TOWARDS THE APPLICATION OF THE PRECAUTIONARY PRINCIPLE IN SOUTH AFRICAN LAW

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1 Introduction

The last few decades have seen the incorporation of the precautionary principle in a number of international environmental conventions, as well as judicial developments, towards embedding it as a principle of international customary law.[1] At the core of the principle is that where there is a lack of scientific certainty about the impact and/or consequences of a proposed development or similar activity, then caution must be exercised and where necessary, measures be taken to protect the environment. As such, the precautionary principle is regarded as one of a suite of environmental law principles which underpin the concept of sustainable development, the foundation stone of environmental law not only in South Africa but wider afield.[2]

South Africa has included the notion of sustainable development in chapter 3, section 24(b)(iii) (the environmental right) in the Constitution of the Republic of South Africa, 1996 (the "Constitution"). This section mandates the State to "secure ecologically sustainable development and use of natural resources", although it is to do so "… *while promoting justifiable economic and social development* …" (own emphasis). This qualification to the conventional phraseology suggests that the Constitution's drafters took account of the economic status as being both a developed and developing

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1 See generally P Sands & J Peel (with A Fabra, R Mackenzie) *Principles of International Environmental Law* 3 ed (2012) 188-190; P Birnie, A Boyle & C Redgewell *International Law and the Environment* (2009) 21-24; N Schrijver *Evolution of Sustainable Development in International Law: Inception, Meaning and Status* (2008) 162-207.

2 This has been acknowledged by a number of authorities (as noted in the footnote above). In addition, Verschuuren noted that:

> "Principles of environmental law receive their high moral value from underlying ideals, most the ideal of sustainable development"

J Verschuuren "Sustainable Development and the Nature of Environmental Legal Principles" (2006) 9 *PER* 209 251.

country. Moreover, the drafters wanted to provide adequate leeway to enable redress for economic injustices of the past.

This dichotomy between environmental protection on the one hand, and social and economic development on the other hand, as well as the central role of sustainable development in the South African context was reaffirmed by the Constitutional Court in the landmark case of *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province*.[3] The then President of the Court, in referring to section 24(b)(iii) quoted above, stated that the Constitution "envisages that environmental considerations will be balanced with socio-economic considerations through the ideal of sustainable development …".[4] This case prompted a series of academic writing exploring this dichotomy but this issue is not specifically pursued here.[5]

Rather, this article explores the prospects of the precautionary principle gaining traction in South African law against the backdrop of promoting justifiable economic and social development. It does so in the context of the current sluggish economic climate but particularly in the light of the relatively recent enactment of the Infrastructure Development Act 23 of 2014 (the "IDA") whose central thrust is to promote the economy and alleviate obstacles that may constrain development. Against this backdrop this article outlines the history and development of the precautionary principle in the international law context; traces its incorporation in key regional (EU) and domestic law jurisdictions, and assesses its prospects in South Africa. It does so in the context of the constitutional imperative that sustainable development must be "balanced with socio-economic considerations" and the country's economic imperatives. It argues that, while the precautionary principle has been acknowledged both in international law and in a number of key foreign domestic jurisdictions, it needs to be nurtured particularly by the judiciary to ensure that the fundamental pillar of sustainable development is not eroded by pure economic imperatives such as large scale infrastructure projects promoted by among others, the IDA.

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3 2007 6 SA 4 (CC).

4 Para 45.

5 *See generally* E Brey "Unco-operative Governance Fuelling Unsustainable Development" (2008) 15 *SAJELP* 3; E Couzens "Filling Station Jurisprudence: Environmental Law in South African Courts and the Judgement in Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province, and Others" (2008) 15 *SAJELP* 23; A Du Plessis "Adding Flames to the Fuel: Why further Constitutional Adjudication is Required for South Africa's Constitutional Right to Catch Alight" (2008) 15 *SAJELP* 57; M Kidd "Removing the Green-tinted Spectacles: The Three Pillars of Sustainable Development in South African Law" (2008) 15 *SAJELP* 8; L Feris "Sustainable Development in Practice: 'Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province, and Others'" (2008) 1 *Constitutional Court Review* 235

See generally A du Plessis "South Africa's Constitutional Environmental Right (Generously) Interpreted: What is in it for Poverty" (2011) 27 *SAJHR* 279-307.

2 The Infrastructure Development Act 23 of 2014

The year 2008 marked the beginning of a global economic recession which in South Africa was exacerbated when the country experienced the phenomenon of "load-shedding" for the first time. The resultant awareness for the acute need to promote energy security to stimulate economic growth, amongst other things, resulted in the enactment of the IDA which came into force in July of that year. The long title of the Act sets out its purposes to include: "the facilitation and co-ordination of public infrastructure development which is of significant economic or social importance to the Republic"; and, "to ensure that infrastructure development in the Republic is given priority in planning, approval and implementation". To this end the objects section of the Act sets out its objectives to include, among other things, to facilitate and expedite "any approval, authorisation, licence, permission or exemption required in terms of other legislation …".[6]

In this vein, at the heart of the Act, are the Council's stipulated functions, which are to designate Strategic Integrated Projects ("SIPs") and to "ensure that infrastructure development in respect of any strategic integrated project is given priority in planning, approval and implementation".[7] The requirements for, and designation of, SIPs are set out in a further section,[8] and includes those SIPs set out in Schedule 1 of the Act. The latter includes the item "Power stations or installations for harnessing any source of energy."

It is in the energy sector in particular that the government has already embarked on large-scale infrastructure development projects but requires further such developments to provide a much-needed boost to its sluggish economy. To this end the President of South Africa, Mr Jacob Zuma, in his State of the Nation address in June 2014, amongst other things, said:

> "Work needs to be done at a technical level on all forms of energy especially nuclear energy and shale gas with regards to funding, safety, exploitation and the local manufacture of components. Nuclear has the possibility of generating well over 9000 megawatts, while shale gas is recognised as a game changer for our economy. We will pursue the shale gas option within the framework of our good environmental laws."[9]

Before referring to the nuclear and shale gas options, South Africa has historically, by and large, depended on coal fired power plants to meet its energy needs. The indications are that this is not going to change in any dramatic way as the last decade has seen the initiation of two large scale energy related infrastructure development projects, namely the Kusile and Medupi coal-fired power stations, the construction of which are underway. These have been billed as among the largest projects of their kind in the world.[10] A further

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6 S 2(1)(g) of the IDA "Objects and Implementation of the Act".

7 S 4(c) "Functions of Council".

8 S 7(1)-(5) "Requirements for strategic integrated projects and designation of Chairpersons of strategic integrated projects".

9 The Presidency Republic of South Africa "State of the Nation Address" (17 June 2014) *The Presidency* <http://www.thepresidency.gov.za/pebble.asp?relid=17570> (accessed 01-12- 2014).

10 Eskom "Medupi Power Station Project" (2014) *Eskom* <http://www.eskom.co.za/Whatweredoing/NewBuild/MedupiPowerStation/Pages/Medupi_Power_Station_Project.aspx> (accessed 01-12-2014); Eskom "Kusile Power Station Project" (2014) *Eskom* <http://www.eskom.co.za/Whatweredoing/NewBuild/Pages/Kusile_Power_Station.aspx> (accessed 01-12-2014).

similar project is the so-called "Coal 3", which is another massive coal-fired power station that has been approved by Cabinet although significantly no timeline, schedules or costs have yet been approved. Indications are that it is likely to commence once the above-mentioned Medupi and Kusile coal-fired projects are complete.[11]

The government is also seemingly embarking on considerably up-scaling the contribution of nuclear generated power. As early as 2007, the Eskom board approved a plan to double South Africa's generating capacity to 80 GWe by 2025, including construction of 20 GWe of new nuclear capacity. This would have increased nuclear energy's contribution to power from 5% to more than 25% and coal's contribution would have fallen from 87% to below 70%. At the time a number of foreign consortia working with South African partners were short-listed to tender for this large scale infrastructure project and a number of possible sites were scoped to this end. Possibilities examined include upgrading the present sites at Koeberg, Pearly Beach on the southern Cape coast, and Thyspunt in the Eastern Cape; each of these proposed sites have their own environmental as well as economic and social advantages and disadvantages.

The above initiative was not pursued at the time but has been revived with the publication of the *Integrated Electricity Resource Plan for South Africa – 2010 to 2030 Final Report (Revision 2)*[12] in 2011. This suggests a nuclear build of 9600 MWe, supplying 23% of the country's electricity needs. To this end the Nuclear Energy Corporation of South Africa has resumed the nuclear build initiative and a number of foreign owned companies and consortia have expressed an interest in resuming the bidding process.

It is arguably in the shale gas extraction sector that the precautionary principle comes into its own in the South African context.[13] The extraction method intended for use in the South African context is hydraulic fracturing (fracking), entailing the use of both vertical and horizontal drilling. Although the technologies used are not new, their application to large scale shale gas extraction is. It was only in the early 2000s that fracking methods were sufficiently advanced to enable economical shale gas yields, a phenomenon also driven by rising crude oil prices. Thus, the long-term impacts of using this technology are not yet quantifiable. Risks to water quality, particularly from migrating fracking water, as well as risks to soil, existing land uses, such as farming, flora and fauna and air quality have all been flagged. However, the likelihood and extent of the risks are still uncertain and unclear. This aspect is taken up in part 6 below.

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[11] SourceWatch "Coal-3 Power Station" (11-11-2014) *SourceWatch* <http://www.sourcewatch.org/index.php/Coal-3_power_station> (accessed 1-12-2014).

[12] Department of Energy "Integrated Plan for Electricity 2010-2030" *Department of Energy* (25-06-2011) <http://www.energy.gov.za/IRP/irp%20files/IRP2010_2030_Final _Report_20110325.pdf> (accessed 25-11-2014).

[13] On fracking generally see: MJ de Wit "The Great Shale Debate in the Karoo" (2011) 7 S *Afr J Sci* 107 107-108; L Havemann, J Glazewski & S Brownlie "A Critic MJ de Wital Review of the Application for Karoo Gas Exploration Rights by Shell Exploration Company B.V." (2011) *Royal Dutch Shell PLC* <

By all accounts shale gas extraction is going to go ahead and whichever consortia succeeds in the nuclear bidding process, both these initiatives will entail massive infrastructure development and will have significant implications for sustainability in South Africa's energy sector. It is in this context that the question *quo vadis* the precautionary principle, and an examination of the principle in South Africa is now pursued.

3 The precautionary principle in the international context

In a world of finite and diminishing resources and an expanding global population, it is critical that a measure of caution be employed prior to the use of those resources, particularly where the effects and outcomes of utilisation are uncertain. Environmental law has long recognised the principle of prevention – the prevention or at least avoidance of adverse effects.[14] The precautionary principle is, in essence, an extension of this idea in that it directs decision-makers not to postpone regulatory or other intervention merely on the basis that the scientific evidence linking the causal hazard chain has not been established. Given the complexity of the environment and the intertwining nature of environmental systems, it is often difficult to predict the exact extent or nature of the potential hazards or even how they will manifest. In most cases, well-founded theories of potential adverse impacts are available but definitive empirical evidence of harm is intangible, particularly when the intended activity has no precedent in that particular environment. The principle does not seek a "no risks" scenario but rather that, before an activity or development is permitted, decision-makers must be confident about the predictions of future environmental effects and recognise that conclusive proof of harm is not needed for appropriate mitigation measures to be put in place including the "no-go" option in rare cases.[15]

This notion of taking precaution first gained a foothold in the domestic policy of what was then the Federal Republic of West Germany. In 1976, West Germany's environmental policy adopted the *Vorsorgeprinzip*, the principle of foresight.[16] The policy noted that:

> "Environmental policy is not fully accomplished by warding off imminent hazards and the elimination of damage which has occurred. Precautionary environmental policy requires furthermore that natural resources are protected and that demands on them are made with care."[17]

The West German Federal Government followed this policy with Guidelines for *Vorsorge*, which state that:

> "A principle for political action, environmental Vorsorge comprises all actions which serve:
> 1 To protect against specific environmental hazards;
> 2 To avoid or reduce risks to the environment before specific environmental hazards are encountered; and

[14] Sands & Peel *Principles of International Environmental Law* 3 ed 200-203; D Freestone "International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle" in A Boyle & D Freestone (eds) *International Law and Sustainable Development* (1999) 135 139-140.

[15] W Gullett "The Precautionary Principle in Australia: Policy, Law and Potential Precautionary EIAs" (2000) 11 *Risk: Health, Safety and Environment* 93 95.

[16] S Elworthy & J Holder *Environmental Protection: Text and Materials* (1997) 16.

[17] 16.

3 In a future perspective, to manage our future environment, in particular the protection and the development of the natural foundations of life."[18]

These guidelines show how the origins of the principle are clearly related to the preventative principle and to the pursuit of sustainable development.

The acceptance of the precautionary principle in international law gained marked impetus by its inclusion as Principle 15 of the *Rio Declaration on Environment and Development* (*Rio Declaration*),[19] adopted at the United Nation Conference on Environment and Development ("UNCED"), held in Rio in 1992. Principle 15 states that:

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

Although the *Rio Declaration* is a "soft law"[20] instrument, it was adopted by over 170 states attending the conference, and was subsequently endorsed by the United Nations General Assembly.[21] Moreover, it subsequently found its way into a number of international as well as regional treaties, as elaborated on in the next part. It has also been adopted into non-binding declarations at a number of international fora such as the 1998 Wingspread Conference,[22] and by the International Law Association in 2002 at its 70th conference, where it incorporated the principle into its *New Delhi Declaration of Principles of International Law relating to Sustainable Development.*[23]

It should be noted however that although the *Rio Declaration* lists a set of 27 Principles, there is much debate as to whether the precautionary principle is actually an accepted legal principle.[24] The texts of international instruments offer no definitive answer as the terminology is not consistent with some referring to the precautionary principle, others refer to the precautionary approach, while others still require that precautionary measures be taken. The United States, in particular, is against recognising it as a principle because,

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19 Rio Declaration on Environment and Development UN Doc A/CONF.151/26 (12 August 1992).

20 Leading authorities describe international 'soft law' as "…a convenient description for a variety of non-binding instruments used in contemporary international relations." Birnie et al *International Law and the Environment* 35-36. Sands in Sands & Peel *Principles of International Environmental Law* 108 notes that in the field of international environmental law, soft law may contribute to the development of customary law or lead to the adoption of binding obligations by treaty.

21 UNGA Res 47/190 (22 December1992) UN Doc A/RES/47/190.

22 For example, the principle was widely interrogated at the 1998 Wingspread Conference on the Precautionary Principle that culminated in the *Wingspread Consensus Statement on the Precautionary Principle.* Science and Environmental Health Network (SEHN) "Wingspread Conference on the Precautionary Principle" (26-01-1998) *SEHN* <http://www.sehn.org/wing.html> (accessed 14-03-2014).

23 Article 4 titled "The Principle of the Precautionary Approach to Human Health, Natural Resources and Ecosystems" deems the precautionary principle as a central tenet of sustainable development. For the full text see ILA "New Delhi Declaration of Principles of International Law relating to Sustainable Development" Res. 3/2002 (06-04-2002) *ILA* <http://www.ila-hq.org/download.cfm/docid/65DD8DEF-E74D-4ED925EBC6D7 3F19C97> (accessed 24-07-2014).

24 As regards environmental legal principles generally, not the precautionary principle specifically, see Verschuuren (2006) *PER* 209-261.

among other things,[25] it is claimed that it lacks specific parameters for application and the necessary rigour required of legal rules.[26] Therefore, it is argued it cannot be a legal principle as it cannot operate as a source of law. It is viewed as an approach to be taken rather than a principle to be applied. Other jurisdictions, particularly the European Union ("EU"), disagree and through case law have established minimum requirements[27] that still allow flexibility with the application of the precautionary principle. This appears to be a more pragmatic approach which recognises that uncertainty and, by extension, the unknowns that accompany it requires a level of flexibility and discretion on the part of decision-makers, who must assess the situation and, on the basis of the facts or lack thereof, make a judgement call.

For the purposes of this article, the writers adopt the view that when applying precaution, whether one calls it a principle or an approach, in both instances, decision-makers need to prevent the materialisation of serious environmental harm, even where the science is inconclusive at the time the decision is taken.

4 International conventions

The notion of precaution has found gradual endorsement in the international law arena.[28] One of the first treaties to refer explicitly to "precautionary measures" was the *Vienna Convention on the Protection of the Ozone Layer*,[29] which, in its preamble, stated:

> "Mindful also of the precautionary measures for the protection of the ozone layer which have already been taken at the national and international levels."

This was further supported in the preamble of the Montreal Protocol on Substances that Deplete the Ozone Layer[30] ("Montreal Protocol"), which contains the following text:

> "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

[25] The US government also had concerns that, with the ambit of the principle being so wide, it could be used for purposes other than the protection of the environmental integrity. These other purposes range from over regulation, stifling innovation and protectionism to arbitrary and discriminatory application as well as partiality to desired political imperatives. (Food and Drug Administration (FDA) US Department of Agriculture, A US Government Submission to the Committee on General Principles of Codex Alimentarius Commission (2000) as quoted in F Fleurke *Unpacking Precaution: A Study on the Application of the Precautionary Principle in the European Union* PhD thesis Amsterdam (2012) 27).

[26] J Peel "A Matter of Principle, Approach or Process?" (2004) 5 *Melb J Int'l L* 483 491-492; H Veinla "Free Trade and the Precautionary Principle" (2003) 8 *Juridica International* 186 193. See also the case of *EC Measures Concerning Meat and Meat Products (Hormones)* AB-1997-4 WT/DS26/AB/R; WT/DS48/AB/R 16 January 1998 paras 16, 43 and 60 where the arguments of the European Union, the United States and Canada are set out regarding the status of the Precautionary Principle.

[27] See discussion below under the heading European Union.

[28] It was tacitly acknowledged in the definition of sustainable development as coined in the World Commission on Environment and Development Our Common Future (Brundtland Report) (1987). The first international instrument to allude to it was the World Charter for Nature (adopted 28 October 1982) UN Doc A/RES/37/7.

[29] Vienna Convention on the Protection of the Ozone Layer (adopted 22 March 1985 entered into force on 22 September 1988) 1513 UNTS 323.

[30] Montreal Protocol on Substances that Deplete the Ozone Layer (adopted 16 September 1987 entered into force 1 January 1989) 6 ILM 1541.

> the basis of developments in scientific knowledge, taking into account technical and economic considerations and bearing in mind the developmental needs of developing countries …"

Further impetus to the principle was given in the *Ministerial Declaration of the Second International Conference on the Protection of the North Sea,* which states that:

> "[I]n 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." [31]

Numerous treaties have followed, which include the need for precautionary measures[32] to be adopted, or for a precautionary approach[33]to be used or even that decision be taken in a precautionary manner.[34]

The first international instrument to refer to there being a precautionary principle is the *Ministerial Declaration at the Third International Conference on the Protection of the North Sea*,[35] which states:

> "the participants … will continue to apply the precautionary principle that is to take action to avoid potentially damaging impacts of substances that are persistent, toxic and liable to bio accumulate even where there is no scientific evidence to prove a causal link between emissions and effects."[36]

Since the appearance of the precautionary principle in the "soft law" *Rio Declaration*, a number of international law treaties have either made direct reference to Principle 15 or have used its description of when precaution is needed, namely:

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[31] OSPAR Ministerial Declaration "Ministerial Declaration of the Second International Conference on the Protection of the North Sea" (November 1987) *OSPAR* <http://www.ospar.org/html_documents/ospar/html/2nsc-1987_london_declaration.pdf> (accessed 24-07-2014) art VII. It is also known as the *London Declaration*.

[32] See for example United Nations Framework Convention on Climate Change (adopted 9 May 1992 entered into force 21 March 1994) 31 ILM 854 art 3; Energy Charter Treaty (adopted 17 December 1994 and entered into force 16 April 1998) 33 ILM 360 art 19(1).

[33] See for example art 3(f) of the Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Waste within Africa (the Bamako Convention) (adopted 30 January 1991, entered into force 22 April 1998) 2101 UNTS 177; art 5(c) of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (adopted 4 August 1995, entered into force 11 December 2001) A/CONF.164/37; Preamble and art 1 of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (adopted 29 January 2000, entered into force 11 September 2003 39 ILM 1027; art 1 of the Stockholm Convention on Persistent Organic Pollutants (adopted 22 May 2001, entered into force 17 May 2004) 40 ILM 531.

[34] Art 8(9) of the Stockholm Convention on Persistent Organic Pollutants, (adopted 22 May 2001, entered into force 17 May 2004), 40 ILM 531.

[35] OSPAR Ministerial Declaration "Ministerial Declaration at the Third International Conference on the Protection of the North Sea" (March 1990) *OSPAR* <http://www.ospar.org/html_documents/ospar/html/3nsc-1990-hague_declaration.pdf> (accessed 24-07-2014). It is also known as the *Hague Declaration*.

[36] Preamble of the Hague Declaration.

> "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."[37]

It has also led to numerous treaties referring to the precautionary principle rather than approach or measures,[38] although instruments, like the *1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter* (the "*Protocol"*), do still refer to the precautionary approach.[39] It is worth noting, though, that the *Protocol*, which replaces the *London Convention*,[40] has made the regime for protecting the marine environment stricter; in part, because it applies the precautionary approach to environmental protection, as a general obligation of the *Protocol*.[41] In addition, it uses a reverse listing approach, which sets out that which may be dumped provided the necessary permit has been obtained.[42] This, too, could be regarded as a precautionary measure.

From the above, it becomes apparent that treaties and other international documentation which include precaution use a great variety of wording, whether it be as a principle, an approach or descriptively.[43] Despite the lack of a standard form or format, three elements are common to all and they are:

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[37] The following all make reference to the *Rio Declaration:*
Preamble of the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Heavy Metals (1998) 21 *International Environmental Reporter* 4951; Preamble of the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants (adopted 24 June 1998, entered into force 23 October 2003) UN Doc EB.AIR/1998/2; preamble of the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-Level Ozone (1999) 21 *International Environmental Reporter* 5051 (adopted 13 November 1999, entered into force 17 May 2005); art 1 of the Stockholm Convention on Persistent Organic Pollutants (adopted 22 May 2001, entered into force 17 May 2004) 40 ILM 531; preamble and art 1 (objective) of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (adopted 29 January 2000, entered into force 11 September 2003) 39 ILM 1027; arts 23 and 109 of the *Plan of Implementation*, World Summit on Sustainable Development (2002) UN Doc A/Conf.199/20; *Malmo Ministerial Declaration* – First Global Ministerial Environment Forum "Malmö Ministerial Declaration" *UNEP* (29-21 May 2000) <http://www.unep.org/malmo/malmo_ministerial.htm> (accessed 27-07-1014) arts 3 and 11; The Convention on Biological Diversity 1992, 31 ILM 822 uses the phrasing of Principle 15 in its preamble.

[38] See for example art 3(2) of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, (1992) BNA 35:0401; art 2 of the Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR) (1992) 32 ILM 1069; art II(4) of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (1996) 36 ILM 777; art 2(5)(a) of the United Nations Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992) 31 ILM 1316; arts 1 and 13(3) of the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (1995) 2001 ATS 17; art 130r(2) of the Treaty Establishing the European Community (1957) as amended by the Treaty on European Union (Maastricht Treaty) (1992) 31 ILM 247.

[39] (1997) 36 ILM 1.

[40] 1046 UNTS 120. The *Protocol* entered into force on 24 March 2006. IMO "1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter" (1996) *IMO* <http://www.imo.org/blast/mainframe.asp?topic _id=1337&doc_id=6147> (accessed 24-07-2014).

[41] Art 3(1) of the Protocol states that:
"[C]ontracting Parties shall apply a precautionary approach to environmental protection from dumping of wastes or other matter whereby appropriate preventative measures are taken when there is reason to believe that wastes or other matter introduced into the marine environment are likely to cause harm even when there is no conclusive evidence to prove a causal relation between inputs and their effects."

[42] Art 4 of the Protocol.

[43] See J Peel *The Precautionary Principle in Practice* (2005). Appendix B lists of treaties and international instruments that include the precautionary principle.

"1. The Threat of Harm;
2. Scientific uncertainty; and
3. Preventative, precautionary action."[44]

5 Precaution as a principle in international customary law

While international treaties have not provided a sufficiently robust guideline, the topic has gained ground in the field of international customary law. The last few decades have seen the emergence of a cohesive set of principles of international environmental law which, it is suggested, are inherently linked and inter-connected, being a manifestation of the underlying concept of sustainable development.[45] These include the principle of co-operation, the principle of intergenerational equity, the common heritage principle, the principle of trusteeship of the earth's resources, the polluter pays principle, as well as the precautionary principle.[46] In the *Nuclear Testing Advisory Opinion*, Justice Weeramantry, the Vice-President of the International Court of Justice ("ICJ"), stated that:

> "these principles of environmental law thus do not depend for their validity on treaty provisions. They are part of customary international law. They are part of the *sine qua non* for human survival."[47]

As regards nuclear weapons, Weeramantry noted in his dissent that these have the potential to destroy the "entire ecosystem of the planet",[48] and in emphasising the principle of inter-generational equity stated further that:

> "When incontrovertible scientific evidence speaks of pollution of the environment on a scale that spans hundreds of generations, this Court would fail in its trust if it did not take serious note of the ways in which the distant future is protected by present law. This one factor of impairment of the environment over such a seemingly infinite time span would by itself be sufficient to call into operation the protective principles of international law which the Court, as the pre-eminent authority empowered to state them, must necessarily apply."[49]

In the *MOX Plant Case (Ireland v United Kingdom)*,[50] the International Tribunal on Law of the Sea ("ITLOS") emphasised that the duty to co-operate is a fundamental principle in the prevention of pollution of the marine environment in terms of Part 12 of the *United Nations Convention on the Law of the Sea ("UNCLOS")*,[51] and general international law. More pertinently the Tribunal indicated that prudence and caution required the two

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44 Fleurke *Unpacking Precaution* 23; See also Sands in *Human and Ecology Risk Assessment* (1999) 889.

45 See generally Sands & Peel *Principles of International Environmental Law* 188-190; Birnie et al *International Law and the Environment* 21-24; Schrijver *Evolution of Sustainable Development in International Law* 162-207.

46 Noted in the Dissenting Opinion of Weeramantry, *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion*, ICJ Reports (1996) 502-503.

47 504.

48 454.

49 226, 456.

50 41 (2002) ILM 405; *MOX Plant Case (Provisional Measures* Order 3 Dec 2001) 2001 ITLOS No 10; affirmed by the Annex VII Tribunal by its order of 24 June 2003; *MOX Plant Arbitration (Jurisdiction and Provisional Measures)* (2003) PCA; See generally Sands & Peel *Principles of International Environmental Law* 205. The case was instituted by Ireland, which requested provisional relief from the International Tribunal, pending the constitution of an arbitration tribunal to adjudicate on a dispute concerning the UK's authorisation of a new facility in Sellafield to reprocess spent nuclear fuel.

51 21 ILM 1261 (1982). In particular, art 197 deals with "Cooperation on a global or regional basis".

countries involved in this matter to co-operate in exchanging information regarding the consequence of the proposed development on the Irish Sea.[52]

In an *Advisory Opinion of the Seabed Disputes Chamber of International Tribunal for the Law of the Sea on the 'Responsibilities and Obligations of States Sponsoring Persons and Entities with respect to activities in the Area,*[53] the international tribunal (the Chamber) considered a number of international environmental law issues relating to the seabed beyond national jurisdiction (the Area).[54] The Chamber recognised among other things, that *UNCLOS* contains an "obligation to ensure"[55], and listed the individual elements of this obligation. It pointed out that this "legal obligation" included the obligation to apply the precautionary principle as found in Principle 15 of the *Rio Declaration*.[56] The Chamber went so far as to state that this is "an integral part of the due diligence of sponsoring states which is applicable even outside the scope of the regulations".[57] It also stated if "there are plausible indications of a potential risk," even where scientific evidence is insufficient, the sponsoring states are required to take action.[58] Most importantly, the Chamber recognised "a trend towards making this approach part of customary international law," thereby acknowledging the role of the precautionary principle in international customary law.[59]

The precautionary principle was asserted by the ICJ in *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay).*[60] Both parties, in

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[52] ITLOS No 10 *Provisional Measures* Order 3 Dec 2001 para 89. See generally DJ Devine "Provisional Measures ordered by the International Tribunal for the Law of the Sea in the Area of Pollution" (2003) 28 *SAYIL* 263-275.

[53] Advisory Opinion of Seabed Disputes Chamber of the International for the Law of the Sea, Decision SDC (1 February 2011).

[54] An advisory opinion was requested by Nauru and Tonga, two small island, archipelagic states, after their application was submitted to the International Seabed Authority for consideration, as they were concerned about the potential liability resulting from the activities of sponsored entities conducting sea-floor mining in international waters. Each state respectively had put forward proposals for licences in the Area, declared the common heritage of mankind in terms of *UNCLOS*. In so doing, both countries were sponsoring large commercial entities registered in their respective jurisdictions.

[55] Advisory Opinion of Seabed Disputes Chamber of the International for the Law of the Sea, Decision SDC (1 February 2011) para 85.

[56] Para 135.

[57] Para 131.

[58] Para 131.

[59] Para 135. On the precautionary principle; see also N de Sadeleer "The Precautionary Principle as a Device for greater Environmental Protection: Lessons from the EC Courts'" (2009) 18 *RECIEL* 3-11.

[60] (Judgment) [2010] ICJ Rep (20 April 2010). (Initial citation: *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay*) ICJ (2006) (No. 135) 114 [2] and [4]). The case arose over Uruguay granting authorisation for the building of two pulp mills on the River Uruguay. As the river forms the border between Uruguay and Argentina, the parties had entered into an agreement, which established an independent authority, appointed jointly by the two countries, to ensure "optimum and rational utilisation of that part of the River Uruguay". The agreement covered the conservation, use and development of the river's natural resources and also included pollution prevention and liability for any pollution caused. Argentina alleged that Uruguay breached its obligations in terms of the agreement when it unilaterally authorised the pulp mills and did not take account of the environmental impact on the river. Argentina also alleged that the mills would have negative social and economic impacts in the areas adjacent to the river that would be affected by the polluting effects of the mills. Uruguay not only disputed Argentina's claims, but also argued that the provisional measures that Argentina sought would: "Irreparably prejudice Uruguay's sovereign right to implement sustainable economic development projects in its own territory and would weaken its ability to attract foreign investment and would undermine the job creation potential that the mills offered". See *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)* ICJ (2006) (No. 135) 114 para 4; 114-115; paras 6-8 and 117 paras 15-18; 117 para 16; and 125-126, para 48.

this case, referred to the precautionary principle in their arguments, and the majority judgement did recognise that the "precautionary approach may be relevant to the interpretation and application of the provisions" of the agreement between the parties. However, the majority judgement did not investigate the principle or make any pronouncements as to its status, despite being requested to do so by Argentina.[61] However, in a separate opinion Cançado Trindade J was of the view that the court had overlooked the general principles of law and should have elaborated upon the general principles of international environmental law.[62] He therefore investigated the principles of prevention, precaution and inter-generational equity. He noted that while prevention envisages risks that are certain, precaution emerged to deal with "probable threats surrounded by uncertainties".[63] He also made a number of observations about precaution and why its application is essential: Precaution is necessary "in the face of not only human fallibility but also human wickedness";[64] the use of knowledge is influenced by State Policy and interest groups;[65] decisions of authorities affect both the present and the future, which is a dimension of the application of precaution, which takes account of the long-term view;[66] precaution has to do with common sense;[67] and the precautionary principle is "not to be equated with over regulation but more properly with reasonable assessment in the face of probable risk and scientific uncertainty."[68]

The Judge questioned the court's silence on the issue of the precautionary principle and stated that both the preventative and precautionary principles "do exist and apply and are in my view of utmost importance as part of the *jus necessarium*".[69] He was also of the opinion that the court cannot overlook such principles and that it may have altered the outcome in this case.[70]

The precautionary principle has also been considered by the Appellate Body of the World Trade Organisation ("WTO"). The case in question was that of *EC Measures Concerning Meat and Meat Products (Hormones)*.[71] The Appellate Body found that the WTO Agreement on the Application

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61 *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep (20 April 2010) (Judgment) 51 para 164 and (Separate Opinion of Cançado Trindade J) 29 para 103.

62 *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep (20 April 2010) (Separate Opinion of Cançado Trindade J) 2 para 1 and 17 para 53.

63 21 para 69 and 27 para 72.

64 25 para 89.

65 25 para 88.

66 25-26 para 90.

67 25-26 para 90.

68 27 para 96.

69 30 para 113.

70 53 para 194 and 58 para 220.

71 AB-1997-4 WT/DS26/AB/R; WT/DS48/AB/R 16 January 1998. The case arose as a result of EU directives that banned the import of meat and meat products that had been produced from cattle that had been given hormones.

of Sanitary Measures ("SPS Agreement")[72] does reflect the precautionary principle in article 5.7.[73] It also noted that:

> "The Precautionary Principle is regarded by some as having crystallised into a general principle of customary international environmental law. Whether it has been widely accepted by members as a principle of general or customary international law appears less clear … We note that the Panel itself did not make any definitive finding with regard to the status of the precautionary principle in international law and that the precautionary principle at least outside the field of international environmental law still awaits authoritative formulation."[74]

Although the case has no further content relating to the principle, it clearly recognises its existence and applicability, and, along with the other cases discussed above, supports the view that the precautionary principle has gained traction in customary international law.

6 Other Jurisdictions

6 1 The European Union (EU)

The *Treaty on European Union* (*the Maastricht Treaty*),[75] was adopted in 1992, and devotes title XVI to the environment,[76] including emphasising the precautionary principle in the following terms:

> "Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive 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."[77]

In so-doing the European Commission recognised that:

> "decision-makers are constantly faced with the dilemma of balancing the freedom and rights of individuals, industry and organisations with the need to reduce the risk of adverse effects to the environment, human, animal or plant health."[78]

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[72] WTO "The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)" (1994) *WTO* <http://www.wto.org/english/tratop_e/sps_e/ spsagr_e.htm> (accessed 02-06-2014).

[73] AB-1997-4 WT/DS26/AB/R; WT/DS48/AB/R 16 January 1998 para 124. SPS Agreement art 5.7 states: "In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time." The Appellate Body also noted in para 124 that art 3.3 and the preamble (sixth paragraph) of the SPS Agreement also recognised the precautionary principle.

[74] AB-1997-4 WT/DS26/AB/R; WT/DS48/AB/R 16 January 1998 para 123.

[75] (1992) 31 ILM 247.

[76] Title XVI of the *Maastricht Treaty* deals with the environment in arts 130r-130t.

[77] Art 130r of the *Maastricht Treaty*.

[78] Commission of the European Communities "Communication from the Commission on the Precautionary Principle" (02-02-2000) *EUR-Lex* <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52000DC0001&from=EN> (accessed 28-01-2014) 3.

In 2002, the European Commission issued its "Communication from the Commission on the Precautionary Principle",[79] in which the Commission sought to clarify how and when the precautionary principle is to be used. It also sought to prevent its unwarranted use within the EU. It states that:

> "Whether or not to invoke the precautionary principle is a decision exercised where scientific information is insufficient, inconclusive, or uncertain and where there are indications that the possible effects on the environment, or human, animal or plant health may be potentially dangerous and inconsistent with the chosen level of protection."[80]

Importantly, the Communication specifies that the principle is to operate within the general framework of risk management.[81] Authorities responsible for risk management may decide to act or not to act, depending on the level of risk. If the risk is intolerably high, several categories of measures could be adopted. Such action could involve proportionate legal acts, financing of research programmes, public information measures, and the like.[82] The Communication further highlights that risk management is a tool for decision-making as opposed to the caution that scientists employ in the evaluation of scientific data.[83] It stresses that the decision-making process needs to be transparent and interested parties should be involved where possible and as early as possible. In addition, risk assessment would determine the course of action to pursue, which could include taking no action.[84]

The Communication also sets out a number of measures that should be taken into account with the application of the principle namely: proportionality in tailoring measures to the level of protection chosen; non-discrimination in application of the principle; consistency with similar measures already taken; cost-benefit analysis in respect of the action or non-action which extends beyond simple economic assessment to include social and non-financial perspectives and incorporates short and long term effects. Further measures include monitoring and review in order to take account of new scientific data and reassessment of the measures implemented as well as production of scientific evidence necessary for more comprehensive risk management in order to be able to assign responsibility to the product provider or activity initiator.[85] In essence this places the burden of proof in the absence of harm or adverse effects on the producer, manufacturer or developer.[86] This initiative by the EU Commission has been adopted in administrative decision-making in the EU as well as by the judiciary as outlined next.

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79 Commission of the European Communities "Communication from the Commission" *EUR-Lex*.
80 8.
81 3.
82 15 and 16.
83 3.
84 8 and 17.
85 Commission of the European Communities "Communication from the Commission" *EUR-Lex* 4.
86 Europa "The Precautionary Principle" (12-04-2011) *Europa Summaries of EU Legislation* <http://europa.eu/legislation_summaries/consumers/consumer_safety/l320 42_en.htm> (accessed 14-01-2014).

6 1 1 EU Cases

The European courts have dealt with a number of cases where the precautionary principle has been applied.[87] In so doing, the courts have recognised that the precautionary principle is part of EU law and have noted that decision-making is generally a politically inspired exercise, with bureaucrats and regulators responsible for enforcing government policy and laws. Nevertheless, the courts have established a number of criteria for the application of the precautionary principle.

In the first instance, the courts have established that the precautionary principle applies to situations where there is uncertainty about the existence and extent of risks albeit that the seriousness and reality of the risks are yet to become apparent.[88] Secondly, it grants decision-makers authority to take protective measures, which they would not have been able to do, but for the need to take precaution.[89] Significantly taking such measures must be predicated on a risk assessment. In *Gowan Comércio International e Serviços Lda v Ministero della Salute,*[90] the European Court of Justice affirmed that the precautionary principle is an integral part of the decision-making process in the EU and thereby affirmed that the principle falls within the risk management phase of the process in line with the EU Communication.[91] Importantly, EU courts have also noted that the purpose of the risk assessment is "to appraise the degree of probability of harmful effects".[92] In specifying that integral role of risk assessment the courts have also established minimum standards for such assessments. Thus in *Pfizer Animal Health v Council,*[93] the court found that "a scientific risk assessment must be carried out before preventative measures are taken" and went on to define the term "risk assessment" as "a scientific process consisting in the identification and characterisation of a hazard, the assessment of the exposure to the hazard and the characterisation of the risk."[94] The court also elaborated on the purpose of a risk assessment, stating that its purpose is:

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87 See for example Case C-6/99 *Association Greenpeace France a.o. v Ministère de l' Agriculture et de la Pêche a.o.* ECR [2000] I-1651; Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305; Joined Cases T-74/00 to T-141/00 *Artegodan GmbH and Others v Commission* [2002] ECR II-4945; Case C-473/98 *Kemikalieninspektionen v Toolex Alpha AB* [2000] ECR I-5681; Case C-192/01 *Commission of the European Communities v Kingdom of Denmark* [2003] I-9693; Case C-236/01 *Monsanto Agricoltura Italia* [2003] ECR I-8105; Case 24/00 *Commission v France* [2004] ECR I-1277; Case T-229/04 *Kingdom of Sweden v Commission of European Communities* [2007] ECR II-2437; Case C-446/08 *Solgar Vitamin's France and Others v Ministre de l' Économie, des Finances et de l'Emploi and Others* [2010] ECR I-03973; Case C-77/09 *Gowan Comércio International e Serviços Lda v Ministero della Salute* [2010] I-13533.

88 Case C-236/01 *Monsanto Agricoltura Italia* [2003] ECR I-8105 para 111; Case C-192/01 *Commission of the European Communities v Kingdom of Denmark* [2003] I-9693 para 50.

89 Case C-157/96 *The Queen v Ministry of Agriculture, Fisheries and Food, Commissioners of Customs & Excise, ex parte National Farmers Union a.o.* [1998] ECR I-2211 para 41; Case C-77/09 *Gowan Comércio International e Serviços Lda v Ministero della Salute* [2010] I-13533 para 74.

90 *Gowan Comércio International e Serviços Lda v Ministero della Salute* [2010] I-13533.

91 Para 74.

92 Case C-192/01 *Commission of the European Communities v Kingdom of Denmark* [2003] I-9693 para 48.

93 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 paras 155 and 165.

94 Para 155-156.

> "….to assess the degree of probability of a certain product or procedure having adverse effects on human health and the seriousness of any such adverse effects."[95]

EU courts also prefer that scientific evidence originates from international or EU scientific bodies,[96] and require that the evidence on which the risk assessment is based be made available at the time precautionary measures are taken.[97] Further factors identified by the EU courts include:

- That risk assessments must be undertaken by experts, preferably international experts;[98]
- That the risks identified must be supported by the available scientific data at the time the precautionary measures were taken.[99] This data must be based on "the most reliable scientific data available",[100] or at least "sufficiently reliable and cogent information".[101] The risks cannot simply be hypothetical risks but must have some basic scientific justification;[102]
- That decision-makers cannot make arbitrary decisions, rather they must be grounded on as thorough a scientific risk assessment as possible;[103]
- Decisions must be based on the best scientific data available at the time;[104]
- Lack of full scientific evidence stemming from the assessment does not prevent the application of precautionary measures, particularly where the risk is deemed unacceptable for society In this regard the EU court has stated:

> "When the precautionary principle is applied, it may prove impossible to carry out a full risk assessment because of the inadequate nature of the available scientific data. A full risk assessment may require long and detailed scientific research. Unless the precautionary principle is to be rendered nugatory, the fact that it is impossible to carry out a full scientific risk assessment does not prevent the competent public authority from taking preventive measures, at very short notice if necessary, when such measures appear essential given the level of risk to human health which the authority has deemed unacceptable for society.[105]

Further criteria developed by the EU courts include the following:

- The authorities in Member States may choose not to be bound by the opinions of the EU scientific committees but they must have specific reasons to do so, which reasons must be of a scientific level commensurate to that of the EU's opinion. The reasons of the Member States' authorities may also be subject to judicial review.[106]

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95 Para 4.

96 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 paras 300-310; Case C-473/98 *Kemikalieninspektionen v Toolex Alpha AB* [2000] ECR I-5681 para 43; Case C-236/01 *Monsanto Agricoltura Italia* [2003] ECR I-8105 para 113.

97 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 para 145; Joined Cases T-74/00 to T-141/00 *Artegodan GmbH and Others v Commission* [2002] ECR II-4945 para 194.

98 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 para 157 and 159.

99 Para 146.

100 Case C-192/01 *Commission of the European Communities v Kingdom of Denmark* [2003] I-9693, para 51; Case C-236/01 *Monsanto Agricoltura Italia* [2003] ECR I-8105, para 113.

101 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 para 162.

102 [2003] ECRI 1-8105 para 143; Case C-236/01 *Monsanto Agricoltura Italia* [2003] ECR I-8105 para 106.

103 Case T-13/99 *Pfizer Animal Health v Council* [2002] ECR II-3305 para 162.

104 Para 158.

105 Paras 5 and 160.

106 Paras 199-200.

- The EU courts' powers of review are limited to manifest error, misuse of power or when EU institutions exceed the limits of their discretionary authority.[107]
- The principle of proportionality restrains the precautionary principle, in that measures implemented may not exceed that which is necessary to achieve the legitimate objectives. In addition, where less onerous but equally effective alternatives exist to the precautionary measures at hand, the alternatives should be applied.[108]
- Cost-benefit analysis is a requirement in risk management decisions.[109]

The EU has developed a robust and detailed body of jurisprudence that not only adopts the precautionary principle but also specifies its application. The EU however is not the only jurisdiction to have adopted the principle. A number of Commonwealth jurisdictions have also applied precaution as will now be shown.

6 2 Canada

Canada has incorporated the precautionary principle into its legal system. One of its first domestic endeavours came in January 1998, when the Canadian Council of Ministers of the Environment adopted the Harmonisation Accord.[110] In terms of the Accord, the governments of the various provinces of Canada pledge to cooperate in establishing consistent environmental measures to prevent inter-jurisdictional disputes and to apply common environmental management principles. Among the principles expressly adopted is the precautionary principle in the following terms:

> "Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation…"[111]

In 2001, the Canadian Federal Government issued "A Canadian Perspective on the Precautionary Approach/Principle Discussion Document" (Discussion Document) detailing the approach/principle.[112] It laid the groundwork for establishing a Canadian national framework for applying the precautionary approach. To that end, it set out a number of guiding principles

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[107] Para 169.
[108] Para 12.
[109] Para 410.
[110] For the text, see: Canadian Council of Ministers of the Environment (CCME) "A Canada-Wide Accord on Environmental Harmonisation" (2 January 1998) *CCME* <http://www.ccme.ca/assets/pdf/accord_harmonization_e.pdf> (accessed 01-06-2014). The Minister for Quebec did not sign the Accord, but has nevertheless implemented measures akin to those specified in the Accord. (D Bresner and Associates "Five Year Review of Canadian Harmonisation Accord" (October 2003) *CCME* <http://www.ccme.ca/assets/pdf/harm_accrd_5yrrvw_rpt_e.pdf.> (accessed 01-06-2014).
[111] CCME "A Canada-Wide Accord on Environmental Harmonisation" *(CCME)* Principle 2. See also D Vanderzwaag S Fuller & R Myers "Canada and the Precautionary Principle/Approach in Ocean and Coastal Management: Wading and Wandering in Tricky Currents" (April 2003) 34 *Ottawa L Rev* 117 124.
[112] Government of Canada "A Canadian Perspective on the Precautionary Approach/Principle Discussion Document" (September 2001) *Cambridge Forums* <http://www.cambridgeforums.com/ww.admin/materials/env/1389302564A_Canadian_Perspective_on_the_Precautionary_Principle_Approach_EC.pdf> (accessed 24-07-2014).

that direct its application. The principles include: the need for transparency, accountability, and public participation, as well as for sound scientific information, and for society to provide a guide on acceptable risk levels. In addition, the principles also encompassed the need for risk reconsideration, proportionality of potential severity of risk to the protection level adopted, non-discrimination, cost-effectiveness to ensure a net benefit for society and measures that impose the least number of trade restrictions.[113] The Discussion Document was welcomed as a bold step, in part because of its participatory approach and also because the principle was strongly opposed in some sectors, particularly those in trade and related sectors. It is also significant because it recognised the precautionary principle as "a legitimate and distinctive decision-making tool".[114]

However, it also attracted some criticism. It was seen as inconsistent with the role that science plays in relation to the principle and decision-making, and in particular, the need for the evaluation of sound scientific information with the implementation of precaution.[115] Criticism is also levelled at the failure of the drafters to include a shift in the burden of proof as being a key guiding principle,[116] as well as their omission of provisions allowing for alternative assessments, which may take account of alternative technologies and result in identifying the least environmentally damaging options.[117] Concerns have also been raised about why the guiding principles included issues relating to a prohibition on stifling innovation and that the principle should not be used as a mechanism to undermine trade. As Lee and Barrett point out, the principle has often resulted in technological and other innovations being developed in response to concerns raised by the principle. In addition, they also note that including the requirement of "least restrictive trade measures" tends to subordinate all other considerations to that of trade requirements and also leads to unwieldy solutions that disproportionately distribute the burden of cost onto governments.[118]

Despite these concerns, the principle has, nevertheless, gained a foothold in Canada, having been incorporated into federal and provincial laws, as well as municipal bylaws.[119] Initially the precautionary principle was included in

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[113] Vanderzwaag et al (April 2003) *Ottawa L Rev* 125-126.

[114] S Lee & K Barrett "Comments on: A Canadian Perspective on the Precautionary Approach/Principle Discussion Document" (28-03-2002) *SEHN* <http://www.sehn.org/canpre.html> (accessed 14-03-2014).

[115] Lee & Barrett "Comments on: A Canadian Perspective on the Precautionary Approach/Principle Discussion Document" *SEHN*; Vanderzwaag et al (April 2003) *Ottawa L Rev* 125-126.

[116] This issue was discussed in the document under Legal Issues but it was not considered one of the guiding principles. (See: Government of Canada "A Canadian Perspective on the Precautionary Approach/ Principle Discussion Document").

[117] Vanderzwaag et al (April 2003) *Ottawa L Rev* 124 125-126.

[118] Lee & Barrett "Comments on: A Canadian Perspective on the Precautionary Approach/Principle Discussion Document" *SEHN*.

[119] Canada has a federal government as well as provincial governments. In terms of the Constitution of Canada, the provinces and federal government share jurisdiction over the environment. D Saxe & J Campbell "Canadian Environmental Law: A Quick Intro" (November 2011) *Environmental Law and Litigation* <http://envirolaw.com/quick-intro-canadian-environmental-law/> (accessed 13-03-2014).

the preambles of legislative enactments such as the Oceans Act, 1996[120] and the Canadian Environmental Protection Act, 1999.[121] Another act to include a statement of precaution in its Preamble,[122] is the Species at Risk Act, 2002, but it also contains substantive sections within the Act that deal with the precautionary principle. In particular section 38 mandates that:

> "Recognising that…the Government of Canada is committed to conserving biological diversity and to the principle that, if there are threats of serious or irreversible damage to a wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty…"

A further act that includes the precautionary principle in its text is the Canadian Environmental Assessment Act, 2012. Section 4, which deals with the purposes of the Act, states that among its purposes is the obligation:

> "to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a *careful and precautionary manner* to avoid significant adverse environmental effects;"[123] [own emphasis]

and

> "to ensure that projects, as defined in section 66, that are to be carried out on federal lands, or those that are outside Canada and that are to be carried out or financially supported by a federal authority, are considered in a *careful and precautionary manner* to avoid significant adverse environmental effects;"[124] [own emphasis]

The mandate of the Act also directs that:

> "The Government of Canada, the Minister, the Agency, federal authorities and responsible authorities, in the administration of this Act, must exercise their powers in a manner that protects the environment and human health and applies the precautionary principle."[125]

Most significantly, Canada has enacted the Federal Sustainable Development Act, 2008 with its stated purpose being:

> "to provide the legal framework for developing and implementing a Federal Sustainable Development Strategy that will make environmental decision-making more transparent and accountable to Parliament."[126]

The Act acknowledges that sustainable development underpins the Act in the following terms:

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[120] The Oceans Act Preamble states:
"Whereas Canada promotes the wide application of the precautionary approach to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment …"

[121] The Environmental Protection Act Preamble states:
"Whereas the Government of Canada is committed to implementing the precautionary principle that, 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."

[122] The Preamble states:
"Recognising that … the Government of Canada is committed to … the principle that, if there are threats of serious or irreversible damage to a wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty …"

[123] S 4(1)(b) of the Environmental Protection Act.

[124] S 4(1)(g).

[125] S 4(2).

[126] S 3 of the Federal Sustainable Development Act.

> "The Government of Canada accepts the basic principle that sustainable development is based on an ecologically efficient use of natural, social and economic resources and acknowledges the need to integrate environmental, economic and social factors in the making of all decisions by government."[127]

It then goes on to place the precautionary principle at its heart by requiring that the Federal Sustainable Development Strategy be based on the principle,[128] interpreting it as:

> "the principle that 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."[129]

In addition to the legislation, Canada's judiciary has also had numerous occasions to consider the precautionary principle. One of Canada's earliest cases in point was *Spraytech v Hudson*.[130] Justice L'Heureux-Dube stated that the by-law in question respected International Law and its adoption of the precautionary principle, particularly as articulated at the Bergen Conference negotiations.[131] She also noted that Canada had "advocated inclusion of the precautionary principle" during those negotiations,[132] and that the principle had be included in: "virtually every recently adopted treaty and policy document related to the protection and preservation of the environment."[133] She added that:

> "As a result, there may be currently sufficient state practice to allow a good argument that the precautionary principle is a principle of customary international law.'[134]

More recently the Federal Court of Canada issued three judgements, in cases dealing with the interpretation of statutory provisions, which specifically mandate consideration of the precautionary principle in the decision-making process. The first two cases were *Alberta Wilderness Association v Canada (Minister of Environment)* (concerning the endangered Great Sage-Grouse and referred to as the *Sage Grouse* case),[135] and *Environmental Defence Canada v Canada (Minister of Fisheries & Oceans)* (known as the *Nooksack Dace* case, after a threatened fish species of that name).[136] In both cases, the Act in question was the Species at Risk Act, 2002, and in both the Court

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127 S 5.

128 S 9.

129 S 2.

130 114957 *Canada Ltée (Spraytech) v Hudson (Town of)* [2001] 2 S.C.R. 241. The case was the result of the enactment, by the Town of Hudson, of a by-law that banned the use of cosmetic pesticides. A lawn care company challenged its enactment.

131 Para 31: the judge referred to paragraph 7 of the *Bergen Ministerial Declaration on Sustainable Development* (1990) to define the precautionary principle which states that: "In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."

132 Para 31.

133 Para 32.

134 Para 32.

135 2009 CarswellNat 2178; 2009 FC 710; 45 C.E.L.R. (3d) 48; 94 Admin. L.R. (4th) 81; 349 F.T.R. 63 (Eng.) (Federal Court July 09 2009).

136 2009 CarswellNat 2698; 2009 FC 878; 45 C.E.L.R. (3d) 161; 349 F.T.R. 225 (Eng.) (Federal Court September 09, 2009).

found that the government's actions had been inconsistent with the provisions of the Act in that the authorities had failed to apply the principle as mandated in the Act. The *Nooksack Dace* case though, is particularly noteworthy as the court not only adopted the precautionary principle as a principle of statutory interpretation, but also found that it is law in Canada, as imposed through international obligation and codified in national legislation.[137]

In a third case, *Wier v Canada (Health),*[138] the Judge, in ruling in favour of the applicant held that:

> "With opinions within the Regulatory Agency on both sides of the question as to whether the pesticide presents an unacceptable environmental risk to amphibians in ephemeral wetlands, the precautionary principle would require the Minister initiate a special review into that issue."[139]

Thus, Canada's legal system has clearly not only recognised the principle but adopted it into its legislative system and judicial decision-making albeit that it has drawn criticism along the way.

6 3 Australia

The precautionary principle was first adopted into Australian environmental policy in May 1992, the same year that the *Rio Declaration* was adopted, when the three spheres of Australian government – the Commonwealth, the States and Territories and the Australian Local Government Association – signed the Intergovernmental Agreement on the Environment (IGAE). Although not a legally binding agreement but rather a political accord, it is, nevertheless, influential, as it is the highest level of policy comment to exist between all three spheres of government in Australia.[140] The IGAE lists the precautionary principle as one of four principles that are intended to inform all environmental policies and programmes in Australia. A particular clause echoes Principle 15 of the *Rio Declaration*, in stating that:

> "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."[141]

The IGAE then goes on to expand on this principle by requiring that "the application of the principle in public and private decision-making should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and also highlights the need for an assessment of the risk-weighted consequences of various options."[142]

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[137] ELC Associates Programme, "The Precautionary Principle in Canada" (Teleconference) (June 2010) *Environmental Law Centre, University of Victoria* <http://www.elc.uvic.ca/associates/documents/Jun14.10-Precautionary-Principle-Backgrounder.pdf> (accessed 28-07-2014) transcript page 7.

[138] 2011 FC 1322. In this case, the applicant sought a "special review" of a decision authorising the use of a registered pesticide to control forest undergrowth that the Minister had declined to undertake. The Court found that the scientific assessment that had been undertaken on behalf of the Minister by the Pest Management Regulatory Agency, had found varying opinions as to the toxicity of the pesticide in question

[139] Para 101.

[140] Gullett (2000) *Risk: Health, Safety & Environment* 100.

[141] S 5.1.

[142] Australian Government, Department of the Environment "Intergovernmental Agreement on the Environment" (1 May 1992) *Australian Government, Department of the Environment* <http://www.environment.gov.au/node/13008> (accessed 21-01-2014).

The nine Schedules to the IGAE also list specific areas of policy and management to which the principle should be applied. These are data collection and handling, Environmental Impact Assessments (EIAs), resources assessments, land use decisions and approval processes, national environment protection measures, climate change, nature conservation, biodiversity, the national estate, world heritage and nature conservation.[143]

The IGAE was followed-up with the publication of the National Strategy for Ecologically Sustainable Development.[144]This document outlines the key mechanisms needed for Australia to achieve sustainable development and includes a number of guiding principles. Although the precautionary principle is not named as such, the second principle replicates the first part of the definition of the precautionary principle in the IGAE referred to above, stating that:

> "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."[145]

Following the publication of these two documents, the principle began appearing in legislation, with older acts, dealing with the environment, being amended to include the principle.[146] Australia's flagship environmental statute, the Environment Protection and Biodiversity Conservation Act 91 of 1999 ("EPBC") requires the Minster to consider the precautionary principle when making decisions.[147] It has been said that this provision will do much to entrench precautionary thinking at the highest level.[148] A specific section then specifies 28 different sections within the Act, to which this provision is applicable.[149]

In addition to the Federal statutes, State legislation has also explicitly endorsed precaution. The first legislative inclusion of the principle in Australia is found in the New South Wales ("NSW") Protection of the Environment Administration Act 60 of 1991. The cornerstone of this Act is the principle of 'ecologically sustainable development'; a notion entrenched in section 6(2). The section goes on to specify that the precautionary principle is one of the principles that need to be implemented to achieve such development and it incorporates the same definition of the principle as the one used in the National Strategy definition. The Act also states that:

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[143] Australian Government, Department of the Environment "Intergovernmental Agreement on the Environment" (1 May 1992) *Australian Government, Department of the Environment.*

[144] Australian Government Department of the Environment "National Strategy for Ecologically Sustainable Development" (December 1992) *Australian Government, Department of the Environment* <http://www.environment.gov.au/node/13029 > (accessed 21-01-2014).

[145] Australian Government Department of the Environment "National Strategy for Ecologically Sustainable Development" (December 1992) *Australian Government*.

[146] Gullett (2000) *Risk: Health, Safety & Environment* 102. Two examples quoted of the amended acts include s 31 of the Environment, Sports and Territories Legislation Amendment Act, 1995 (Commonwealth), which amended s 39 z of the Great Barrier Reef Marine Park Act, 1975 (Commonwealth) and the Fisheries Legislation Amendment Act, 1997, Schedule 2 (Commonwealth) which amended s3(I)(b) of the Fisheries Management Act, 1991 (Commonwealth).

[147] S 391 of EPBC.

[148] Gullett (2000) Risk: Health, Safety & Environment 103.

[149] S 391(3) of EPBC.

"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."[150]

It is noteworthy that, although the principle is fairly widespread in Australian environmental legislation, it rarely appears as a stand-alone principle. Instead, it is generally incorporated in the legislation as a specifically mentioned and major component of "ecologically sustainable development" and through the inclusion of the IGAE in schedules to the legislation.[151] In this respect the Australian approach echoes the South African National Environmental Management Act 107 of 1998 ("NEMA") which fleshes out the ideal of sustainable development in a similar way as outlined below. In some Australian legislation precaution is merely alluded to by the inclusion of a prohibition against the postponement of measures to prevent environmental degradation simply due to an absence of scientific certainty with respect to threats causing serious or irreversible damage. It has even been suggested that in legislation where there is no direct reference to the principle, the inclusion of "ecologically sustainable development" suffices to lead to the consideration of the principle in any decisions taken in terms of these acts.[152]

From a judicial perspective, one of the earliest and most quoted cases dealing with the principle was *Leatch v National Parks and Wildlife Services and the Shoalhaven City Council,* (the *Leatch* case)[153] presided over by Stein J in the NSW Land and Environment Court.[154] As the case dealt with endangered fauna, the relevant legislation was the *National Parks and Wildlife Act* (NSW Act 80 of 1974), which made no express reference to either the precautionary principle or "ecologically sustainable development", Stein J nevertheless found that the subject matter, scope and purpose of the Act tacitly required its consideration.[155] He held that "the precautionary principle is a statement

[150] S 6(2)(a) NSW Protection of the Environment Administration Act.

[151] Gullett (2000) *Risk: Health, Safety & Environment* 105-106. See for example: s 3(2)(a) (ACT) of the Environment Protection Act, 1997; s 7(3)(a) (ACT) of the Gungahlin Development Authority Act, 1996; sch 1 of the National Environment Protection Council Act, 1994 (Commonwealth); s 10(2)(a) (NSW) of the Contaminated Land Management Act, 1997; sch 1 (NSW) of the Local Government Amendment (Ecologically Sustainable Development) Act, 1997; s 4(2)(a) (NSW) of the Native Vegetation Conservation Act, 1997.

[152] Gullett (2000) Risk: Health, Safety & Environment 105.

[153] [1993] NSWLEC 191 (23 November 1993); also in 81 L.G.E.R.A. 270 (1993).

[154] The case was an appeal on the merits, against the granting of licence to the Shoalhaven City Council "to take or kill" endangered fauna from an area where road construction had been proposed. A third party objector claimed that the precautionary principle should be applied to refuse the licence because of scientific uncertainty surrounding the effects the road construction will cause on endangered fauna in the area, particularly the giant burrowing frog and the yellow bellied glider ([1993] NSWLEC 191 (23 November 1993) Keywords; See also: Stein J "Are Decision-makers Too Cautious with the Precautionary Principle?" (28-03-2012) *Supreme Court of NSW* <http://www.supremecourt.lawlink.nsw.gov.au/agdbasev7wr/supremecourt/documents/pdf/stein_speeches.pdf> (accessed 28-07-2014).

D Cole "The Precautionary Principle: – Its Origins and Role in Environmental Law" (February 2005) *EDOSA* <http://www.edo.org.au/edosa/research/david%20cole%20 on%20precautionary%20principle.doc> (accessed 28-01- 2014).

[155] Stein J found that part 7 of the Act dealt with issues, which were consistent with the investigation of matters like 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 the protection of endangered fauna.

of common sense", which has already been applied by decision-makers where necessary and before the principle was spelt out. He added that "caution should be the keystone to the Court's approach" and that the application of the precautionary principle appeared most apt in a situation of a scarcity of scientific knowledge of species population, habitat and impacts. He therefore found in favour of the applicant, using the precautionary principle as the basis for the finding.[156]

The precautionary principle was also central in *Greenpeace Australia Ltd v Redbank Power Co Pty Ltd*.[157] Although the court endorsed the precautionary principle in stating that the principle: "dictates that a cautious approach should be adopted in evaluating various relevant factors in determining whether or not to grant consent", it found that in this case the greenhouse gas emission, the focus of the case, did not outweigh all the other considerations.[158] The appeal was accordingly dismissed.

A subsequent case that also dealt with greenhouse gas emissions was that of *Gray v Minister of Planning and Others*.[159] The applicant raised two challenges, the second of which related to whether the Director General had adequately taken account of the ecologically sustainable development principles in the environmental assessment process, particularly whether the precautionary principle and the principle of inter-generational equity were considered.[160] In relation to the precautionary principle, the court found that, as the case did not relate to the final decision of whether the project should be approved, it could not yet be determined the extent to which the precautionary principle applied.[161]Nevertheless, the court found that the Director-General was still required to:

> "ensure that there is sufficient information before the Minister to enable his consideration of all relevant matters so that if there is serious or irreversible environmental damage from climate change/ global warming and there is scientific uncertainty about the impact he can determine if there are measures he should consider to prevent environmental degradation in relation to this project."[162]

In addition, the court noted that:

> "the approach to environmental assessment required by the application of the precautionary principle requires knowledge of impacts which are cumulative, on-going and long term."[163]

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156 Stein J "Are Decision-makers Too Cautious with the Precautionary Principle?" *Supreme Court of NSW* 11. He concluded that a licence "to take or kill" the species should not be granted until much more is known and the appeal was upheld.

157 (1994) NSWLEC 178. The case concerned an appeal against a development consent for a power station in the Hunter Valley. The basis of the appeal was that the power station would contribute to Australia's greenhouse gas emissions.

158 (1994) NSWLEC 178; See also D Peterson "Precaution: Principles and Practice in Australian Environmental and Natural Resource Management" (2006) 50 *Aust J Agric Resour Econ* 469 471.

159 [2006] NSWLEC 720. This case was a judicial review of the decisions made by the Director-General of the Department of Planning in relation to a proposal to build a large coal mine.

160 The Principle of Inter-generational Equity is discussed in paragraphs 118-126 of the judgement. This principle was also found to be a necessary consideration, which the Director-General had failed to address.

161 [2006] NSWLEC 720 para 133.

162 Para 133.

163 Paras 134 and 135.

The precautionary principle was thoroughly interrogated in *Telstra Corporation Limited V Hornsby Shire Council*,[164] (the "*Telstra* case").The appellant had raised a number of grounds of appeal including an argument based on the precautionary principle.[165] Although the appellant's appeal was dismissed, Preston CJ devoted significant attention to the principle and its application. Among other things Preston CJ quoted with approval N de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules*, who stated that:[166]

> "The application of the precautionary principle and the concomitant need to take precautionary measures is triggered by the satisfaction of two conditions precedent or thresholds: a threat of serious or irreversible environmental damage and scientific uncertainty as to the environmental damage. These conditions or thresholds are cumulative. Once both of these conditions or thresholds are satisfied, a precautionary measure may be taken to avert the anticipated threat of environmental damage, but it should be proportionate".[167]

Preston CJ then elaborated on this statement, noting that there are two conditions precedent before the principle is applicable, namely: "that there be a threat of serious or irreversible environmental damage", and "a lack of full scientific certainty".[168] He noted further that an important factor in assessing the threat of serious or irreversible harm is "ascertaining whether scientifically reasonable … scenarios or models of possible harm that may result have been formulated."[169]

Significantly Preston CJ also pointed out that the "lack of full scientific certainty" is an unrealistic benchmark as one cannot unreservedly be assured that an activity or development will never cause adverse effects.[170] Rather he acknowledged that the findings of the World Commission on the Ethics of Scientific Knowledge and Technology, which found that the correct standard would be the existence of "considerable scientific uncertainty". In so doing he approved De Sadeleer's threshold test of "reasonable scientific plausibility".[171] Once these precedents have been satisfied, the judge found that the burden of proof then shifts "to ensure preventative anticipation; to act before scientific certainty of cause and effect is established."[172]

Preston CJ also ruled that the precautionary principle does not invoke a "zero risk" precautionary standard,[173] but rather the precautionary measures needed, will depend "on the degree of seriousness and irreversibility of the threat and the degree of uncertainty".[174] He further asserted that the

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[164] (2006) NSWLEC 133. The case dealt with the refusal by the Council to approve a development application for the erection of a cellular phone base station. The appeal against the granting of the licence was dismissed on the ground that the potential emissions of radiofrequency electromagnetic energy and the health and safety concerns that may arise were in conformity with the prescribed limits of the relevant Australian Standard.

[165] Paras 184-185.

[166] N de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (2005) 155.

[167] (2006) NSWLEC 133 para 128.

[168] Paras 129 and 140.

[169] Para 133.

[170] Para 144.

[171] Paras 147 – 148.

[172] Para 151.

[173] Paras 157 – 160.

[174] Paras 161 – 164.

principle embraces proportionality in that measures should not go beyond what is needed,[175] and that the principle "does not necessarily prohibit development."[176] Finally he noted that the precautionary principle cannot be applied in isolation but rather within the context of "ecologically sustainable development" including "inter-generational and intra-generational equity and the conservation of biological diversity and ecological integrity".[177]

This judgement clarifies the requirements for the application of the precautionary principle and also clearly sets boundaries to the extent of that application. This case therefore provides essential guidance for the principle and its future use.

In Australia the precautionary principle is "a central element in the decision-making process … and … not merely a political aspiration".[178] Thus Australia, like Canada and the EU, has clearly embraced and adopted the principle within the legal framework.

7 South Africa

The legislature, through NEMA in particular, has provided substantive content to sustainable development mandated by the Constitution by not only adopting a wide definition of the term "sustainable development",[179] but significantly by fleshing out the notion in eight internationally acknowledged sub-principles.[180] These sub-principles are located in section 2 of NEMA which includes a further elaborate set of National Environmental Management Principles". Importantly, section 2 commences by stating that the principles "…apply throughout the Republic to the actions of all organs of state that may significantly affect the environment."[181]

A number of further legislative enactments apply or require that their application be guided by the "Principles" of section 2 of NEMA. As the precautionary principle is set out in section 2 of NEMA, this provision extends the principle to these Acts. These acts include the National Environmental Management ("NEM"): Air Quality Act 39 of 2004 ("NEM: Air Quality Act");[182] NEM: Biodiversity Act 10 of 2004;[183] the NEM: Integrated Coastal Management Act 24 of 2008,[184] which does not specifically mention section 2 of NEMA but rather requires "interpretation and application in conjunction with" NEMA;[185] the NEM: Protected Areas Act 57 of 2003;[186] NEM: Waste

[175] Paras 166–178.
[176] Paras 179–181.
[177] Paras 182-183.
[178] *Murrumbidgee Groundwater Preservation Association v The Minister* (2004) NSWLEC 122 para 178.
[179] S 1 of *NEMA* defines "sustainable development" as meaning: "the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations." This definition is also used in s 4(2)(g) of the World Heritage Convention Act 49 of 1999 in relation to the sustainable development of world heritage sites.
[180] S 2(4)(*a*)(i)–(viii).
[181] S 2(1) Principles.
[182] S 5.
[183] S 7.
[184] S 7.
[185] S 5.
[186] S 5.

Act 59 of 2008,[187] and the Minerals and Petroleum Resources Development Act 28 of 2002.[188]

The precautionary principle is reflected in the sub-principle that "a risk-averse and cautious approach [be] … applied which takes into account the limits of current knowledge about the consequences of decisions and actions".[189] This provision received judicial scrutiny in the *Fuel Retailers Association* case, where the Constitutional Court noted that: "NEMA requires 'a risk averse and cautious approach' to be applied by decision-makers",[190] and significantly that:

> "This approach entails taking into account the limitation of present knowledge about the consequences of an environmental decision. This precautionary approach is especially important in the light of section 24(7)(*b*) of NEMA … which specifically requires the investigation of the potential impact, including cumulative effects, of the proposed development on the environment and socio-economic conditions, and the assessment of the significance of that potential impact."[191]

The court went on to find that the precautionary principle required the environmental authorities as well as the then named Department of Water Affairs and Forestry,[192] "to insist on adequate precautionary measures to safeguard against the contamination of underground water".[193] In so-doing the court stipulated that the "principle is applicable where, due to unavailable scientific knowledge, there is uncertainty as to the future impact of the proposed development"; and went on to note that "… water is a precious commodity; it is a natural resource that must be protected for the benefit of present and future generations."[194]

This affirms the Court's interpretation of the precautionary principle, including that it falls within the context of sustainable development. Moreover, it clearly signals that the precautionary principle is applicable beyond the purview of NEMA and applies to activities regulated under other resource related legislation including the National Water Act 36 of 1998 which is silent on the precautionary principle. In effect the Constitutional Court's approach in *Fuel Retailers* mirrored that of Stein J in the *Leatch* case and is recognition of the principle's status as a part of South African law. It is suggested that this approach should be applied to large scale infrastructure projects described above.

A number of further statutes embrace the precautionary principle. The Marine Living Resources Act 18 of 1998 ("MLRA"), re-affirms "the need to apply precautionary approaches in respect of the management and development

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187 S 5.
188 S 37(1).
189 S 2(4)(*a*)(vii). In the context of shale gas mining see P Kantor "Fracking – a Cautious and Risk Averse Approach" (December 2011) 515 *De Rebus* 32-34.
190 2007 6 SA 4 (CC) para 81.
191 Para 81. It should be noted that S 24(7)(b) was subsequently amended to exclude the requirements specified in the quoted passage.
192 The Department of Water Affairs and Forestry is now named the Department of Water Affairs and Sanitation.
193 2007 6 SA 4 (CC) para 98; See also the Australian case of *Leatch v National Parks and Wildlife Services* (1993) 81 LGERA 270.
194 2007 6 SA 4 (CC) para 98.

of marine living resources" of the country;[195] the World Heritage Convention Act 49 of 1999 requires, in relation to the sustainable development of world heritage site that "a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions";[196] and the NEM: Air Quality Act requires the Minister to apply the precautionary principle before issuing notices with respect to "controlled emitters" and "controlled fuels".[197]

More generally, in considering the role of the precautionary principle in South Africa it is noted, in the first instance, that section 39 of the Constitution specifies that South African courts "must consider international law" and "may consider foreign law", when interpreting the Bill of Rights.[198] These and related provisions were central in one of the early Constitutional Court decisions, *S v Makwanyane* concerning the constitutionality of the death penalty where the Court stated:

> "The international and foreign authorities are of value because they analyse arguments for and against the death sentence and show how courts of other jurisdictions have dealt with this vexed issue. For that reason alone they require our attention."[199]

In the same vein in *Glenister v President of the Republic of South Africa,*[200] which concerned the validity of the National Prosecuting Amendment Act 56 of 2008 and the South African Police Services Amendment Act 57 of 2008, the Constitutional court noted that:

> "Our Constitution reveals a clear determination to ensure that the Constitution and South African law are interpreted to comply with international law …"[201]

Thus, international and foreign law as outlined above must be regarded as key considerations in the discussion of the application of the precautionary principle in South African law.

Militating against the above sustainable development criteria is the enactment of the IDA referred to above. The fast-tracking of Strategic Infrastructure Projects by, among other things, the reduction in the timeframes to complete an adequate environmental authorisation process is of concern.[202] This appears to counteract the philosophy behind the precautionary principle carefully nurtured by the international community over the years. Not only could this result in "shortcuts" in this process, which are likely to result in poor decision-making but more generally it will undermine the environmental management principles and the objective of "sustainable development".

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[195] S 2*(c)* of the MLRA. To the best of our knowledge, this has not yet been invoked in the courts.
[196] S 4(2)(g) of the World Heritage Convention Act 49 of 1999.
[197] Ss 23(2)(b) and 26(2)(b) of the NEM Air Quality Act.
[198] S 39(1)(b) and (c).
[199] *S v Makwanyane* 1995 3 SA 391 (CC).
[200] 2011 3 SA 347 (CC).
[201] Para 97.
[202] IDA S17(1) (2) provides that any processes relating to implementation, including processes relating to approvals, authorisations, licences, permissions or exemptions, and associated processes relating to consultation and participation, must "as far as it is possible and in order to expedite the matter, run concurrently". Furthermore, sch 2 sets out the timeframes permitted for the implementation of strategic infrastructure projects, allowing 250 days in total from submission of the application to a final decision on the project, and "… the timeframes in schedule 2 may not be exceeded".

It is with the hydraulic fracturing initiative that the principle is perhaps most important. The long-term impacts of using this technology are not yet quantifiable. Risks to water quality, particularly from migrating fracking water, as well as risks to soil, existing land uses, such as farming, flora and fauna and air quality have all been flagged.[203] However, the likelihood and extent of the risks are still uncertain and unclear. This suggests that the application of the precautionary principle is crucial. Furthermore, even if the fracking sector or any given project within the sector is earmarked to fall within the ambit of the IDA, it should not be a reason to ignore the principle. In addition, should a court challenge be launched against the approval of fracking projects, whether the projects are within the public or private domain, the precautionary principle could and should be a determining factor in respect of if and/or how fracking projects proceed.

8 Conclusion

The above survey highlights that over the last almost 40 years the precautionary principle has gained currency in both international and domestic law. From its inception there were criticisms and question marks around its definition, intention, scope and application. It has, however, been shown that over time, guidelines and details on how and when the principle comes into operation have been developed not only in policy instruments but also by the judiciary. The very broad nature of the principle is the primary reason that the principle has attracted criticism but arguably also its strength if we are to achieve the ultimate goal of the principle, namely the furthering of sustainable development and protection of the environment from serious and irreversible harm for present and future generations. In *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs,*[204] the court acknowledged: "The concept of 'sustainable development' is the fundamental building block around which environmental legal norms have been fashioned, both internationally and in South Africa, and is reflected in section 24(b)(iii) of the Constitution."[205]

In this light the precautionary principle, complicated as it may be, has been incorporated into international law as well as many national jurisdictions, and the time has come for South African decision-makers to apply the principle in appropriate situations including large scale infrastructural developments.

[203] See generally J van Wyk "Fracking in the Karoo: Approvals Required" (2014) 25 *Stell LR* 34 37.
[204] 2004 5 SA 124 (W).
[205] 144A. See also *MEC for Agriculture, Conservation, Environment and Land Affairs, Gauteng v Sasol Oil* 2006 2 All SA 17 (SCA).

SUMMARY

The precautionary principle has gained general acceptance in international, regional and a number of domestic jurisdictions. In South Africa the principle has found a tentative foothold in legislation and case law but generally has had limited practical application. Much needed economic development in the country has seen, amongst other things the enactment of the Infrastructure Development Act 23 of 2014 to promote large infrastructural developments. This article outlines the development and importance of the precautionary principle in international law, its incorporation into in some regional and domestic jurisdictions, such as the EU, Canada, and Australia and motivates for it to be given serious consideration in South Africa's development agenda. It points out that the principle is fundamental to furthering the global ideal of long term sustainable development, a constitutionally mandated goal in South Africa. The principle is therefore a vital constituent in the decision-making process of all proposed future large scale infrastructural developments such as nuclear power stations and hydraulic fracturing ("fracking") undertakings. In short, it is argued that the time is ripe for the more robust application of the principle, particularly where administrative decision-making entails large-scale developments having a potentially significant bearing on sustainable development.