the Environment Administration Act 1991*. Section 30(1)(c) provides that in determining total allowable catches the Total Allowable Catch Setting and Review Committee (the TAC) is to *have regard to the precautionary principle, namely, that if there are threats of serious or irreversible damage to fish stocks, lack of full scientific certainty should not be used as a reason for postponing measures to prevent that damage*. Section 57(2)(a) states that a management plan *must* include performance indicators to monitor whether the objectives of the plan and ESD are being attained. Section 143(5) is of similar effect but relates to aquaculture industry development plans instead of management plans. In relation to matters to which the Minister is to have regard in declaring critical habitat, s 220S(2) provides that the Minister must also consider whether, consistent with the principles of ESD, the area identified might be amended to avoid or lessen any adverse

consequences of its declaration as a critical habitat. Section 221A(1)(e) states that in considering whether to grant or refuse to grant a license application, the Director *must take into account* the principles of ESD. In relation to the content of a species impact statement as to threatened species and populations under s 221K(2)(g), there must be the inclusion of a description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to, inter alia, the principles of ESD. Subsection 3(e) is of similar effect but relates instead to a species impact statement including information as to ecological communities. Section 221(2)(b) provides that the Minister, after hearing an appeal against a stop work order, may modify or rescind the order but only if this is consistent with the principles of ESD.

Principles of ESD have now been expressly incorporated into the objects section (s 5) of the *Environmental Planning and Assessment Act* 1979 by 1997 amendments. Prior to such amendments, ESD had only been specifically referred to in the Regulation for the purposes of preparing environmental impact statements. However, prior to the inclusion of ESD in s 5, the Land and Environment Court had accepted that it could be a head of consideration arising under s 90.(24)

It is worthwhile noting that an increasing number of planning instruments made under the *Environmental Planning and Assessment Act* are including ESD principles. Further, a number of state environmental planning policies are based on ESD principles, eg. coastal wetlands, urban bushland preservation (25) and littoral rain forests. The *National Parks and Wildlife Act* 1974 does not explicitly refer to ESD principles but indirectly includes it by reference to 'sustainable development'.

However, in *Leatch v National Parks and Wildlife Service* (26) the principles of ESD were considered to fall within the subject matter, scope and purpose of the legislation in relation to a licence to 'take and kill' endangered fauna. The Act is presently under review and it is possible that it will be amended to include express reference to ESD.

Section 4(b) of the *Sustainable Energy Development Act* 1995 lists as an object of the Act, the encouragement of the development, commercialisation, promotion and use of sustainable energy technology in accordance with the principles of ESD contained in s 6(2) of the *Protection of the Environment Administration Act* 1991. Section 6(b) provides that the principal objectives of the Authority are the facilitation of the 'development, commercialisation, promotion and use of' that technology, 'particularly in those areas (other than fundamental research) where the development, commercialisation, promotion and use of that technology is impeded by lack of appropriate information or finance or by other barriers, in accordance with the principles of ESD contained in s 6(2) of the *Protection of the Environment Administration Act* 1991'.

Section 4 of the *Marine Parks Act* 1997 defines 'ecologically sustainable use of a marine park' to mean 'the taking of plants, animals or materials from the marine park, or some other use of the marine park, in accordance with the principles and programmes for ESD set out on s 6(2)' of the *Protection of the Environment Administration Act* 1991.

Section 11(5) of the *Sydney Water Catchment Management Act* 1998 provides that the Board may 'request the Minister to review a direction if the Board considers that compliance with the direction is likely to result in environmental degradation, or that the direction is otherwise inconsistent with the principles of ESD referred to in s 14(1)(c)'. Section 14(1)(c) provides, among the principal objectives of the Authority, that where its activities affect the environment, it is to conduct its operations in compliance with the principles of ESD contained in s 6(2) of the *Protection of the Environment Administration Act* 1991.

Section 3(d) of the *Rural Fires Act* 1997 lists among the objects of the Act, 'the protection of the environment by requiring certain activities referred to in paragraphs (a) to (c) to be carried out having regard to the principles of ESD described in s 6(2) of the *Protection of the Environment Administration Act* 1991'.

Subparagraphs (a) to (c) provide for the:

- (a) prevention, mitigation and suppression of bush fires
- (b) co-ordination of bush fire fighting and bush fire prevention
- (c) the protection of persons from injury and property from damage by fire

Section 9(3) requires that the Rural Fire Service is *to have regard* to the principles of ESD in carrying out any functions that affect the environment. Section 48(3) is of similar effect but applies to the Bush Fire Co-ordinating Committee as opposed to the Rural Fire Service. Section 51 provides that the Bush Fire Management Committee is *to have regard* to the principles of ESD in carrying out any function that affects the environment.

Section 5 of the *Catchment Management Act* 1989 lists among the objects of the Act, the promotion of 'sustainable use of natural resources'. Section 4 states that total catchment management is the 'co-ordinated and sustainable use of and management of land, water, vegetation and other natural resources on a water catchment basis so as to balance resource utilisation and conservation'.

These are but some illustrations of the numerous NSW Acts of Parliament which incorporate ESD principles but gives some indication of the diversity of application of the principles.

Status of the precautionary principle in Tasmanian legislation

The new Tasmanian resource management and planning system actually places an 'obligation' on any person performing functions or exercising powers under the legislation to do so in accordance with the stated objectives of 'sustainable development'. This suggests that decision-making processes in relation to planning and environment protection covered by the new package of legislation may be challenged in law as not having been based on, or having failed to reasonably consider, principles of sustainable development .(27)

An example of the indirect inclusion of ESD principles in the Tasmanian legislation is the *Resource Management and Planning Appeal Tribunal Act* 1993 - Schedule 1. Clause 1(a) lists the promotion of *sustainable development of natural and physical resources and the maintenance of ecological processes and diversity* as one of the objectives of the resource management and planning system of Tasmania. Clause 2 defines *sustainable development* to mean:

managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while:

(a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

(c) avoiding, remedying or mitigating any adverse effects of activities on the environment.

Clause 1(a) of the *Environmental Management and Pollution Control Act* 1994 - Schedule 1 lists the promotion of '*sustainable development*' of natural and physical resources and the maintenance of ecological processes and genetic diversity as one of

many objectives of the resource management and planning system of Tasmania. [These are the same definitions as contained in *Resource Management and Planning Appeal Tribunal Act*]. 'Sustainable Development' is defined in cl 2. Clause 3(h) lists, as an objective of the environmental management and pollution control system established by the Act, the adoption of a 'precautionary approach when assessing environmental risk to ensure that all aspects of environmental quality, including ecosystem sustainability and integrity, and beneficial uses of the environment are considered in assessing, and making decisions in relation to the environment.'

Judicial application of the precautionary principle

Discussed below are a selection of Australian and overseas judicial decisions which have made reference to the precautionary principle. They are by no means a complete list. While international and domestic policy instruments, such as the IGAE, incorporate the precautionary principle, the statutes forming the basis of many of the cases discussed here do not expressly refer to the principle. (28) However, even in the absence of an express legislative mandate to apply the principles of ESD, the judiciary in New South Wales (and elsewhere in Australia), has sought to apply such principles. (29) Such cases illustrate the judicial application of the precautionary principle, to the extent that it is emerging as a common law doctrine.

Australian cases

Leatch v National Parks and Wildlife Service (30) was the second NSW case to apply the precautionary principle. This was a 'merits' appeal against the granting of a license to Shoalhaven City Council to 'take and kill' endangered fauna from an area where a road was proposed to be constructed. The third party objector claimed that the precautionary principle should be applied to refuse the license because of scientific uncertainty surrounding the effects on endangered fauna following from the road construction, particularly on the giant burrowing frog and the yellow bellied glider. (31)

I noted that while almost every recent international environmental treaty, convention and policy document, as well as the IGAE, referred to ESD and in particular to the precautionary principle, the *National Parks and Wildlife Act*, under which the Director-General of the National Parks and Wildlife Service granted the license, did not expressly do so. I said:

When Part 7 of the Act is examined it is readily apparent that the precautionary principle, or what I have stated this may entail, cannot be said to be an extraneous matter. While there is no express provision requiring consideration of the 'precautionary principle', consideration of the state of knowledge or uncertainty regarding a species, the potential for serious or irreversible harm to an endangered fauna and the adoption of a cautious approach in protection of endangered fauna is clearly consistent with the subject matter, scope and purpose of the Act.

and

... the precautionary principle is a statement of commonsense and has already been applied by decision-makers in appropriate circumstances prior to the principle being spelt out. It is directed towards the prevention of serious or irreversible harm to the environment in situations of scientific uncertainty. Its premise is that where uncertainty or ignorance exists concerning the nature or scope of environmental harm (whether this follows from policies, decisions or activities), decision-makers should be cautious.

I added:

... caution should be the keystone to the Court's approach. Application of the precautionary principle appears to me to be most apt in a situation of a scarcity of scientific knowledge of species population, habitat and impacts. Indeed, one permissible approach is to conclude that the state of knowledge is such that one should not grant a licence to 'take or kill' the species until much more is known. It should be

kept steadily in mind that the definition of 'take' in s 5 of the Act includes disturb, injure and a significant modification of habitat which is likely to adversely affect the essential behavioural patterns of a species. In this situation I am left in doubt as to the population, habitat and behavioural patterns of the Giant Burrowing Frog and am unable to conclude with any degree of certainty that a licence to 'take or kill' the species should be granted.

The appeal was upheld and the license refused.

In the context of immigration law, in *Minister for Immigration and Ethnic Affairs v Teoh* (32) the High Court discussed the domestic application of international agreements to which Australia is a party. The Court said:

The provisions of an international convention to which Australia is a party, especially one which declares universal fundamental rights, may be used by the courts as a legitimate guide in developing the common law.

As noted by Pearson in her article about incorporating ESD after *Teoh*, (33) it is likely that ESD is a factor which courts may take into account, and their decisions would not be vitiated by taking them into account. I am not aware of any judicial review challenge to a decision on the basis of the taking into account of the precautionary principle as an irrelevant consideration or the converse. No doubt there will be occasion in the future for the courts to consider such a challenge.

Mason discusses the importance of the precautionary principle to environmental law in Australia in the context of *Teoh*. (34) He notes the national and domestic recognition of the principle, seen as an emerging norm of customary international law. This is important since statutes will be interpreted and applied in conformity with customary international law. (35) Citing the provisions of the IGAE, Sir Anthony Mason comments on the beginning of recognition of international ESD principles in cases such as *Leatch* and *Greenpeace v Redbank Power* in the NSW Land and Environment Court.

In the *Friends of Hinchinbrook Society Inc v Minister for Environment* (36) the Minister had granted development consent for a proposed tourist resort located near the Great Barrier Reef. In 1981 the Great Barrier Reef was included in the World Heritage List, pursuant to the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage. Friends of the Hinchinbrook Society contended that the Minister had improperly exercised his powers conferred under the *World Heritage Properties Conservation Act* 1983 and failed to have regard to the precautionary principle. It brought a challenge in the Federal Court.

Sackville J, at first instance, accepted *Leatch*, saying 'it may be that the "commonsense principle" identified by Stein J is one to which the Minister must have regard'. His Honour did, however, say that if the principle was a mandatory consideration for the Minister, that would 'flow from a proper construction of the relevant legislation and of its scope and purpose' (37), rather than as a result of Australia's adoption of 'policies and objectives relevant to a national strategy on the environment'. His Honour held that the precautionary principle, in the form adopted by the IGAE, was not a consideration that the Minister was bound to take into account in exercising powers conferred under the *World Heritage Act*. His Honour however found that the Minister did take into account the need to exercise caution in the situation of scientific uncertainty:

It is true that the Minister did not expressly refer to the precautionary principle or some variation of it, in his reasons. But it is equally clear that before making a final decision he took steps to put in place arrangements designed to address the matters of concern identified in the scientific reports and other materials available to him. The implementation of these arrangements ... indicate that the Minister accepted that he should act cautiously in assessing and addressing the risks to World Heritage values ... he took into account the commonsense principle that caution should be exercised where scientific opinion is divided or scientific information is incomplete. (38)

The case of *Nicholls v Director-General of National Parks and Wildlife* (39) involved an appeal against a decision by the Director-General of National Parks and Wildlife Service to grant a license to the Forestry Commission permitting forestry operations in the Wingham Management Area to 'take or kill' endangered fauna. The applicant contended that the fauna surveys and fauna impact statement obtained under the legislation contained deficiencies, and that the precautionary principle should be taken into account by the Court in considering the appeal. Talbot J noted that the IGAE created no binding obligation on the Director-General or the Court.(40) By way of obiter, his Honour referred to inherent difficulties associated with the application of the precautionary principle:

Furthermore, the statement of the precautionary principle, while it may be framed appropriately for the purpose of a political aspiration, its implementation as a legal standard could have the potential to create interminable forensic argument. Taken literally in practice it might prove to be unworkable. (41)

However, his Honour added that the application of the precautionary principle, as provided in the IGAE, was 'a practical approach which the court finds axiomatic, in dealing with environmental assessment' (42)

In refusing the application, his Honour held that the fauna impact statement did include to the fullest extent reasonably practicable the information required by s 92D of the *National Parks and Wildlife Act 1974* and that the fauna impact statement was but one of a number of tools to be used in determining whether to grant a license to 'take or kill' protected fauna.

In *Greenpeace Australia Ltd v Redbank Power Co* (43) the Singleton Shire Council granted development consent to Redbank Power Co. Pty Ltd for the construction of a coal-based power station at Warkworth in the Hunter Valley. *Greenpeace* objected to the proposal contending that the impact of carbon dioxide emissions from the project would unacceptably exacerbate the greenhouse effect and that the Court should apply the precautionary principle, as defined in the IGAE, to refuse development consent. Again, it was a 'merits' appeal by a third party objector.

Pearlman J noted that the Framework Convention on Climate Change, (ratified by Australia) the IGAE and the National Greenhouse Response Strategy relied upon by *Greenpeace*, were not binding policy documents. Whether such proposals 'should be prohibited is a matter of government policy and it is not for the Court to impose such a prohibition'. (44)

Her Honour accepted that the precautionary principle could be incorporated as a factor to which the Court must have regard as a matter of 'public interest' under s 90 of the *Environmental Planning and Assessment Act 1979*, and s 39(4) of the *Land and Environment Court Act 1979*. Her Honour concluded:

There are, however, instances of unscientific uncertainty on both sides of the issues in this case. For example, *Redbank* has contended that tailing dams pose environmental problems, whilst *Greenpeace* has denied that there are serious environmental problems surrounding current methods of tailing disposal. On the other hand, *Greenpeace* has asserted that co2 emission from the project will have serious environmental consequences, whilst *Redbank* has asserted that there is considerable uncertainty about its consequences. The important point about the application of the precautionary principle in this case is that 'decision-makers should be cautious': per Stein J in *Leatch v National Parks and Wildlife Service* (1993) 81 LGERA 270 at 282. The application of the precautionary principle dictates that a cautious approach should be adopted in evaluating the various relevant factors in determining whether or not to grant consent, it does not require that the greenhouse issue should outweigh all other issues.(45)

In so concluding, her Honour highlighted the balancing act required by s 90. The precautionary principle was but one factor to be weighed in the balance.

Alumino (Aust) Pty Ltd v Minister Administering the Environmental Planning and Assessment Act 1979 (46) concerned an appeal seeking to establish an aluminium dross plant. Talbot J reiterated what he had said in *Nicholls*. He stated:

It is obvious that where development involves the handling and processing of materials which have the potential to cause significant harm to the health of human beings and vegetation, *extreme caution must be used* in determining whether development consent will be forthcoming. In the present case the Court has sat and listened to the testing of technical opinions and advice tendered by expert witnesses in the relevant fields ... the Court has the advantage of knowing that none of the applicant's expert witnesses were persuaded to deviate from their conviction that the plant could be operated in a way which would not have any significant environmental consequence ... this is not a case which there really is a competing expert view demonstrating different scientific opinions which remain unresolved. Rather it has been demonstrated that the dross recycling process can be managed and controlled in such a way that the predictions will be met. (47) [Emphasis added]

His Honour was satisfied that there was no relevant scientific uncertainty, endorsing at the same time the taking of a cautionary approach.(48)

Bridgetown/Greenbushes Friends of the Forest Inc v Department of CALM is a decision of the Full Court of the Supreme Court of Western Australia. (49) One of the conditions imposed on a proposal to log karri forest included it being managed 'in accordance with a precautionary approach'. The plaintiff claimed that, when read with the IGAE, it involved an application of the precautionary principle, which it alleged had been breached. Templeman J noted that the condition referred to the precautionary *approach*, not the principle. His Honour was of the view that such a precautionary approach did not dictate one specific course of action to the exclusion of others, citing *Nicholls*.

The precautionary principle is also discussed by Cox J in *R v Resource Planning and Development Commission* in the Supreme Court of Tasmania. (50)

Northcompass v Hornsby Council (51) was interesting because the development was a bioremediation plant which, in theory, would advance ESD. However, there was relevant scientific uncertainty as to the effect of odour and air pollution from windrows on young children and residents living in close proximity. The case is a good example of how a number of ESD principles can come into play and sometimes conflict. The decision concluded:

It must be said that this case is not an example of the so-called NIMBY (not in my back yard) syndrome. On the evidence, it is simply inappropriate to locate a bioremediation plant with open windrows so close to sensitive land uses. One would need a trial which proved an environmental success, rather than a failure, to lend confidence in good environmental performance given the present location. Alternatively, a proponent could demonstrate the soundness of a proposal by field or laboratory tests simulating operating conditions, as suggested by the EPA. This has not occurred.

The Council argues that the concept of a bioremediation facility is an excellent example of ecologically sustainable development. We agree. It is consistent with ESD to have a facility which takes green waste away from diminishing landfill and provides valued added end products. This is consistent with the core principle of intergenerational equity. It must, however, be noted that another core ESD principle is the precautionary principle. This was mentioned by the EPA and a cautionary approach was quite specifically adopted by Commissioner Cleland in his Report and recommendations to Council. We think that he was correct to do so, given the particular factual context and bufferless location.

There are of course many Rio Principles which are relevant to environmental decision-making, including a case such as this. For example, the right to a healthy environment

(Principle 1). Indeed, the principle of environmental harm is a major cornerstone of ESD. This is most effectively accomplished through environmental impact assessment processes (Rio Principle 17) involving full public participation (Principle 10).

The applicability of ESD principles to designated development under Part 4 of the *EPA Act* and the inter-relationship of the principles has never been fully explored in the Court. It is unnecessary to do so in this case given our conclusion that the application should be refused on its merits for the reasons we have given.

In *Planning Workshop v Pittwater Council*, a case concerning the habitat of squirrel glider, Pearlman J left open the application of the precautionary principle since she had determined to refuse the development on the basis of its significant effect on threatened fauna.(52)

Nicholls, *Greenpeace* and other subsequent cases in the Land and Environment Court indicate that while the Court has applied the precautionary principle since *Leatch*, it has not been found to be a factor to be given such weight as to lead to a refusal of consent in the circumstances of the particular appeals.

International cases

In the *Danish Bees* case (53) the European Court of Justice indirectly applied the precautionary principle to justify a measure having equivalent effect to a quantitative restriction in EC law.(54) The case involved a decision made by the Danish Minister for Agriculture which prohibited the keeping of bees on the island of Laeso and certain neighbouring islands other than those of the sub-species, *Apis Mellifera Mellifera* (the Laeso Brown Bee).

The issue before the Court was whether the keeping on the islands of any species of bee other than the sub-species, *Apis Mellifera Mellifera* constituted a measure having equivalent effect to a quantitative restriction within the meaning of Article 30 of the European Community Treaty (the EC Treaty) and whether, if that were the case, such legislation was justified on the ground of the protection and health and life of animals. The Danish Government maintained that the establishment of pure breeding areas for the sub-species, in a particular area within a Member's State, did not affect trade between Member States. It was contended that this did not constitute discrimination in respect of bees originating in other Member States and was not intended to regulate trade between Member States. Further, the effects on trade flowing from the Minister's prohibition were too hypothetical and uncertain to be regarded as a measure likely to obstruct it.

Notwithstanding the lack of conclusive scientific evidence establishing both the nature of the sub-species and its risk of extinction, the Court concluded that the decision made by the Minister constituted a measure having an effect equivalent to a quantitative restriction within the meaning of Article 30 of the EC Treaty and that the prohibition was also justified under Article 36 of the Treaty:

... measures to preserve an indigenous animal population with distinct characteristics contribute to the maintenance of biodiversity by ensuring the survival of the population concerned. By so doing, they are aimed at protecting the life of those animals and are capable of being justified under Article 36 of the Treaty.

The legislation was also justified under the Biodiversity Convention ratified by the EC. In so holding, the Court took a precautionary approach to the preservation of indigenous animal populations and the conservation of biodiversity.

In *R v Secretary of State for Trade and Industry ex parte Duddridge and Others* (55) three children sought an order that the responsible Minister or Department issue a regulation to limit the electro magnetic radiation (EMR) which electricity licensees could emit. The applicants argued that the precautionary principle should be applied because there was scientific uncertainty about the possible link between EMR and health

effects. In the Queens Bench Division, Smith J limited the application of the precautionary principle to environmental, rather than health risks, as well as finding that there was no catch-all 'any other circumstances' provision in the British legislation which would entitle her to take it into account. With respect to EC law, Smith J concluded that references in the Maastricht Treaty to ESD principles were mere policy and would permit, but did not compel, their consideration by the decision-maker. This result, is in sharp contrast to the Pakistani case of *Zia v WAPDA* (56) concerning EMR.(57)

In *Zia v WAPDA* the respondent authority was constructing an electrical grid station in a residential area. The petitioners, who were residents within the vicinity, alleged that the electromagnetic field created by the high voltage transmissions lines at the station would pose a serious health hazard to them. Article 9 of the Constitution of Pakistan (1973) provides that 'no person shall be deprived of life or liberty save in accordance with law'. Article 14 provides that 'the dignity of man and subject to law, the privacy of the home shall be inviolable'. Article 184(3) provides for public interest litigation. Where the 'life' of citizens is degraded, the quality of life is adversely affected and health hazards are created affecting a large number of people, the Supreme Court, in exercising its jurisdiction under Article 184(3) of the Constitution, may grant relief to the extent of stopping the functioning of factories/units which create pollution and environmental degradation.

The Supreme Court held, inter alia, that the existing scientific evidence regarding the possibility of adverse biological effects from exposure to power-frequency fields, as well as the possibility of reducing or eliminating such effects, was inconclusive. In responding to such scientific uncertainty the Court applied the precautionary principle.

To my knowledge there have been a number of cases in the Land and Environment Court which have considered the potential impact of EMR on animals and humans.

The Philippines case of *Minors Oposa v Secretary of State of the Department of Environment and Natural Resources* (58) involved proceedings in the Supreme Court for an order that the Government terminate forest destruction carried out pursuant to existing legislation and future licenses, on the basis that the issue of the licenses contravened citizen's environmental rights contained in the 1987 Constitution and a number of other instruments.

Section 16 of the Constitution provides:

The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

The Court applied the principle of intergenerational equity to grant standing to plaintiffs, who had not reached the age of the majority, to represent the interests of themselves and future unborn citizens.(59)

In *AP Pollution Control Board v Nayudu*, (60) the Supreme Court of India was considering a petition claiming that certain hazardous industries proposed to be established by the respondents without the necessary certificate from the State Pollution Control Board could not proceed. M. Jagannadha Rao, J discussed the difficulties faced by environmental courts globally in dealing with scientific data. He cited articles by Lord Woolf and Carnworth on the desirability of a specialist environmental court. In particular, his Honour discussed the status and application of the precautionary principle citing Barton and other articles.

His Honour said:

The 'uncertainty' of scientific proof and its changing frontiers from time to time has led to great changes in environment concepts during the period between the Stockholm Conference of 1972 and the Rio Conference of 1992. In *Vellore Citizens' Welfare*

Forum v Union of India and others, 1995 (5) SCC 647, a three Judge Bench of this Court referred to these changes, to the 'precautionary principle' and the new concept of 'burden of proof' in environmental matters. Kuldip Singh, J after referring to the principles evolved in various international Conferences and to the concept of 'Sustainable Development', stated that the Precautionary Principle, the Polluter-Pays Principle and the special concept of Onus of Proof have now emerged and govern the law in our country too, as is clear from Articles 47, 48-A and 51-A(g) of our Constitution and that, in fact, in the various environmental statutes, such as the *Water Act, 1974* and other statutes, including *The Environment (Protection) Act 1986*, these concepts are already implied. The learned Judge declared that these principles have now become part of our law. The relevant observations in the *Vellore Case* in this behalf read as follows:

In view of the above-mentioned constitutional and statutory provisions we have no hesitation in holding that the *Precautionary Principle* and the Polluter-Pays Principle are part of the environmental law of this country.

The Supreme Court discussed the development of the precautionary principle in replacing the Assimilative Capacity Principle adopted at an earlier point of time.

Rao J stated:

The principle of precaution involves the anticipation of environmental harm and taking measures to avoid it or to choose the least environmentally harmful activity. It is based on Scientific uncertainty. Environmental protection should not only aim at protecting health, property and economic interest but also protect the environment for its own sake. Precautionary duties must not only be triggered by the suspicion of concrete danger but also by (justified) concern or risk potential. The precautionary principle was recommended by the UNEP Governing Council (1989). The Bomako Convention also lowered the threshold at which scientific evidence might require action by not referring to 'serious' or 'irreversible' as adjectives qualifying harm. However, summing up the legal status of the precautionary principle, one commentator characterised the principle as still 'evolving' for though it is accepted as part of the international customary law, 'the consequences of its application in any potential situation will be influenced by the circumstances of each case'.

The Court also discussed the issue of burden of proof in cases involving the application of the precautionary principle:

... Therefore, it is necessary that the party attempting to preserve the *status quo* by maintaining a less-polluted state should not carry the burden of proof and the party who wants to alter it, must bear this burden. (See James M. Olson, *Shifting the Burden of Proof*, 20 *Envtl. Law* p.891 at 898 (1990). (Quoted in Vol 22 (1998) *Harv. Env. Law Review* p. 509 at 519, 550).

The precautionary principle suggested that where there is an identifiable risk of serious or irreversible harm, including, for example, extinction of species, widespread toxic pollution in major threats to essential ecological processes, it may be appropriate to place the burden of proof on the person or entity proposing the activity that is potentially harmful to the environment.

The case of *Ashburton Acclimatisation Society v Federated Farmers of New Zealand Inc* (61) was determined well before ESD principles became included in legislation. It is referred to by Burton and picked up by the Supreme Court of India in *Nayudu*. It involved an appeal, referring back to the Planning Tribunal for consideration, its report for a national water conservation order affecting the Raikaia River. The contest was between conservationists, who wished the flow and characteristics of the river to be conserved, and farmers who wished to use the water from the river for irrigation. It was submitted that if implemented the report would unduly prejudice the rights and expectation of the Farmers Federation.

At the heart of the appeal was the ground that the Tribunal had misconstrued of the Act by placing undue emphasis upon protection of outstanding features of the river and by failing to pay sufficient regard to the competing need of out of stream users, in particular the needs of primary industry and the community. The Tribunal had regarded the sustainability of the amenity afforded by the waters in their natural state as being the overriding consideration under the *Water and Soil Conservation Act 1967* (NZ).

The Court of Appeal held that the *Water and Soil Conservation Act*, as amended, placed emphasis on conservation of natural waters. Once it was determined that the amenity afforded by the waters in their natural state should be recognised and sustained, *primacy* was to be accorded to that object and it should not be defeated by striving to achieve a balance for other users of water. The needs of primary industry were to be given weight in considering an application for a conservation order, but this was to be done bearing in mind that the primary object of the Act was the conservation of waters in their natural state. The case is a good illustration of a court adopting a precautionary approach given the scope, purpose and subject matter of the legislation.

The New Zealand High Court case of *Greenpeace New Zealand Inc v Minister for Fisheries* (62) involved a total allowable commercial catch (TACC) for orange roughy set by the Minister of Fisheries. *Greenpeace* applied for judicial review of the decision on the basis that the orange roughy fishery was depleted and that overfishing had endangered its survival. The New Zealand Fishing Industry Association and others argued that:

... the research into the fishery has not yet been sufficient to establish that the concerns of the applicant or the Ministry scientists are justified and sees an excessive reduction as being not only unjustified, but as imposing serious and unnecessary losses on the industry.(63)

Greenpeace argued that, in considering the TACC, the Minister was required to apply the precautionary approach. Counsel drew attention to a statement of the Minister referring to decisions of the kind under consideration, when he had said:

It must be a fundamental starting point that management decisions are based on the best data and science available and, in the absence of adequate data, upon the appropriate application of precautionary approaches to management.(64)

After referring to the decision in *Leatch*, Gallen J recognised that the precautionary approach would also apply in New Zealand. His Honour noted that in the case under consideration, there was no statutory obligation for the precautionary approach to be adopted under the *Fisheries Act 1983*, but the statute reflected international obligations accepted by New Zealand and that 'there is in that context at least a movement towards the view that in questions of such moment, a degree of caution is appropriate'. (65) His Honour went on to say that:

The fact that a dispute exists as to the basic material upon which the decision must rest, does not mean that necessarily the most conservative approach must be adopted. The obligation is to consider the material and decide upon the weight which can be given it with such care as the situation requires At the same time I note, as counsel did, that in the end this is a weighing and not a decisive factor. (66)

It was held that the precautionary approach must be applied by the Minister in formulating a TACC:

In assessing the information upon which a decision must be based, the precautionary principle ought to be applied so that where uncertainty or ignorance exists, decision-makers should be cautious. (67)

As noted by Mascher, the Court's finding signals an important landmark in New Zealand environmental law, with implications for fisheries law worldwide, as well as environmental law in general. (68)

The *Kernkraftwerk Krummel* case heard in the Supreme Administrative Court of Germany is of interest. (69) The Court overturned the lower Court's decision holding that the administration had an obligation to check whether or not radiation from the Krummel nuclear power station stayed within the limits of *precaution* required by the *Atomic Energy Act*. The Court held that if the latest scientific evidence indicated that earlier norms were now insufficient, the administration should set higher precautionary standards. While the weighing of risks was one for the administration, not to be replaced by the opinion of the courts, the lower Court should have checked whether the administration had ignored or paid unacceptably little interest in the increase in leukaemia cases noted in the vicinity of the plant.

Of particular importance to the development of ESD and the precautionary principle is the *Case Concerning the Gabčíkovo-Nagymaros Project (Hungary v Slovakia)* in the International Court of Justice (70), otherwise known as the *Danube Dam case*. The Separate Opinion of Judge Weeramantry, Vice President of the ICJ, is of signal importance, if not inspirational. While his Honour espoused the principle in commendable detail, the main Opinion has come under attack by some commentators as not taking the many opportunities presenting themselves (at different points of time) to apply the principle, describing the Opinion as a missed opportunity.(71) The Vice President, however, referred to the duty on States to carry out 'continuing environmental impact assessment' because of the potential for significant impact on the environment and that this was 'a specific application of the larger general principle of caution'.

The Appellate Body of the World Trade Organization had to directly consider the status of the precautionary principle in the *Beef Hormone Case*. (72) The Appellate Body, in its report, spoke directly to the relevance of the principle in interpretation of the relevant Agreement. The report pointed out that the principle had, in essence, been incorporated into the Agreement. This is an indication of its acceptance as part of international customary law. However, it did not apply because it could not override the explicit wording of certain Articles in the Agreement which provided that measures be based on risk assessment, a duty the EU had failed to comply with.

Cameron has noted that:

The Appellate Body recognised that one of the issues in the appeal was 'whether, or to what extent, the precautionary principle is relevant in the interpretation of the SPS Agreement'. The Appellate Body decided that, the principle was 'the subject of debate among academics, law practitioners, regulators, and judges,' and the status of the precautionary principle in international law was something they should not rule on. They decided that the *precautionary principle cannot override our finding ...*' namely that the EC import ban ... in accordance with good practice, is, from a substantive point of view, not based on risk assessment. The Appellate Body did however agree with the European Communities 'that there is no need to assume that Article 5.7 exhausts the relevance of a precautionary principle'.(73)

Deimann describes the reasoning of the Appellate Body on the relevance of the precautionary principle as containing 'considerable ambiguity'.(74) Having found that the articles in question explicitly recognised the right of Members to establish their own levels of sanitary protection, which may be higher and more cautious than implied by international requirements and guidelines, it was difficult to comprehend how the principle could not override the text of the Agreement.

Some practical examples of the application of the precautionary principle

The application of the precautionary principle is becoming a daily occurrence for decision-makers, especially local government, given the requirements of the *Local Government Act* and an increasing number of local environmental plans incorporating ESD. Central Agencies are also having to consider the relevance of the principle in their decisions and recommendations. Both Commonwealth and NSW Commissioners

of Inquiry have considered and applied the precautionary principle in their reports (75). The NSW Minister for Planning utilised the precautionary principle in refusing the proposed Lake Cowell gold mine in the central west of the state - 'the application of the precautionary principle means that the unknown risks to this significant environment can only be avoided by refusing this mining proposal'. (76)

Applying the Precautionary Principle (by Deville and Harding) is a very useful book providing practical guidance to the application of the principle in a myriad of situations.(77)

The Industry Commission Report of the Inquiry into Ecologically Sustainable Land Management examined ESD and the precautionary principle. Its centrepiece recommendation was the establishment of a statutory duty of care to the environment. The proposed duty would require everyone who influences the management of the risks to the environment to take all reasonable and practical steps to prevent harm to the environment that could have been reasonably foreseen. (78)

Conclusion

Freestone sees the emergence of the precautionary principle as one of the most remarkable developments of the last decade and arguably one of the most significant in the emergence of international environmental law itself.(79) The great preponderance of opinion nowadays is that the principle has become part of international customary law.

How the rhetoric of the principle can be operationalised is one of the challenges for the first decade of the 21st Century. However, what is slowly occurring is that the bones of the principle are starting to be fleshed out. It must be remembered that the precautionary principle is not absolute or extreme. It does not prohibit an activity until the science is clear. It does however change the underlying presumption from freedom of exploitation to one of conservation.

One thing is clear - the precautionary principle will not go away. It is here to stay, with or without legislative prescription. Decision-makers and courts (hearing appeals or challenges) will not be able to dodge it or merely pay lip-service to it. Undeniably the courts will be required to review its application and attempt to apply it. In doing so, we will be called upon to evaluate the principle and its place in environmental decision-making. We must not shirk this responsibility.

[The research and assistance of my tipstaff, Rosie Jenkins, is gratefully acknowledged]

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Appendix

Australian legislation expressly including ESD principles

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Agricultural and Veterinary Chemicals (Administration) Act 1992
Agricultural and Veterinary Chemicals Act 1992
Agricultural and Veterinary Chemicals Code Act 1994
Antarctic Treaty (Environment Protection) Act 1980
Australian Centre for International Agricultural Research Act 1982
Australian Wool Research and Promotion Organisation Act 1993
Bounty (Fuel Ethanol) Act 1994
Environment Protection and Biodiversity Conservation Act 1999
Fisheries Administration Act 1991
Fisheries Legislation Amendment Act 1997
Fisheries Management Act 1991
Great Barrier Reef Marine Park Act 1975
Horticultural Research and Development Corporation Act 1987
Meat and Livestock Industry Act 1995
Murray-Darling Basin Act 1993
National Environment Protection Council Act 1994
National Environment Protection Measures (Implementation) Act 1998
National Heritage Trust of Australia Act 1997
Natural Resources Management (Financial Assistance) Act 1992
Primary Industries and Energy Research and Development Act 1989
Productivity Commission Act 1998
Resource Assessment Commission Act 1989
Trade Practices Regulations (Amendment) 1997

New South Wales

Agricultural and Veterinary Chemicals (New South Wales) Act 1994
Catchment Management Act 1989
Coastal Protection Act 1979
Coastal Protection Amendment Act 1998
Contaminated Land Management Act 1997
Electricity (Pacific Power) Act 1950
Electricity Legislation Amendment Act 1995
Electricity Transmission Authority Act 1994
Energy Services Corporations Act 1995
Energy Services Corporations Amendment Act 1995
Environmental Offences and Penalties Act 1989
Environmental Planning and Assessment Act 1979

Environment Planning and Assessment Amendment Act 1997
Fire Brigades Act 1989
Fire Services Legislation Amendment Act 1998
Fisheries Management Act 1994
Fisheries Management Amendment Act 1997
Gas Supply Act 1996
Government Pricing Tribunal Act 1995
Government Pricing Tribunal Amendment Act 1995
Independent Pricing and Regulatory Tribunal Act 1992
Local Government Act 1993
Local Government Amendment (Ecologically Sustainable Development) Act 1997
Local Government Amendment (General) Regulation 1993
Marine Parks Act 1997
Murray Darling Basin Act 1991
National Environment Protection Council (New South Wales) Act 1995
National Parks and Wildlife Act 1974
Native Vegetation Conservation Act 1997
Olympic Co-ordination Authority Act 1995
Protection of the Environment Administration Act 1991
Protection of the Environment Administration Amendment (Environmental Education) Act 1998
Protection of the Environment Operations Act 1997
Rural Fires Act 1997
State Owned Corporations Act 1989
State Owned Corporations Amendment Act 1995
Sustainable Energy Development Act 1995
Sydney Harbour Foreshore Authority Act 1998
Sydney Water Act 1994
Sydney Water Catchment Management Act 1998
Threatened Species Conservation Act 1995
Timber Industry (Interim Protection) Act 1992
Transport Administration Amendment (Rail Corporatisation and Restructuring) Act 1996
Waste Minimisation and Management Act 1995
Water Administration Act 1986
Water Board (Corporatisation) Act 1994
Water Legislation Amendment Act 1997

Victoria

Agricultural and Veterinary Chemicals (Victoria) Act 1994
Catchment and Land Protection Act 1994
Coastal Management Act 1995
Co-operatives Act 1996
Environment Protection Act 1970
Fisheries Act 1995
Flora and Fauna Guarantee Act 1988
Forests Act 1958
Murray-Darling Basin Act 1993
National Environment Protection Council (Victoria) Act 1995
Planning and Environment Act 1987
Water Act 1989

Queensland

Agricultural and Veterinary Chemicals (Queensland) Act 1994
Environment Protection Act 1994
Coastal Protection and Management Act 1995
Fisheries Act 1991
Integrated Planning Act 1997
Land Act 1994
Local Government Act 1993
Murray-Darling Basin Act 1996
National Environment Protection Council (Queensland) Act 1994

Nature Conservation Act 1992
Queensland Competition Authority Act 1997
Torres Strait Fisheries Act 1984
Water Resources Act 1989
Wet Tropics World Heritage Protection and Management Act 1993

South Australia

Economic Development Act 1933
Environment Protection Act 1993
Local Government Act 1934
Murray-Darling Basin Act 1992
National Environment Protection Council (South Australia) Act 1995
Water Resources Act 1990

Tasmania

Environmental Management and Pollution Control Act 1994
Public Land (Administration and Forests) Act 1991
Land Use Planning and Approvals Act 1993
Living Marine Resources Management Act 1995
Marine Farm Planning Act 1995
Resource Management and Planning Appeal Tribunal Act 1993
State Policies and Projects Act 1993

Western Australia

Agricultural Chemicals (Western Australia) Act 1995
Fish Resources Management Act 1994
National Environment Protection Council (Western Australia) Act 1996

Northern Territory

Agricultural and Veterinary Chemicals (Northern Territory) Act 1994
Fisheries Act 1988
National Environment Protection Council (Northern Territory) Act 1994
Parks and Wildlife Commission Act 1995
Pastoral Land Act 1992

Australian Capital Territory

Auditor-General Act 1996
Canberra Tourism and Events Corporation Act 1997
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