The 'Precautionary Principle'

Application in a multi-issue world.

INTRODUCTION

The *Precautionary Principle* has become very much a part of the vocabulary of the general environmental scene today. It has found its way into various international declarations and conventions, is being reflected in national legislation and is also included in Article 130r of the EU Treaty[1]. Often appealed to as the basis for 'we must act now', 'we must do more' or 'we must go further', it is viewed by many as a potentially powerful argument for the environmental agenda. In Industry, this perception brings with it a real concern that its application threatens another key principle, viz. that environmental legislation should be based on sound science and cost-effectiveness.

Are such concerns valid and if so why? Does the problem lie with the principle *per se* or with its application? The aim of this brief article is to address these key questions.

ITS ROOTS

We begin by looking at the *Precautionary Principle* itself. Here we already encounter some difficulties because of the different forms in which it appears. Having said this, the main difference is that in some cases reference to economic considerations are made but in others there are no such references. Although there are various versions, perhaps the most quoted and widely accepted version is found as 'Principle 15' in Annex B of the Rio Declaration on Environment and Development:

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

It is helpful to put this in the context of the overall declaration. For example, at the outset of the declaration it is clear that it takes a holistic view of man and his environment. So the declaration includes a statement of the essential prerequisite of eradicating poverty as the route to a 'sustainable world'; it also includes a recognition of the potential for inappropriate and unwarranted economic and social costs if overly stringent ambitions are set, particularly in developing countries. In other words, there is recognition of the importance of economic factors in the process of designing appropriate environmental responses. There is also recognition of the need to consider priorities. This not only involves asking 'What first?' but forces the question 'At what point do we stop spending societal resources on this issue, with its diminishing societal benefit, and start spending on a now more pressing issue?' In other words it moves us away from a single-issue to a multi-issue focus.

This backdrop is very helpful in understanding the form of words in 'Principle 15'. For example 'according to their capabilities' recognizes the need to respect the limits imposed by 'affordability'.

[1] *Treaty on European Union, Maastricht*

'Lack of full scientific certainty' does not imply a jettisoning of the need to bring the best understanding of science to an issue but rather recognizes that serious issues cannot always wait for a full understanding. Finally, the inclusion of 'cost-effective measures' reflects the concern to be precautionary with societal resources to assure a healthy economy.

A PROBLEM WITH PRINCIPLE OR PRACTICE?

So to come to the questions posed at the outset. The Rio version of the *Precautionary Principle* is clearly founded on a recognition that wise stewardship of economic resources must accompany its application in a given situation. Although it is concerned with ensuring that scientific uncertainty is not an absolute impediment to appropriate/timely action, it clearly implies a continued and important role for the best understanding science can provide. Finally it affirms the need to seek cost-effective solutions. As such this contains the essential main elements of what the oil industry has called the rational approach, i.e. response strategies should be based on using 'best science' to understand the problem/determine the environmental objective and that the most cost-effective solution should be determined to deliver that objective. The problem then does not seem to be with this principle per se but with its application and its variants.

The first concern is the elimination or marginalization of any economic and social considerations in applying the principle. Such a stance is often perceived as the 'environmental high ground', but does this stand up to a close examination? In the light of the many problems facing society, how is the legislator to approach the task of ensuring that moneys are spent in a way that maximizes overall benefit to society (health and the environment)? (A key concern to those who signed the Rio Declaration.) The process of environmental legislation is so often a 'single issue' process; it is therefore vital that the relationship between societal expenditure and societal benefit/disbenefit is properly understood. Otherwise the legislator cannot be in a position to judge wisely whether or not to act or at what point it would be better to stop spending on one issue and address another. Any action, even if performed to protect the environment, will itself have some effect on the environment. If the *Precautionary Principle* is applied on the basis of preconceptions without as full as possible a scientific analysis, then greater problems may occur. An example of the problems that can arise from focusing on a single issue is the action taken as a result of concerns over the potential carcinogenicity of high chlorine levels in drinking water. Reducing the levels in a developing country resulted in a significant increase in the number of deaths due to waterborne diseases.

One response to the concern to ensure that environmental expenditure results in an overall societal benefit has been a growing use of studies that attempt to place a monetary valuation on the benefits. If the valuation of benefits equal or exceed the cost of delivering them, 'it must be justified'. Apart from the enormous uncertainties in this process, it fails to address the key question of whether a much greater benefit would derive from spending this money on a different problem.

The second concern relates to the use of the *Precautionary Principle* on issues where the consequence of waiting for a fuller scientific understanding really cannot be said to represent 'a threat of serious or irreversible damage'.

A current example of this is the European Acidification Strategy. Here we have an initiative that makes appeal to the *Precautionary Principle* and is designed to make further progress towards the ultimate ambition of achieving 'no-exceedance' of critical loads in the European Union. Seen in isolation this seems to be an appropriate priority for the EU given the long-term changes that have resulted from acidifying emissions. However, there have already been significant international commitments in response to this problem. In particular the 2nd UN-ECE Sulphur Protocol

is designed to deliver substantial reductions in sulphur dioxide emissions over the next decade, particularly in Northern European countries like Germany (see Figure 1). As a consequence sulphur deposition levels are anticipated to fall by factors of five or more in the critical areas of Europe compared to peak levels in 1980. Together with substantial NO_x reduction measures in transport and emission reductions form other sources, this will result in significant progress towards achieving the critical loads. However, exceedances are anticipated to remain in limited areas. This conclusion forms the justification for 'more action' via the Acidification Strategy. Is such action warranted now? Is the application of the *Precautionary Principle* appropriate in this case? To answer these questions we need to focus first on the concept of *critical loads* and then on the economic implications of further action.

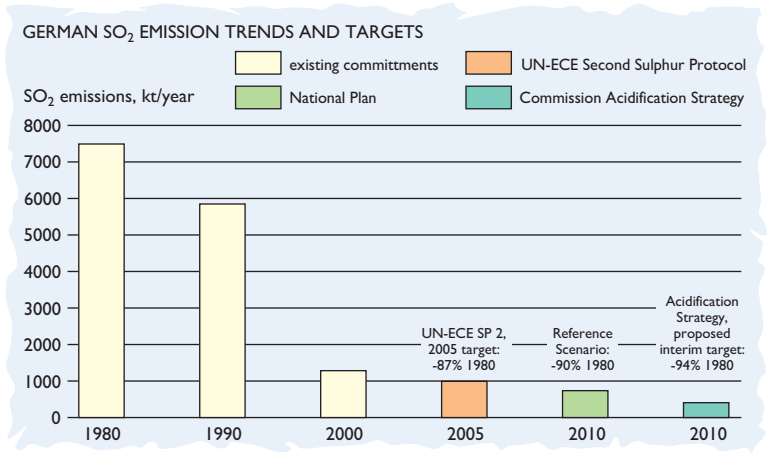

Figure 1
Existing international commitments will result in significant progress towards achieving the critical loads.

Besides being subject to significant scientific uncertainty, the critical load concept is, by its very nature, a static concept. It does not include any aspect of the dynamics of damage or recovery. It is essentially interpreted as an 'OK' or 'Not OK' concept. No attempt is made to quantify the difference in the potential for damage whether at ten per cent above the critical load or at ten times the critical load! This must be seen against the backdrop of a growing body of evidence to suggest that the environment is already responding positively to measures taken to reduce acidification. This can only accelerate as already mandated measures result in further substantial reductions through the next decade.

The Acidification Strategy highlights the 'significant' remaining areas where critical loads will continue to be exceeded without further reductions. However, even the application of maximum feasible reductions offers little further compliance with critical loads in 2010 beyond that offered by already mandated measures. On the other hand, the economic consequences of such reductions are extreme (See Figure 2). As well as placing a significant and widely varying burden on national economies, this would have profound implications for the viability of certain industries e.g., coal. In the light of this, it would seem that a more prudent response would be to monitor how the environment responds to already agreed substantial measures before defining/implementing further measures. Ironically this seems to be much more in harmony with the Rio Declaration!

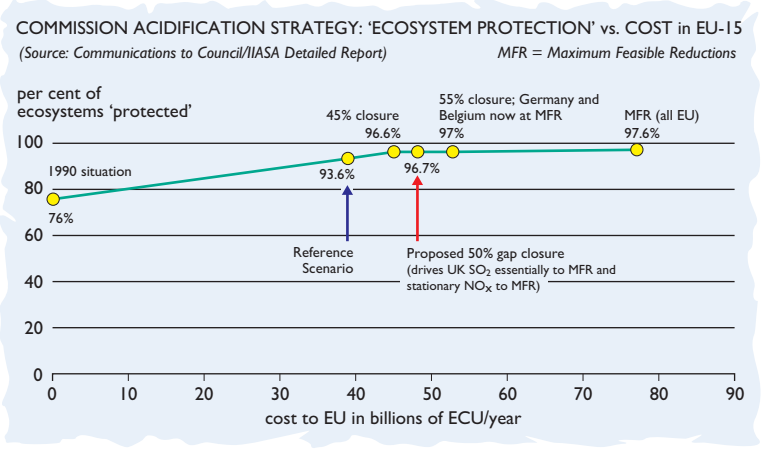

Figure 2
The application of maximum feasible reductions offers little further compliance than already mandated measures.

In conclusion then, the *Precautionary Principle per se* is not the problem (at least the form of words in the Rio Declaration); rather, the problem is in its application. It implies a continued role for 'best science'. It sees a central role for the consideration of economic and social factors including issues like affordability and cost-effective solutions. It recognizes the multiplicity of issues facing society. If these factors were properly accounted for in applying the principle with full transparency, it is more likely to enjoy overall industry acceptance.