

# **Murray-Darling Basin Royal Commission & the Law-Science Linkage**

## **Part 3. The Precautionary Principle, Procedural Fairness and the Public Interest**

**Dr Ted Christie, 11 March 2019**



### **Disclosure Statement**

*Ted Christie does not work for, consult to, own shares in or receive funding from any company or organisation that would benefit from this article, and has no relevant affiliations*

**TAGS:** MDB Plan; MDB Royal Commission; risk analysis; concern assessment; procedural fairness; public interest; Rio Declaration; Inter-Governmental Agreement on the Environment

### **The Key Issue to be Reviewed: *The Precautionary Principle***

#### **MDB Royal Commission Report ~ ‘Climate Change’ at 251: *The Precautionary Principle***

As defined in the Water Act, *the precautionary principle* instructs the MDBA that, in circumstances where there is a “*threat of serious or irreversible environmental damage, a lack of scientific certainty is no reason to postpone measures to prevent that damage occurring.*”

Incorporating climate change projections into the determination of the ESLT (and hence the SDLs) is precisely the kind of precaution needed to be taken to prevent risk of serious environmental degradation”.

#### **MDB Royal Commission Report (2019)**

*“The term ‘compromise’ in the definition of ESLT must be interpreted with reference to ... the requirements of ecologically sustainable development (ESD) (in particular the precautionary principle) as that term is defined in the Water Act, and the legislative fact that the Basin is an overallocated water system and its environment has become degraded and requires special measures to restore and protect it...” (Author’s emphasis).*

#### **Response by the MDB Authority to the Royal Commission Report**

*“The Authority considers it applied this concept [‘compromise’] correctly in determining an ESLT and in setting the SDL...The Water Act does not prescribe a specific level of protection or restoration. As with the identification of those environmental assets, ecosystem functions and environmental outcomes which are key, a consideration of restoration and protection requirements was an important decision point...”*

*But it is important to recognise that within the boundaries of the Water Act, taking account of its objects and in giving effect to relevant international agreement connections, the Authority adopted an objective of achieving a healthy working Basin”.*

**Comment:**

*Environmental legislation throughout Australia has taken two different pathways for defining the legal meaning prescribed for the precautionary principle.*

*The original pathway, in May 1992, was the “Inter-Governmental Agreement on the Environment” (“IGAE”) policy. But the IGAE definition for the principle has become “diluted” in terms of the need for ‘risk analysis’ as a decision-making aid.*

*Contemporary Australian environmental legislation generally excludes the IGAE requirement for risk analysis in the legal meaning prescribed for the precautionary principle. The Federal Water Act (2007) is but one example.*

*Risk analysis is a broad concept that incorporates the processes of risk assessment, risk management and risk communication.*

- *Risk assessment identifies risks that may result in, for example, environmental harm in the MDB. Risks are characterized on the basis of seriousness and the probability of harm. The need for mitigation measures are assessed.*
- *Risk management aims to reduce identified risks to an acceptable level of risk by evaluating and implementing plans or mitigation measures to manage risk.*
- *Risk communication enables, in this case, the MDB Authority, to provide information about risk to stakeholders to aid their understanding of risk. And, through discussing issues that address stakeholder concerns relating to environmental protection, to build trust with the MDB Authority.*

*Additional objectives address the public perception of risk, reducing conflict and for achieving equitable conflict resolution outcomes.*

## ***Introduction***

The precautionary principle provides a guide for decision-making to prevent potential environmental degradation when scientific uncertainty exists.

Excluding precaution may well mean that environmental degradation would only be identified after it had occurred — when it may be irreversible.

In **June 1992**, the precautionary principle was endorsed, on an international scale, through the signing by 172 nations of the ***Rio Declaration on Environment and Development***. The focus of *Principle 15 of the Rio Declaration* was on a precautionary approach to environmental protection.

Principle 15 of the Rio Declaration states: -

***“where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.***

The application of the precautionary principle is central to assessing the potential benefit of watering options under the MDB Plan e.g. sustainable diversion limits (SDLs) will take into account the precautionary principle: *The precautionary principle is a relevant consideration for developing the Basin Plan under the Water Act.*

### ***The Federal Water Act & the Precautionary Principle***

Under the legislative framework for developing the MDB Plan the MDB Authority and the Minister “[must] take into account the principles of ***ecologically sustainable development***<sup>1</sup>.

The Water Act defines five *Guiding Principles* for achieving *ecologically sustainable development* of which the ***precautionary principle***<sup>2</sup> is one.

The statutory definition for the precautionary principle prescribed in the *Federal Water Act (2007)*, at Section 4(2)(a), is similar to the Rio Declaration:

***“If 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 central legal requirement of the Basin Plan is to set ***Sustainable Diversion Limits***: Environmentally sustainable limits on the amount of water that can be taken from the Basin’s water resources into the future-taking account of the *precautionary principle* and *best available scientific knowledge*.

The ***MDB Authority*** requires “*the precautionary principle* [to be included] *in the Basin Plan along with provisions to require appropriate scientific analysis and risk assessment to be undertaken to demonstrate that the extraction of groundwater will not adversely impact on surface water flows, environmental watering or associated ecosystems before allowing for increased groundwater SDLs*”.

What are the consequences for decision-making in preparing the MDB Plan by applying the meaning of the precautionary principle in the Water Act?

### ***Application of the Precautionary Principle: The Water Act***

The precautionary principle represents a radical departure from the traditional scientific concepts for proof as there is no longer a requirement for conclusive scientific proof. Rather, it is sufficient to have “*reason to assume harmful effects*” - even if there is no scientific evidence to provide a causal link!

*This means that  
if there is a lack of scientific knowledge  
about sustainability of resources  
in some parts of the Murray-Darling Basin  
a precautionary approach must be taken  
in accord with how the principle is defined in the Water Act?*

The omission for the need for conclusive scientific evidence is a radical departure from objective scientific methods which rely on a carefully planned study combined with clear statistical evidence that quantifies the change and the precise environmental impacts that have taken place.

The use of the 95 per cent level of proof for the statistical evaluation of causality is an enduring tenet of experimental science – but is dispensed with by the precautionary principle.

So, it is not surprising that polarised viewpoints exist within the scientific community making the interpretation and application of the precautionary principle, as it is defined in the Water Act, problematic.

***Can the goal advanced by Justice Michael Kirby, of building legal foundations that are sound in science as well in law be applied to the meaning of the precautionary principle in the Water Act to resolve the existing conflict over the MDB Plan be achieved?***

*The core of this problem is statutory interpretation. Does the legal meaning for the precautionary principle as defined in the Federal Water Act effectively integrate law and science to resolve conflict over the Plan?*

**Comment:**

*The statutory meaning of the precautionary principle, as defined in the Water Act, is essentially equivalent to the meaning contained in the Rio Declaration. The Rio Declaration came into force after the IGAE.*

*Decision-making under the Water Act does not require an assessment of the risk-weighted consequences of various options when applying the precautionary principle.*

*A further problem is the reliance, or weight, that can be placed on decision-making by the MDB Authority when the precautionary principle is applied according to its 'restricted' or 'diluted' meaning in the Water Act - compared to its extended meaning in the IGAE?*

*Only the IGAE meaning for the precautionary principle incorporates the scientific concept of risk analysis as the cornerstone for risk assessment, risk management and risk communication to address decision-making under scientific uncertainty. This is not the case for the meaning of the principle as defined in the Water Act.*

*Could the legal meaning for the precautionary principle,  
as defined in the Water Act,  
place decision-making outcomes for the MDB Plan  
on a collision course with  
the need for ensuring procedural fairness  
between competing environment and development interests -  
as well as the need to safeguard the public interest?*

***The Precautionary Principle and Environmental Decision-Making:  
Procedural Fairness***

Some of the criticism of the precautionary principle reflects its effect on the integrity of the administrative decision-making process.

For the precautionary principle to have an effective role in resolving public interest environmental conflicts, where scientific uncertainty exists (e.g. the MDB Plan), **procedural fairness** must be seen to apply to stakeholders having competing environment or development interests.

For a situation where decision-making for the MDB Plan was in accord with the Water Act's meaning of the precautionary principle, it would be based on '*reason to assume harmful environmental effects*' - rather than conclusive scientific evidence to provide a causal link.

In this situation, the issue of procedural fairness becomes problematic.

The problem which may arise is an imbalance of power between competing environmental or development interests to problem-solve and to shape decision-making as the MDB Plan is developed.

For example, proponents of development activities may perceive that the opportunity to problem-solve and to shape decisions made under the MDB Plan is beyond their control as such an application of the principle implies that there is limited, or no opportunity, for them to influence the ultimate decision.

Claims of an imbalance of power between competing interests, in these circumstances, could mean that the ultimate decision be inordinately weighted towards the environment?

A possible problem for decision-making to avoid in this scenario may arise under the legislative framework for developing the MDB Plan: The need to take into account principles of *ecologically sustainable development*.

However, where risk analysis methodology is incorporated in the legal meaning of the statute e.g. the IGAE meaning, the integrity of the environmental decision-making process would be maintained.

*Risk analysis provides the connection between the precautionary principle and procedural fairness for developing the MDB Plan; by providing competing interests –the environment or development – with an equal opportunity to shape the final outcome.*

**Comment:**

***The precautionary principle should be considered within the structured approach of risk analysis. Implementing the precautionary principle should commence with a scientific evaluation, as complete as possible, to identify the degree of scientific uncertainty, where possible.***

***An application of the precautionary principle based on ‘reason to assume harmful environmental effects’ - rather than risk analysis – may not only be subjective, but also makes maintaining the integrity of the decision-making process problematic.***

## ***The Precautionary Principle and Environmental Decision-Making: Risk and the Public Interest***

Risk communication is also crucial to safeguard the **public interest**. It needs to be recognized that any risk, such as the risk associated with setting sustainable diversion limits for the MDB Plan, has **two dimensions**.

Both dimensions need to be considered in decision-making on risk:

- **“Scientific” (or “factual”) risk**, based on objective science.  
*This dimension consists of outcomes that can be measured - or predicted using mathematical models; e.g. risks for achieving environmental outcomes in the MDB Plan; and*
- **“Socio-cultural” risk**  
*This dimension reflects how a particular risk is viewed when values and emotions come into play. Risk perception involves people’s feelings, beliefs, attitudes and judgements.*

Risk management recognises that all human activity involves some level of risk but that it is rarely possible to reduce risk to a zero level. The key outcome for risk analysis is deciding whether an identified risk can be managed, by applying control measures, to an **acceptable level of risk**.

Decisions by science as to what constitutes an acceptable level of risk may be significantly different from public opinion. The resolution of this issue involves judgements of risks against benefits as well as judgement about costs.

*A source of controversy for risk assessment,  
is whether it is appropriate for science  
to determine the trans-scientific question for risk assessment  
of “how safe is safe enough?”*

The challenge for the MDB Authority is how to resolve conflicts that arise over risk between **objective science and risk assessment** and **subjective public perceptions of risk?**

***Such a situation represents the classic dilemma between the principles of expert scientific knowledge and democratic participation by the community in determining a standard for an acceptable level of risk!***

## **Comment:**

*Deriving a standard for an acceptable level of risk for the environment is problematic, not only for decision-making for the MDB Plan – but also is central for enhancing or restoring public trust in the MDB Authority.*

*But, there is a way forward to overcome this “log in the road” for risk assessment and risk management: That is, by providing room for both scientific evidence and community value-based perceptions of risk – to broaden the concept of risk assessment by adding the parallel activity of ‘concern assessment’<sup>3</sup>.*

## **Conclusions**

*“No matter how much the specialists sneer at an ‘irrational’ and ‘ignorant’ public, lay judgements about possible dangers are equally as important as scientific or technical analysis.”*

[Emeritus Professor Tim O’Riordan](#)

## **End Notes**

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<sup>1</sup> Section 21(4) Federal Water Act (2007)

<sup>2</sup> Section 4(2) Federal Water Act (2007)

<sup>3</sup> A cornerstone for ‘concern assessment’ is that it implements the idea of inclusive governance: This concept is “based on the assumption that all stakeholders have something to contribute to the process of risk governance and that their inclusion improves the final decisions rather than impedes the decision-making process or compromises the quality of scientific input”: [International Risk Governance Council](#), Lausanne, Switzerland

Read more on risk analysis and the IRGC concept of ‘concern assessment’ – for an environmental problem - using a Case Study approach based on [“Fire Fighting Foam Contamination, Public Health and the Issue of Acceptable Risk”](#).