Journal of Sustainability Science and Management 2009 Volume 4 (2): 146-156

THE PRECAUTIONARY PRINCIPLE IN MALAYSIAN BIOSAFETY LAW

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Abstract: Sustainable biodiversity conservation and management has become a major global concern. As a developing country hoping to become a developed one by the year 2020, Malaysia faces a dichotomy between protecting its environment and executing its development master plan. The fear that protecting the environment may hinder development has in fact turned out to be dubious in light of evidences, particularly in the developed countries, showing that environmental protection and development are mutually reinforcing. In the areas of environmental management and pollution control, our imperfect science has nevertheless become a major source of uncertainty in our society. The advance in biotechnology, especially in genetically-modified organisms or transgenic food has resulted in fear that the existing biodiversity will eventually be transgressed. While research will continue and, in some urgent cases, be intensified to provide answers and resolve uncertainties, decision-makers need to decide between allowing or prohibiting certain activities that are, in some respects, of immediate benefit to society but are nevertheless perceived as possibly harmful to the future of the environment albeit the absence of any scientific proof. To deal with such predicaments, decision-makers in many jurisdictions and in many situations resort to the Precautionary Principle, which in essence allows decision-makers to err on the side of caution. As a Contracting Party to the Convention on Biological Diversity (CBD) and its Cartagena Protocol on Biosafety (the Protocol), Malaysia has carried out, to a certain extent, her specific and broad obligations under both CBD and the Protocol by enacting the Biosafety Act 2007. This Act essentially incorporates many important matters covered by the CBD and the Protocol, giving these matters domestic legislative expression. Among such matters is the Precautionary Principle or perhaps the semblance of it. This paper is divided into four parts: Part I provides the introduction of how the Precautionary Principle comes into being as well as describes the methodology used in this research; Part II provides an explanation of the Precautionary Principle as it is most commonly understood taking into account the varied articulations of the Principle in many international regulatory regimes on the environment; Part III of the paper focusses on the critical analysis of the articulation of the Principle in the form of section 35 of the Biosafety Act 2007; and Part IV concludes the paper with observations on the extent the Malaysian articulation of the Principle has complied with or deviated from the defining characteristics of the Principle as explained in Part II.

KEYWORDS: Precautionary Principle - Sustainable biodiversity conservation and management.

Introduction

The world population has now surpassed the six-billion mark and, according to the World Population Forecast by the United States Census Bureau (2008), it is expected to increase to 7.5 billion by the year 2020. With the rapid increase of world population, food security is the key to ensure civil harmony. To boost food supply, conventionally more lands are cleared for agricultural purposes that may inadvertently affect the ecological biodiversity. In the rush to increase food supply, there are concerns about ecological and environmental consequences (Federoff and Cohen, 1999) leading

several nations across the world to resort to agricultural biotechnology, which is seen to have achieved enhanced crop productivity in a more environmentally sustainable way.

Advances in science have so far enabled humanity to achieve a level of civilization unsurpassed by any known previous civilization. However, despite this tremendous impact of science on modern civilization, science has yet not provided definitive answers to several major problems faced by humanity. In the areas of environmental management and pollution control, our imperfect science has become a major source of uncertainty in our society (Gollier: 2000). Science has, as yet, not been able to establish exactly the causal link between one activity, both natural and anthropogenic, and the resulting pollution or damage to the environment. In the past, many uncertainties were able to be resolved over time. Research will continue and in some urgent cases, be intensified to provide answers and resolve uncertainties. Meanwhile, decision-makers need to make decisions whether or not to allow or prohibit certain activities that are, in some respects, of immediate benefit to society but are nevertheless perceived, though not scientifically proven, as possibly harmful to the future of the environment.

To deal with such predicament, decision-makers in many jurisdictions and in many situations resort to the Precautionary Principle, which in essence allows decision-makers to err on the side of caution. According to Adler (2008), Precautionary Principle "appeals to the common sense idea that its better to be safe than sorry". The Bergen Conference on Sustainable Development 1990 states "it is better to be roughly right in due time, bearing in mind the consequences of being wrong, than to be precisely right too late." The origin of the principle has been popularly ascribed to the administrative measures taken by Germany to deal with the North Sea oil pollution (Defur and Kazubba, 2002).

Malaysia has acceded to the Convention on Biological Diversity (CBD) and its Cartagena Protocol on Biosafety (the Protocol). Consistent with both her specific and broad obligations under the CBD and the Protocol, Malaysia has enacted the Biosafety Act 2007, which essentially incorporates many important matters covered by the CBD and the Protocol, giving these matters domestic legislative expression. Among such matters is the Precautionary Principle or perhaps the semblance of it.

Description of Methodology

This study is a pure legal research involving a qualitative study carried out via content analysis on the data collected from the primary sources as well as secondary legal sources such as the legal writings, which are mainly used to supplement the primary sources. The primary data involved in this study are the Malaysian Biosafety Act 2007 and the international conventions and treaties, namely the Rio Declaration, the Wingspread Statement and the Cartagena Protocol on Biosafety.

The legal tool used for analysis is the Rule of Statutory Interpretation, which is the same tool used by the judges: once the Parliament has passed a statute, the duty to interpret such legislation thus lies with the judges. The role of a judge in interpreting statutes is twofold i.e. he has to firstly ascertain the meaning of the statutory provision and secondly, accommodate that particular statute to existing body of law (the common law and statute law), which eventually become a precedent. To facilitate the interpretation of these statutes, the Interpretation Acts 1948 and 1967, which contains definitions for commonly-used words and terms, have been passed. In addition to these Acts, the courts have to resort to some other techniques of interpretation evolved over the years. The techniques or rules of interpretation are as follows:-

(i) The Literal Rule:

Under this dominant rule, the word or phrase in question is given its literal or ordinary grammatical meaning (Wu Min Aun, 1999). The Malaysian Federal Court's decision in H. Rubber Estate Bhd v D.G. of Inland Revenue [1979] 1 MLJ 115 illustrated on how this rule operates in the following words,

> "…the grammatical and the ordinary sense of the word is to be adhered to, unless that would lead to some absurdity, or some repugnance or inconsistency with the rest of the instrument, in which case the grammatical and ordinary sense of the words may be modified, so as to avoid the absurdity and inconsistency, but no further."

(ii) The Golden Rule:

This rule involves the actual modification of the language in a statute with the purpose to overcome the absurdity appears due to the defect in such Act. According to Wu Min Aun, this golden rule is seldom used because it is not often for legislatures to enact law that is "absurd". However, if occasional mistake does take place, then the court will adopt the approach implicit in the rule. An instance where the court was required to use this rule is found in the case of Re An Advocate [1964] MLJ 1. The court decided to interpret the word "or" in Section 12(g) of the Advocates Ordinances (Sarawak) as "and" in order to avoid absurd consequences. The court, at page 3, observed as follows,

> "Fusion having been provided for, it is that a literal interpretation of paragraph (g) cannot have been intended…Although this is a departure from the meaning of the language used in the case where, taken on its own, the provision is clear, I am satisfied, notwithstanding the judicial warning of recent years about relying on absurd results to justify departing from the language of the statute, that this case where the literal meaning would produce a result repugnant to the other provisions of the Ordinance and defeat their purpose, including one of the Ordinance. Consequently, this departure from the literal meaning is justified."

(iii) The Mischief Rule:

If the word or phrases of the statute, in the light of the whole statute, are not plain and unambiguous, the court will look at the "mischief" that was intended by the legislature to remedy it. A clear explanation on how this rule works was explained by Lord Denning in Seafood Court Estate Ltd v Asher [1949] 2 All ER 155 in the following words,

> "It would certainly save the judges trouble if Acts of Parliament were drafted with divine presence and perfect clarity. In the absence of it, when a defect appears, a judge cannot simply fold his hands and blame the draftsman. He must set out to work on the constructive task of finding the intention of the Parliament, and he must do this not only from the language of the statute, but also from a consideration of the social conditions which gave rise to it and of the mischief which it was passed to remedy, and then he must supplement the written word so as to give "force and life" to the intention of the legislature."

(iv) The Purpose Rule:

Under this rule, the court will look into the overall intention of the legislature from reading the statute as a whole. It is believed that this rule owes its origin from the mischief rule and its adoption by the courts can be traced from the use of the words "intention" or "intention of the legislature" in the judgment.

The Precautionary Principle

There are varied articulations of the Precautionary Principle as it is most commonly understood in many international regulatory regimes on the environment. According to Sandin (1994), there is no consensus as to what this Principle means. Marchant (2003) acknowledges the role of the Precautionary Principle in environmental decision-making but regrets that the Principle in its current forms is limited by the vagueness of, and variations in, its many formulations. Despite the many versions of the Precautionary Principle, the writers attempt to discover the essential common or core element in the various articulations of the Principle as the unifying, probably the defining, characteristics of the Principle.

The articulation or formulation of the Precautionary Principle and its inclusion in most, if not all, major international treaties that protect human health and the environment have become customary. In India, the Supreme Court has held that the precautionary principle is a norm of customary international law and of national law, which can be seen in the following cases: Vellore Citizens Welfare Forum v Union of India (1996) 5 SCC 647. MC Mehta v Union of India, (1996) 2 SCR, Narmada Bachao v Union of India (2000) AIR 1999 SC 3345 and also Indian Council for Enviro Legal Action v Union of India (1996) 3 SCC 212: JT (1996) 2 SC 196. The European Commission (2000) has similarly recognised the Precautionary Principle as a "full-fledged and general principle of international law".

There are varied formulations and uncertainties, which is evident from the decision of the English court in R v Secretary of State for Trade and Industry ex parte Duddridge [1994] QBD 151, where Smith J. observed that …"There is at present no comprehensive or authoritative definition of the Precautionary Principle." Another instance to illustrate the various formulation and ambiguity is when Jordon and O'Riordan (1998) argued that the "Precautionary Principle still has neither a commonly-agreed definition nor a set of criteria to guide its implementation". Notwithstanding this admittedly innocuous deficiency, Marchant (2003) believed the precaution principle could fulfill a previously unmet need in environmental policy. According to Mann (2000), there are at least five occasions in the Cartagena Protocol where the Precautionary Principle is seen namely:

(a) The preamble, where Principle 15 of the Rio Declaration is particularly noted;
(b) The text of Article 1, which cites the objective of the Protocol to act in accordance with the Precautionary Principle;
(c) Article 10(6) on decision-making under the Advanced Informed Agreement process;
(d) Article 11(8) on decision-making under the process for food, feed and processing products; and
(e) Article 14 (in Annex III) on the conduct of a risk assessment.

The above instances are considered by Mann as an indication of a significant scope of the Precautionary Principle to be applied by importing states. He further views that … "Reliance on the Precautionary Principle itself is not sufficient to establish the existence of a risk" and that there must be at least some scientific basis supporting the risk's existence.

Despite these varied formulations of the principle and its uncertainties, perhaps essential elements of the principle are shared by the various formulations. For the purpose of discovering these core common elements, Sandin's four-dimensions test (1994) will be adopted and applied to five major articulations of the principle.

Perhaps the most universal formulation of the precautionary duties can be found in Principle 15 of the 1992 Rio Declaration on Environment and Development (Van Dyke, 2004). Even before its remarkable appearance at the Rio Declaration in 1992, the Precautionary Principle had already obtained wide currency in the regulatory regimes of the European Union. The Rio Declaration is

significant in that it introduces the principle to the international community within the framework of the Declarations statement of principles and general obligations to guide the international community towards actions and strategies to promote environmentally-sustainable development. Although the UN General Assembly Resolution on Large-Scale Pelagic Driftnet Fishing and its impact on the Living Marine Resources of the World's Oceans and Seas (1989) predates the Rio Declaration in applying the Precautionary Principle, this resolution is not as broad as the Rio Declaration in that it is basically sectoral. Principle 15 of the Rio Declaration reads,

> "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or reversible damage, lack of full scientific certainly shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Meanwhile, at a meeting of leading proponents of the Precautionary Principle at the Wingspread Conference in Wisconsin in 1998, the Wingspread Statement was issued which embodies the proponents' articulation of the principle. The Wingspread Statement of the Precautionary Principles reads,

> "When any activity raises threats of harms to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically."

A more recent formulation of the Precautionary Principle and of much greater impact on human health and sustainable environment is Article 10(6) of the Cartagena Protocol on Biosafety. It must be noted that all three formulations of the precautionary 'principle' talk about 'approaches' rather than 'principle'. The Bergen Declaration on Sustainable Development 1990 speaks of 'the Precautionary Principle'. Similarly, in Article 130R of EC Treaty the term 'principle' is used instead of 'approaches'. Even at the 3rd North-Sea Conference at the Hague in 1990, the term Precautionary Principle was used. It may be purely semantic whether approach or principle is used in reference to the desired precaution.

Article 1 of the Cartagena Protocol articulates the objective of the Protocol which reinforces and reiterates the Precautionary Principle of the Rio Declaration. The Article reads,

> "In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organism…."
>
> Thus set against the objective declared in Article 1, Article 10(6) provides:
>
> "Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity to the Party of import, taking also into account risks to human health, shall not prevent the party from taking decision, as appropriate, with regard to the import of the living modified organism in question is referred to in paragraph 3 above, in order to avoid or minimise such potential adverse effects".

The Core of the Principle

Establishing the core of the Principle will help identify the defining elements of the Principle. Using Sandin's four-dimensional model, we may be able to establish the core elements of the Principle.

Sandin (1999) identified four different dimensions, which were instead termed by Kriebel (2001) as components, to the Precautionary Principle namely:

(a) The threat dimension
(b) The uncertainty dimension
(c) The action dimension
(d) The command dimension

(a) The Threat Dimension

The threat dimension according to Sandin is expressed in many versions, typically declaring the existence of the threat and its degree of seriousness, such as 'serious or irreversible damage'.

Rio Declaration	:	"threats of harm to human health or environment"
Wingspread Statement	:	not mentioned
Cartagena Protocol	:	"the extent of the potential adverse effects"

(b) The Uncertainty Dimension

The uncertainty dimension expresses our lack of complete scientific knowledge of the likelihood of the threat occurring, including its impact. Versions of this uncertainty dimension usually refer to lack of, incomplete or insufficient scientific knowledge.

Rio Declaration	:	"lack of full scientific certainty"
Wingspread Statement	:	"some cause-and-effect relationships are not fully established scientifically"
Cartagena Protocol	:	"Lack of scientific certainty due to insufficient relevant scientific information and knowledge"

(c) The Action Dimension

This dimension usually describes what response to the threat is prescribed. Actions are often phrased in terms of "cost-effective measures" "appropriate actions" "regulatory action" or even simply "precautionary measures".

Rio Declaration	:	"cost-effective measures"
Wingspread Statement	:	"precautionary measures"
Cartagena Protocol	:	"taking a decision, as appropriate"

Sandin (1999) asserts that when a formulation of the Principle demands an action that is cost effective, that principle appears weak. In fact the writer asserts that in most formulations of the Principle the costs and the benefits of taking precaution are remarkably absent.

(d) The Command Dimension

The command dimension generally decides the status of the action dimension, such as whether the action is "allowable", "justified", "mandatory" or similar expressions describing the force of the action.

Rio Declaration	:	"lack of scientific certainty shall not be used as a reason for postponing cost-effective measures…" obviously the command dimension here is "not to postpone cost-effective measures".

Wingspread	:	"should be taken"
Cartagena Protocol	:	"shall not prevent the Party from taking a decision…."[1]

The three versions of the command dimensions above clearly illustrate that the command element can vary in precision, contrary to what Sandin has asserted. In both the Rio Declaration and the Cartagena Protocol, which derives strong inspiration from the Rio Declaration, there is basically no 'command' in the sense of prescribing an action. Both Rio and Cartagena do not urge a particular course of action but instead exhorts that uncertainty is not a reason for not acting or for delaying an action. Sandin later on admits that in this context, that is, the command context, the Rio Declaration "seems to be at odds with most other sources".

Sandin's four-dimensional analysis is undoubtedly very helpful in establishing the core elements of the Precautionary Principle. Be that as it may, any formulation of the Principle can suffer a fatal defect in its defining objective if it fails to embrace within it an explicit overriding rationale of avoiding harm to the environment including to human health. The presence of this explicit rationale must be the governing dimension of the Principle. This governing dimension underlines the action that is prescribed; in the Rio Declaration this governing dimension can be found in phrases such as "in order to protect the environment" and the concluding phrase "to prevent environmental degradation", similarly in the Wingspread formulation, the phrase "harms to human health or the environment" and emphatically also in the Cartagena Protocol with the concluding phrase "in order to avoid or minimise such potential adverse effects".

The Malaysian National Policy on Biological Diversity and Malaysian Biosafety Act 2007

Malaysia acceded to the Cartagena Protocol on Biosafety (the Protocol) after having also ratified the Convention on Biological Diversity (CBD) in June 1994. Consistent with the obligations imposed by both the Protocol and the Convention, Malaysia has embarked on a positive programme on the conservation and sustainable use of her rich biological diversity by the launching of the National Policy on Biological Diversity in 1998 followed by the enactment of the Biosafety Act in 2007. In terms of conservation measures underlined by both the CBD and the Protocol, both the National Policy and the Biosafety Act are the only two documents suitable for analysis and discussions, since most other natural resources and environmental legislation were enacted prior to CBD and therefore, could not and did not capture the spirit and essence of the new environmental paradigm that underlines the Convention and the Protocol. Noting that the new environmental paradigm emphasises the precautionary approach or Principle, this part of the paper will examine to what extent, if at all, the Principle is incorporated in both the National Policy and the BSA.

The National Policy on Biological Diversity

The Policy enumerates 11 Principles which shall form the basis of the national efforts towards "conservation and sustainable utilisation of the nation biological diversity." These are the governing principles upon which all other measures, administrative as well as legislative, will be shaped and formulated. Interestingly, none of the 11 principles talks about the Precautionary Principle or any remote reference to or version of the Principle. A generous, though not necessarily accurate,

[1] This resembles the Rio's command element in that uncertainty is not a reason for not acting.

construction of the National Policy may place Principle (XI) to be the closest one can come to saying that it talks about the Precautionary Principle. Principle (XI) states:

> "In the utilisation of biological diversity, including the development of biotechnology, the principles and practice of biosafety should be adhered to."

Similarly, the National Policy identifies six broad objectives of the Policy and none of these six objectives refers, directly or even obliquely, to the Precautionary Principle. Perhaps it can be said that the most defining characteristic of the Policy is the absence of the Precautionary Principle (Cooney, 2004) or anything that resembles it. Such an absence is significant because the National Policy is post–CBD and given Malaysia's active participation in the negotiations leading to the formulation of the CBD and the wide currency or the Precautionary Principle during those negotiations, the National Policy is expected to capture the spirit of this new environmental paradigm (Nirmal, 2004).

The Biosafety Act 2007

The Preamble to the Act sets out the underlying legislative objective of the law. It provides:

> "An Act to establish the National Biosafety Board; to regulate the release, importation, exportation and contained use of living modified organisms, and the release of products of such organism, with the objectives of protecting human, plant and animal health, the environment and biological diversity, and where there are threats of irreversible damage, lack of full scientific evidence may not be used as a reason not to take action to prevent such damage: and to provide for matters connected therewith."

As explicitly stated by the Preamble, the Act concerns itself with the regulation of living modified organisms and the embellishment of the National Biosafety Board in regulating living modified organisms. The Precautionary Principle is made the governing criterion in decision-making in that it emphasises the fact that absence of full scientific certainty shall not be a reason for not acting to 'prevent such damage', that is 'irreversible damage'.

While the Preamble to the Act appears to accord with most formulations of the Precautionary Principle and may comply in many important aspects with the four-dimensional analysis put forward by Sandin (1994), the appearance of yet another version of the same Principle in the actual text of the Act can be quite perplexing. Section 35 of the Act provides:

> "The Board or Minister shall not be prevented from taking a decision, as appropriate, under Part III or Part IV, where there is lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of living modified organisms or products of such organisms on human, plant and animal health, the environment and biological diversity and may also take into account socio-economic considerations."

Part III deals with approval for release and import of LMOs and Part IV deals with Notification for Export, Contained Use and Import for Contained Use. In most modern statutes, the preamble is dispensed with. The preamble is sometimes confused with long title of the Act, but whether it is one or the other, the effect on the ultimate interpretation of the actual provisions of the Act may be negligible: In *Attorney General v Prince Ernest Agustus of Hanover* [1957] 1 All ER 49, it was held that the preamble legitimately prevails only when "it conveys a clear and definite meaning in comparison with the relatively obscure or indefinite enacting words" (McLeod, 2007). However, the position in Malaysia is governed by the Interpretation Act 1948 and 1967, where

section 15 provides that "The long title and preamble and every schedule (together with any note or table annexed to the schedule) to an Act or to any subsidiary legislation shall be construed and have effect as part of the Act or subsidiary legislation." This provision is further explained by the court in *Mohd Fadzli Hashim v Magistrate, Magistrate's Courts, Butterworth & Ors* [2000] 5 CLJ 326.

Using Sandin's four-dimensional analysis to the above formulation, it becomes obvious that the command dimension is sorely missing; the section does not command the Board or the Minister to take appropriate action or to make appropriate decision - 'appropriate' to be understood as suitable, necessary and reasonable - to protect against the potential adverse effects. Instead, the section allows the Board or Minister to make appropriate decision having regard to, among others, socio-economic considerations. Thus, 'appropriate' assumes a different contextual relationship with the potential adverse effects. In its present context, appropriate can also mean cost-effective decision: one that is primarily determined not by overriding concern for the environment but by the cost of measures against adverse effects that are yet not established with scientific certainty. Many critics of cost-effective decision-making on environmental conservation believe that, in the final analysis, high cost of precaution may hinder effective conservation decision (Douma, 1996: Vol. 49). This is especially true when section 35 does not contain the overriding aim of the Principle that is of avoiding harm to the environment and human health: thus 'appropriate' neither in that section and a decision taken pursuant to it nor qualified by this overriding rationale.

In this fundamental sense, the Precautionary Principle in section 35 of the Act cannot truly be termed as precautionary (Kwan Khai Hee, 2007) and (Shaik and Wan Izatul, 2008). That this is so, as has been said earlier, is perplexing in that the Preamble appears to be more, in fact, predominantly concerned with protecting the environment and human health. The Preamble talks only of 'irreversible damage' and no mention of 'appropriateness of decision' is made in the Preamble. In fact, the Preamble enjoins the taking of action to protect the environment, even in the face of scientific uncertainty as to the probable occurrence of irreversible harm to the environment and socio-economic considerations do not come within the broad objectives of the Act as defined by the Preamble. Nonetheless, a positive perception of Section 35 may lead to the fairly reasonable argument that it encourages a decision-making process that takes account of the heavy social and economic cost to those whose livelihood may be adversely affected by the intended precautionary measures. Indeed as highlighted in the Final Report of the Fourth Regional Session for Asia of the Global Biodiversity Forum in Manila in 2004:

> "The Precautionary Principle has often been used as a rationale to support conservation interventions which are detrimental to indigenous people's aspirations to use wildlife and biological resources to support livelihood."

The dramatic case of the listing of Tanimbar corella, *cacatua qoffini*, which is a parrot species endemic to the Tanimbar Island, Indonesia, in Appendix 1 of CITES is a lesson to be learnt. In that case, following concerns about the numbers of *cacatua qoffini* entering into international wild bird trade, but with not much knowledge of the actual remaining population of the bird in the wild and the socio-economic significance of bird trapping to the local indigenous people of the islands, the bird was listed in Appendix 1 of CITES, thus suspending the trade of that bird. Following that listing, a contextual survey on the conservation status of the bird, including another species, the blue-streaked lory, was conducted on the islands in 1993. A report of the survey found, *inter alia*, that "in this case, invoking the Precautionary Principle without proper consideration of local context, may have been counter-productive to conservation goals." (Jepson et al, 2001). The survey finds that bird catching among the islanders involved "immature and non-productive birds" and the ban on their trade and catching produced a sense of mistrust towards conservationists.

Conclusion

Precautionary principle is based on the common sense notion that it is better to be safe than sorry in regulating health and environmental risks, especially in uncertain conditions (Marchant & Mossman, 2007). The rapid spread and popularity of the Precautionary Principle is certainly a welcome development in international environmental and natural-resource management. However, efforts must continue to provide a formulation of the Principle that can offer well-defined parameters, failing which the Principle may fail to graduate beyond being just strong emotive rhetoric. Identifying the core elements and the overriding rationale of the Principle will help towards achieving the goal of defining the parameters of the Principle.

The Malaysian Biosafety Act 2007 is a remarkable example of how the uncertainty surrounding the formulation of the Principle has given rise to two clearly inconsistent formulations of the Principle within the same Act: while the Preamble seems to accord with most formulations of the Precautionary Principle and may comply in many important aspects with the four-dimensional analysis proposed by Sandin (1999), the provision of Section 35 is silent on the command dimensions. The section does not command the Board or the Minister to take appropriate action or to make appropriate decision to protect against the potential adverse effects but merely allows the Board or Minister to make appropriate decision having regard to, among others, socio-economic considerations. The elusiveness of the word 'appropriate' under section 35 assumes a different contextual relationship with the potential adverse effects and may also comprise cost-effective decision where in the end, high cost of precaution may hinder effective conservation decision. On the other hand, on a more positive note, the elusiveness of section 35 may also be reasonably argued as encouraging a decision-making process that takes into account the heavy social and economic cost to those whose livelihood may be adversely affected by the intended precautionary measures, which is evident from the dramatic case of the listing of a parrot species endemic to the Tanimbar Island, Indonesia, *Tanimbar corella, cacatua qoffini*. The provisions of Section 35 may be perceived as an 'attempt' to balance between environmental conservation and security of the indigenous and local communities, whose livelihood principally depends on the biological resources.

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