THE PRECAUTIONARY PRINCIPLE AND ITS ROLE IN COASTAL RISK MANAGEMENT UNDER THE NZ COASTAL POLICY STATEMENT AND THE RESOURCE MANAGEMENT ACT

Introduction

This paper sets out the understanding of Coastal Ratepayers United (CRU) of the precautionary principle (PP) and its applicability to the management of coastal hazard. It notes where and when the PP is to be used and by whom; and, because the PP is applied in the absence of adequate scientific information and evidence, it identifies the need for the PP to be subject to other checks and balances to avoid its misuse.

CRU sees the need for this clarification as a way of avoiding a repeat of the misguided application of the PP as in the investigations leading to the coastal management provisions in the Kapiti District's Proposed District Plan which had to be withdrawn.

Origin of the term Precautionary Principle[1]

It is widely accepted that the precautionary principle originally emerged from Germany in the mid-1970s where it was known as the Vorsorgeprinzip[2]. The World Charter for Nature, which was adopted by the UN General Assembly in 1982[3], was the first international endorsement of the precautionary principle and by the late 1980s the principle was being incorporated into European environmental statements. It was subsequently reflected in a number of international conventions, but the most widely cited is the 1992 Rio Declaration on Environment and Development where, 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[4].*

More recently, the NZ Coastal Policy Statement (NZCPS)[5] reiterated this when it made the precautionary approach one of its key policies, *Policy 3: Precautionary Approach*, which requires local authorities[6] to –

(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.
(2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that:

> *(a) avoidable social and economic loss and harm to communities does not occur;*
> *(b) natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and*
> *(c) the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations.*

This requires the precautionary approach to be applied *inter alia* to the use and management of coastal resources so as to avoid social and economic loss and harm from the effects of climate change and in meeting the needs of future generations.

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[1] For the purpose of this discussion paper, Precautionary Principle and Precautionary Approach are taken as synonymous. According to COMEST/UNESCO (2005) *The Precautionary Principle* - "in general, *principle* is employed as the philosophical basis of the precaution and *approach* as its practical application".
[2] Stevens, Mary (2002) *The Precautionary Principle in the International Arena*. Sustainable Development Law and Policy, Volume 2, Issue 2, Article 7.
[3] http://www.un.org/documents/ga/res/37/a37r007.htm
[4] http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm
[5] New Zealand Government (2010) *New Zealand Coastal Policy Statement 2010*. New Zealand Department of Conservation (DoC).
[6] The NZCPS 2010 states: "This NZCPS is to be applied as required by the [RMA] by persons exercising functions and powers under the [RMA]" (page 7) and it is therefore the role of the local authority (or the Environment Court) not the role of coastal scientists to apply the NZCPS 2010 as required by the RMA.

Application of the Precautionary Principle

COMEST/UNESCO[7] concluded that the precautionary principle is to be invoked where –

- *there exist considerable scientific uncertainties;*
- *there exist scenarios (or models) of possible harm that are scientifically reasonable (that is based on some scientifically plausible reasoning);*
- *uncertainties cannot be reduced in the short term without at the same time increasing ignorance of other relevant factors by higher levels of abstraction and idealization;*
- *the potential harm is sufficiently serious or even irreversible for present or future generations or otherwise morally unacceptable;*
- *there is a need to act now, since effective counteraction later will be made significantly more difficult or costly at any later time.*

It is debatable whether all these requirements are present in the management of coastal hazard arising from climate change. However, the two salient parameters for the application of the precautionary principle are still as in the original definition – (1) threats of serious or irreversible damage, and (2) lack of full scientific evidence or, as the European Commission[8] puts it, "*recourse to the precautionary principle presupposes that potentially dangerous effects deriving from a phenomenon, product or process have been identified, and that scientific evaluation does not allow the risk to be determined with sufficient certainty*."

The European Commission[9] continues that, "*measures based on the precautionary principle should be, inter alia:*

- *proportional to the chosen level of protection,*
- *non-discriminatory in their application,*
- *consistent with similar measures already taken,*
- *based on an examination of the potential benefits and costs of action or lack of action (including, where appropriate and feasible, an economic cost/benefit analysis),*
- *subject to review, in the light of new scientific data, and*
- *capable of assigning responsibility for producing the scientific evidence necessary for a more comprehensive risk assessment."*

By definition, values and measures arrived at through the application of the precautionary approach are derived in the absence of scientific certainty and are not based on evidence. Such values and measures must therefore be subjected to other checks and balances and some of these are considered below.

Focus the role of science on assessing the risk and not on managing it

The precautionary approach is about risk and there are two key steps in dealing with risk –

- Risk assessment and analysis
- Risk management

Cameron[10] defines **risk assessment** as the process of converting uncertainty into risk, and it entails:

- analysing the initiating events and the routes (pathways) through which the effect occurs
- specifying the size and severity of the risk
- estimating probabilities and expected values

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[7] World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) (2005) *The Precautionary Principle*. UNESCO, Paris.
[8] European Commission (2000) *Communication from the Commission on the precautionary principle*. Brussels, 02.02.2000 COM(2000) 1
[9] *op. cit.*
[10] Cameron, Linda (2006) *Environmental Risk Management in New Zealand – Is There Scope to Apply A More Generic Framework?* New Zealand Treasury Policy Perspectives Paper 06/06.

Risk assessment/analysis is a process which can certainly benefit from scientific research and investigation and in the application of a robust scientific approach there is no role for the PP. Cameron[11] further recommends that risk assessment "*needs to be considered in the context of a more generic risk management framework, with clear guidelines that provide a systematic approach to setting the best course of action under uncertainty*".

However, the Biosecurity Council[12] recommends further caution - "*Scientists do not usually provide a unanimous body of opinion on a subject; there may be divergent scientific views on a subject. All relevant scientific opinion should be considered in a risk analysis and judged on the weight of available scientific evidence.*" Therefore regulatory measures (risk management) cannot be imposed simply on the basis of scientific opinion about perceived risks, even if arrived at through the application of a purely scientific approach. It is therefore essential that scientific advice is thoroughly questioned by other scientists (through peer review) as well as by the affected communities and that decisions reflect the spectrum of opinions that may exist[13].

The second step, **risk management** builds on the risk assessment/analysis and attempts to answer the questions: Does anything need to be done about the risk? If so, what can be done about it? What should be done about it? Who should it be done by? To these can be added the question – When?

One thing is certain – "*a zero-risk approach is untenable practically as well as conceptually* [and] *absolute safety cannot be a sensible regulatory goal*"[14] and risk must therefore be managed.

Risk management is the responsibility of private landowners, planners, managers and local authorities and not scientists. Different people have different attitudes to risk and different degrees of ability to manage given risks. In such circumstances, there is no such thing as an objectively-determinable "socially-acceptable" level or risk. The European Commission[15] observes that "*judging what is an "acceptable" level of risk for society is an eminently political responsibility ….. In some cases, the right answer may be not to act or at least not to introduce a binding legal measure. A wide range of initiatives is available in the case of action, going from a legally binding measure to a research project or a recommendation.*"

Risk management raises the question of who has the decision-making responsibility, particularly in regards to private property. Private property owners have rights and they are responsible for decision-making regarding their property. It is they who should apply the precautionary approach when they develop options for responding to changing risks, and assess the likely costs and benefits of those options. They will choose a decision that best reflects their risk preferences.

Planning and management decisions, while informed by the scientific assessment, must also take into account a broader spectrum of non-scientific parameters, influences and opinions and be based on conventional risk assessment tools, including but not limited to cost-benefit analysis as mentioned by the European Commission[16].

DoC's Guidance Note on NZCPS Policy 3[17] is quite clear that "*The application of the precautionary approach is a risk management approach rather than a risk assessment approach*." Science is only

[11] *op. cit.*

balance the cost to property owners of any restrictions with the actual risk (and its time scale) and one can't do this if there are hidden "precautionary" adjustments."

It is also current practice to make a distinction between existing use and greenfield development. For example, Bell[23] recommends "*an adaptive management approach for existing development which is periodically adjusted*" in response to monitoring of sea level and associated reviews. This is different from new developments which need to be considered within a longer term context[24].

Accept that the position of the coastline is based on more than sea level

In assessing coastal hazard, the focus is usually on the position of the coastline, erosion and accretion; and, the emphasis in such an assessment/analysis is usually on sea level. However, according to the Ministry for the Environment[25], the position of the coastline is the result of the following drivers and interactions between them:

- *relative sea-level rise*
- *long-term sea-level fluctuations*
- *the frequency and magnitude of storm surges*
- *tidal range (coasts with relatively small tidal ranges could be more vulnerable)*
- *storminess and wave and/or swell conditions*
- *rainfall patterns and intensity, and their influence on river and cliff sediment supply*
- *Landforms and geology of the coast, and any modifications that people have made (perhaps indirectly) to the coast.*

To these can be added –

- distance from sources of sediment and littoral drift
- predominant wind direction and speed and impact on wave climate
- storm events and storm surge and frequency

All the above have an important influence on the position of the coastline and any attempt to assess the risk of sea incursion must consider them all. In a changing climate, some of these influences can have a positive outcome in terms of the position of the coastline and a precautionary approach needs to work both ways.

What the precautionary approach is not

COMEST/UNESCO[26] has an excellent summary of what the precautionary approach is not. It states that,
"*To avoid misunderstandings and confusions, it is useful to elaborate on what the PP is not. The PP is not based on 'zero risks' but aims to achieve lower or more acceptable risks or hazards. It is not based on anxiety or emotion, but is a rational decision rule, based in ethics, that aims to use the best of the 'systems sciences' of complex processes to make wiser decisions. Finally, like any other principle, the PP in itself is not a decision algorithm and thus cannot guarantee consistency between cases. Just as in legal court cases, each case will be somewhat different, having its own facts, uncertainties, circumstances, and decision-makers, and the element of judgement cannot be eliminated.*"

Application of the precautionary approach should not be the default option; rather, it should be the last resort to be used only in the face of scientific uncertainty. As the Kapiti Coastal Experts Panel[27] noted, "*From a statistical perspective, it is recommended that "best estimates" rather than precautionary values be adopted, with margins of error or factors of safety kept separate from the*

[23] Bell, R.G. (2011) *Sea-Level rise synthesis for Auckland (2011)*. Prepared for Auckland Council. NIWA
[24] However, there may not be any economic justification for discriminating against the new development.
[25] King, Julie (2009) *Preparing for Coastal Change – A guide for Local Government in New Zealand*. Ministry for the Environment
[26] *op. cit.*
[27] *op. cit.*

estimates and added at the end if appropriate. Alternatively, one could give several scenarios based on best, worst and mid-way cases."

Conclusion – passing the test for precaution

The precautionary approach is only evoked when the uncertainty is material to the management of significant risks. Not only does the uncertainty in the likelihood of relevant events need to be high, but this uncertainty needs to encompass events that have serious (adverse) consequences – uncertainty alone does not create the need for precaution. For example, while the range of the projected sea level rise from 1986-2005 to 2081-2100 (0.26 m to 0.82 m)[28] is large, it is reasonably quantified so any risks can be assessed and management strategies developed for them. A precautionary approach is not called for.

Even where the uncertainty is not constrained (*e.g*. collapse of marine-based sectors of the Antarctic ice sheet) the likelihood might still be assessed as being so low and distant that the risk can be put aside until further information can be gathered. This is a form of precaution.

Finally, the uncertainty may simply not encompass events with serious enough consequences. In Kapiti, coastal erosion in Queen Elizabeth Park has different consequences from erosion in built up areas, and the need for precaution in the face of uncertainty differs accordingly.

The decision on whether to apply caution requires the science to deliver untainted estimates of risk, consequences and uncertainty across the full range of outcomes. It also requires information from diverse other experts about the likely consequences for each event. The optimal decision may well depend on the nature of what is being managed.

[28] Church, *et al* (2013) *Sea level change.* In IPCC AR5 WG1