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ACMP'S APPROACH TO ENVIRONMENTAL MANAGEMENT AND PROTECTION

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ABSTRACT

Over the years a myth has grown that ACMP is a Committee dedicated to the prevention of marine environmental protection and is actively promoting the use of the marine environment for waste disposal practices. This misunderstanding has so grown in strength that the detailed statement by ACMP in its 1989 report about the application of ACMP advice in a management context has been interpreted by many as running totally counter to the precautionary approach.

In this paper the author will attempt to set the record straight by explaining, in very simple terms what ACMP regards as the proper approach to environmental management and how, if properly followed, it is both scientifically sound and entirely compatible with any rational interpretation of the precautionary approach. Difficulties likely to be encountered in following ACMP's advice will be exposed but so too will the claims that the advocated system has not worked in the past and therefore cannot work in the future.

INTRODUCTION

In its 17 years of existence ACMP has proffered advice on a number of issues. Not surprisingly its advice has, on a number of occasions, caused people to object - usually because if they were to adopt the advice it would cause them to alter their present approach or would force them to think about things differently or more broadly. The ACMP

statements on environmental management and protection have certainly provoked such reactions. However, most of them have been entirely predictable and fall into one or other of the above categories. This is unfortunate because the reactions of such readers in rejecting and criticising elements of our proposals lead others to assume that what we have to say is reactionary, is aimed at promoting the use of the sea as a dustbin, or even worse that we propose a scheme of things which is fundamentally flawed.

The aim of this paper is to try to explain the fundamental thinking behind ACMP's approach, why it is scientifically sound and why it is entirely consistent with concepts such as emission standards and precautionary principles, albeit in a developed and realistically useful form rather than, as they are often applied, as a matter of simple easy option.

The ACMP starts from a few fairly basic assumptions.

1. Present day society and its way of life is not going to change for the worse. Consequently, though the nature of the products may change, essential goods, food and luxuries will continue to be made, used and disposed of.
2. This in turn means that solutions to our problems have to be achieved by advances rather than by going backwards.
3. However hard and successfully engineers and technologists strive for waste free production, some solid waste and liquid effluents will be produced as by-products and the human end users will have worn out products and sewage to dispose of. Total recovery and re-use or recycling is an unrealistic goal and some wastes will arise and have to be dealt with.
4. If one accepts the above as facts then one has to consider what to do with the wastes. For small volume wastes, storage might be practicable but for large volume wastes and most liquids, storage is not realistic and the wastes will have to be disposed of into the environment.

5. For any waste there must be a best environmental option in both the long- and short-term. If that is the case it makes absolutely no sense to rule out one or more of the options as a matter of principle. All should initially be considered as possible options. They should only be ruled out on the basis of a detailed consideration of the disadvantages. Thus the ACMP considers that while the sea may be the best option for some wastes, we are certainly not saying that wastes should be put in the sea. Nor are we saying, as some critics have suggested, that disposal to sea should continue until such time as damage is proven beyond all doubt. Precautionary action is certainly envisaged in our scheme of things and for new activities would be taken long before problems arose.

WHAT THE ACMP SAYS

What we have said is that if wastes are to be disposed of to sea, it should only be after an assessment of the impact of that disposal and a comparison of the benefits and disbenefits of all other options. Only if, after this comparison has been completed the sea still looks to be the best option should this route be selected and then only if the impact (there will always be some) is considered acceptable.

On the basis of sound practical common sense, let alone science, there can be little argument with this proposal. But the ACMP advice goes much further than that. We advocate that even before the practice giving rise to the waste proceeds to the waste disposal stage, the process we term justification should be followed. By this we mean that the overall benefits producing the product, or undertaking the activity, must be fully assessed and judged to be greater overall than the disbenefits associated with the practice proposed. Only if this is the case should the proposal be proceeded with. Clearly this is not realistic for existing activities but it should be in principle for a new one.

In assessing the impact on the marine environment, the ACMP advocates the use of standards designed to protect marine species and man as a consumer of marine food products. We point out that all substances are potentially harmful depending on the degree of exposure, which in turn is a function of source strength and the inherent toxicity of the substance.

Clearly what one wishes to achieve is protection of the most sensitive species likely to be exposed and this does present a difficulty since our understanding of the marine environment (but also other environmental sectors) is incomplete. However, we are in a position to predict what will happen physically and chemically to a wide range of substances in the sea and whether they will be decomposed. We are also growing better at predicting toxicity on the basis of chemical structures and effects on a few selected test species. Thus by an examination of exposure pathways etc it is often possible to define what is probably a safe level to allow in the environment. When account is taken of local dispersion characteristics, degradation pathways and reconcentration possibilities, one ends up with a definable maximum input rate or environmental capacity. If one opts simply for best technology emission standards this limit is never defined and one will have no idea whether or not the goal is being achieved.

However, this is not the end of the story, we then advocate what we call optimisation. By which we mean we do not propose to allow disposal up to the limit but that the practice should be constrained to the greatest possible extent to keep as far as practicable below the limit. We then advocate that even after the practice is underway the effects must be monitored to ensure a) that whatever limits are set on the practice (eg effluent flow and concentration) are observed and b) that no unpredicted adverse effects occur.

It should be obvious that in the optimisation process one takes account of the best available technology, clean technology etc, and that this in many respects is equivalent to precautionary action. However, it does stop short of the more extreme versions of precautionary action which mean not allowing any element of the practice in case it causes problems.

Our proposals, and modus operandi, are neatly summarised in the two figures from our 1989 report. (Figures 1 and 2 attached to this paper).

WILL IT WORK?

We are well aware that many people say that this may be excellent in theory but it either cannot be made to work or that it obviously doesn't work because problems do arise

and the sea is polluted. The first argument is invalid and unprovable and that the second argument is totally unfounded and based on the supposed failure of parts of the proposed scheme rather than the whole (which has never been tested).

Let us just then briefly examine some of the reasons proffered as to why the scheme does not work. The usual ones are based on the argument that the adverse effects of PCBs, DDT, mercury, TBT, lead and a whole host of other substances were not predicted. This is of course perfectly true but it is equally true that aquatic toxicology and especially marine toxicology was in its infancy when those products were put on the market. Even more importantly it must also be recognised that no attempt was made to predict what the effects of such substances would be. What we can do now though, is predict, as we have with some degree of success, what will happen if nothing is done and how long recovery will take if certain remedial measures are adopted.

A key factor in the scheme of things is of course the existence of, or an ability to derive, reliable standards and it is often suggested that standards cannot be derived which ensure the full protection of all species. Whether or not this is true it certainly depends on the degree of conservatism one builds in, the degree of protection one wishes to achieve and the risks one is prepared to accept. With all other aspects of human endeavour and with all forms of activities affecting other environmental sectors, an acceptable risk is definable so why not for the marine environment. Standards can be changed and the acceptable level of input can be changed if circumstances change or advances in scientific knowledge or technology suggest they should be. Indeed our proposed system calls for this by the monitoring and optimisation feedback loop.

The challenge is to ensure that we can set standards on the basis of interpretable biological test data. Here the advocates of sublethal, cellular and other effects studies are doing a great job and there should be no problem in principle to using standards based on such tests. However, we must face up to the fact that the detection of a response does not necessarily mean it is irreversible nor does it necessarily prejudice the overall wellbeing of the individual let alone the population of species. In short we need to know which responses and which level of response are critical. It is true that we must be concerned about the

additive or synergistic effects of mixtures and that single substance standards may not be adequate to achieve protection from such effects. However, what evidence there is suggests such fears are in fact groundless, provided the individual standards are met with a properly optimised safety margin.

CONCLUSIONS

To summarise briefly, the ACMP has proposed a scientifically-based set of environmental protection and waste management principles, which include ample opportunities for administrative overrides. The basic principle is that all options should be kept open and examined and that selection should be dependant on a full assessment of the consequences of selecting any one option and the rejection of all others. The second principle is that whatever option is selected, the impact should be minimised by use of what is now popularly known as clean technology or best available technology, with some account taken of the value for money achieved in doing so. Finally we accept that because science can never be 100% accurate in its predictions, monitoring of effects and fate are necessary. We also agree that there will be occurrences when the uncertainty involved in defining safe levels is so great that scientific prudence will suggest the practice should not be permitted.

None of these ideas are reactionary, we are not promoting sea disposal in particular (our proposals apply equally to all practices and all sectors of the environment). We are however trying to build on scientific advances and understanding and ensure they are utilised to the best advantage of society as a whole.

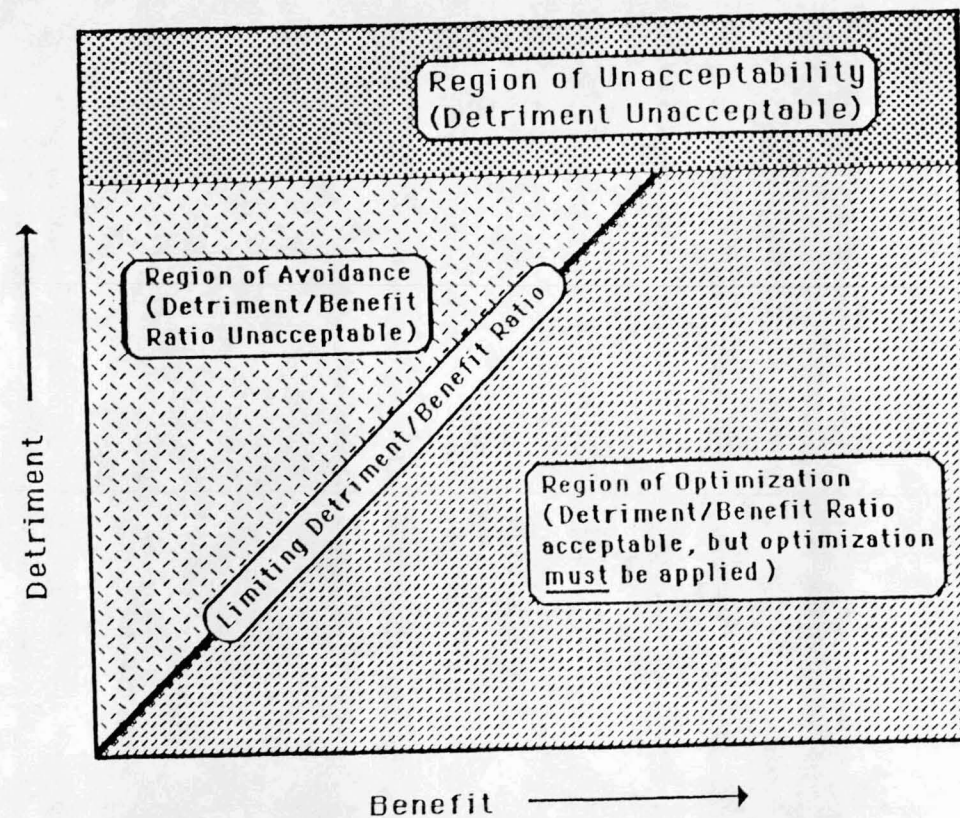


Figure 1. Simplistic Representation of the Environmental Protection Strategy Advocated.

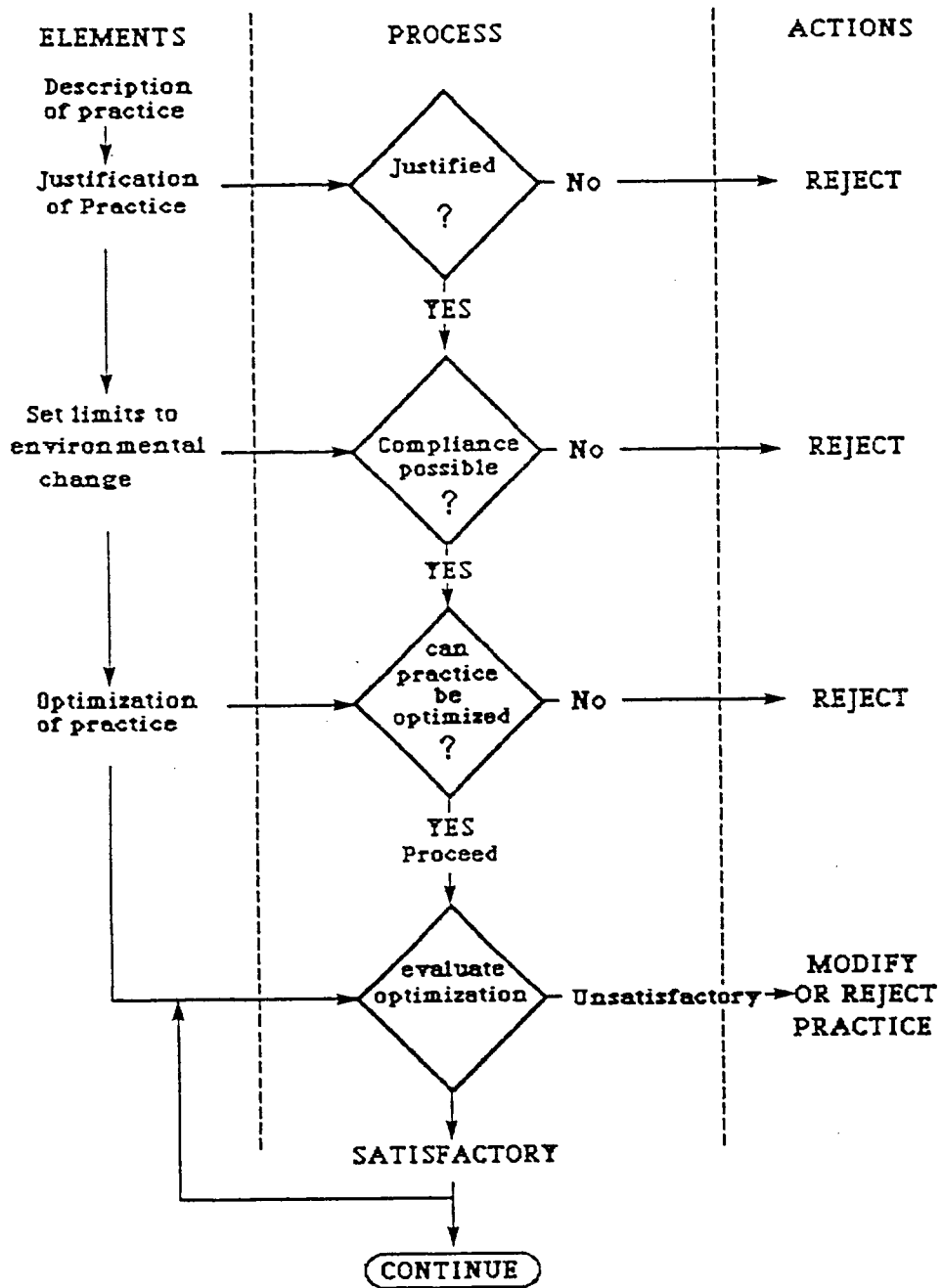


Figure 2. Proposed environmental management framework.