

STRATEGIES FOR THE PROTECTION, MAINTENANCE, AND ENHANCEMENT OF BIOS

[Professor Tham Seong Chee](#)

National University of Singapore
Singapore

INTRODUCTION

The term "bios" refers to life. Indeed, the history of man may be said to be underlined by the fundamental concern for maintaining life, though the paradigm of human life is more often stressed in practice. In doing so, man has constructed or organised an array of social, political and economic systems (according to the variety of environmental conditions confronted) not only to maintain life but actively pursue it. However, the maintenance or enrichment of life required not only organisational skills and know-how but instrumental techniques as well. The latter relates to the scientific-technological expertise built up over the centuries by man. Finally, it is the mental attitude towards life - an attitude implicitly or explicitly exposed and projected in the diverse moral-ethical and religious systems founded by man. It can be seen therefore, that there are essentially three parameters pertaining to the maintenance of life devised by man viz., the organisational, the instrumental, and the ideological or moral-religious.

However, the maintenance or enrichment of human life cannot be divorced from a correct appreciation of life in general or life in other biotic forms. Indeed, all living forms interact with given environments, constituting what have been termed ecosystems. The proper and adequate maintenance of ecosystems is therefore directly related to the maintenance of life - both in its human and non-human forms. As such, an ecosystem may be regarded as being constituted of biotic and abiotic components organised into dynamic systems (see for example, Schaiberg, A., "The Environment - From Surplus to Scarcity", OUP. 1980).

In the last few decades in particular, there has been mounting evidence of a serious disequilibrium between human activity and the natural environment resulting in some cases in the total destruction of ecosystems created by natural processes over many centuries. Such occurrences have long term existential consequences for mankind as a whole. It would seem that modern man's relationship with nature - from being one in harmony with it to one dominating it - has been at the core of the problem. It follows, therefore, that to achieve the semblance of a solution would require certain fundamental re-alignments of attitudes underlying man's relationship with his natural environment. In doing so, the stress should be on harmony and symbiosis rather than confrontation and exploitation.

The foregoing implicitly suggests the need to uphold certain transcending or ultimate values. Will current scientific or liberal-democratic orthodoxies allow for their realisation? A scientific orthodoxy gives no epistemological recognition to values per se, except what it can ascertain by factual analysis. Similarly, a liberal-democratic orthodoxy regards all values as equally valid while not necessarily denying the existence of common denominators shared by man whether they are of a psychological or valuational character.

THE BIO-ENVIRONMENT - A BRIEF CONCEPTUAL INTERPRETATION

Though the bio-environment is seen to relate to the world of the living, it cannot be separated from the inanimate world. Indeed, an adequate appreciation of the dynamics underlying the bio-environment would require the recognition of a triangular relationship involving man, the biotic environment and the abiotic or inanimate environment. It follows, therefore, that any disturbance to or disharmony in the triangular relationship would necessarily lead to adverse consequences. Ecosystems are generally quite resilient, but human or natural forces can destroy their integrity and bring about their collapse. It would appear that the protection, maintenance and enhancement of the bio-environment entail both an ecocentric approach (stressing both the transcendental and ameliorative power of nature) and the technocentric approach (stressing rationality, managerial efficiency, optimism and faith in the application of scientific-technological expertise for the resolution of human problems).

THE BIO-ENVIRONMENT - PROBLEMS OF INTERNATIONAL CO-OPERATION

Having dealt with the theoretical and conceptual parameters of the problem, let us then move on to the practicalities involved on the international plane.

It is obvious that "bios" as a manifestation recognises no political boundaries. Because the borders of the bio-environment are taken globally and the borders of nation states are non-isomorphic, problems of collaboration and co-operation are inherent. The current international order, guided as it is by the twin concerns to promote national interest and enhance political independence, have in this connection exacerbated the problem. Most nations guard their national autonomy jealously. Thus any attempt to devolve common approaches for the maintenance and

enhancement of the bio-environment, however great its intrinsic worth may be, could be perceived with suspicion or scepticism.

The preceding is partly if not mainly due to the fact that there is uneven development among nation states. This unevenness is most glaringly exemplified in the differences of development resources available to each nation state. Moreover, the state of institution building including the process of political democratisation among nation states varies from the effete to the sublime. A fair number of nation states continue to remain brittle and fragile, under constant threat either from within or from without or both. For these states, deprived as they are of basic needs and comforts, the first concern is to survive rather than to save. Both underdeveloped and developing nation states have all been converted to the universal dogma of the twentieth century, that development necessarily implies industrialisation and industrialisation in turn necessarily involves the institutionalisation and application of science and technology. However, in many developing nation states industrialisation is nothing more than the existence of certain extractive industries (gold, tin, cobalt, iron, fossil oil, manganese, tungsten, diamond, silver, timber etc.) owned and managed by foreign interests. No doubt, as a result of growing political maturity, nation states involved have now negotiated better or improved terms in the sharing of profits and in the transfer of technology. Yet it does not detract from the fact that such industries have directly contributed to soil erosion, floods, deforestation, water and air pollution and a serious if not catastrophic imbalance in the bio-environment.

Underdeveloped and developing countries desirous of achieving technological breakthroughs by wholesale and uncritical importation of industrial and manufacturing know-how from developed countries are also short-changed by the fact that most of what they import represent industries which discharge high levels of pollution or have residuals which endanger the bio-environment. In this regard both air and water as resources for the support of life systems are put in jeopardy. While the economic rationales (or perhaps even the perceived necessity of such industries for the developing nation states) are well appreciated, whether seen from the perspective of the industrialised or the industrialising nation state, there is no doubt that the latter is made to bear the consequences arising from pollution of the bio-environment. Admittedly, more discerning developing or industrialising nation states have now enacted various forms of legislation to ensure that further destruction to the natural "bios" and ecosystems may be averted but efforts in this direction have been minimal and uncoordinated. It is a task made all the more difficult by vested interests and political patronage which frequently determine what needs to be protected and what not. No less important is that the maintenance, protection or enhancement of the bio-environment more frequently than not entail enormous costs - a requirement few developing nation states can meet given their dependent and underdeveloped economies.

The nature of the international economy, underlined as it is by a broad division of labour, also poses a problem of some magnitude in efforts to protect and maintain the bio-environment. Underdeveloped and developing nation states are with rare exceptions dependent on the export of raw materials (metals, fossil fuel, timber etc.) or primary products (rubber, palm-oil, cocoa, copra, sugar, rice etc.). At the same time, their population growth rate is the highest in the world. These conditions make enormous demands on the available land, both for meeting the needs of the ever-expanding plantation or export orientated economy and the needs of the population at large in such areas as farming, housing, urban growth, transport development. As so often happens, a fair degree of indiscriminate destruction of the bio-environment occurs. In some countries, the rush to acquire quick wealth through timber concessions among the political elite coupled with the practice of traditional slash and burn agricultural methods have led to serious deforestation and soil erosion to such a degree that they have resulted in the silting up of streams and rivers and with that the destruction of aquatic life forms. As is well-known, this can set up a chain reaction to the detriment of human existence as a whole. In some instances, the construction of dams to harness hydroelectric power have not only led to the displacement of local communities but also modified the ecosystem to such an extent that the interdependence between biotic and abiotic forms is undermined irrevocably.

Developing nation states have marshalled powerful and persuasive arguments in support of their development objectives despite the fact that a great deal of their biotic heritage is irretrievably lost as a result. There is obviously no easy answer to the dilemma. However, both developing and developed states may make a start by examining the question of common responsibility in regard to the overall protection, maintenance and enhancement of the bio-environment. Simultaneously, developing nation states should ponder the whole concept of development, whether in fact it should model itself in the example set by developed nation states or whether it is in their long term interest.

What can be established, is that the issue of maintaining, protecting and enhancing the bio-environment as a survival necessity for man is tied up with a series of interlocking issues of fundamental importance whether seen nationally or internationally.

For example, developing nation states will feel less inclined to invest in the bio-environment unless and until they have achieved a reasonable measure of economic and social development. Moreover, a nation state may be unwilling to take unilateral action to enhance its bio-environment without certain guarantees of similar action by other nation states (even if a common plan can be evolved).

In this connection, it seems necessary that the protection and maintenance of the bio-environment does require the attainment of a state of readiness both in the mental and developmental senses before meaningful collaboration may be forthcoming.

Given the problems stated earlier, it comes as no surprise that developing countries (and developed countries as well) put less stress on environmental protection than they do on economic development. This is evidenced by the fact that the Ministry in charge of the Environment (if one exists at all) in some countries is usually among the least important of the Ministries set-up to govern the country. Such a Ministry is normally understaffed and under-supported. Indeed, other Ministries quite often see it as nuisance, as it tends to be regarded as an

"obstruction" to rapid and unhindered development because of its insistence on meeting minimum environmental standards. Inherently, therefore, there is a problem of convergence in regard to perception and developmental priority.

Efforts required to maintain and enhance the bio-environment are also made difficult by the fact that many powerful companies are able to range over the entire world to exploit natural resources for profit. The best illustration is found in the mining of the sea-beds or the so called whaling industry. In this connection, scientific-technological knowledge backed by vast capital resources have been used to tremendous commercial advantage by a few wealthy states to the detriment of the less able to do the same. It is implied in the foregoing statement that the problem pertaining to the protection of "bios" is inherent in the current structure of economic-political relationships between powerful states and weak states or between wealthy and poor states.

Last is the direct threat posed to "bios" itself by the stock-piles of lethal chemicals (including poisonous gases and killer-germs) kept by certain militarily powerful states. Even without a nuclear holocaust, the release of such agents in a military confrontation or by accident will obviously have catastrophic consequences for all forms of life.

The structure of international relationship whether seen in economic, political, military or technological terms does not encourage the maintenance or enhancement of the bio-environment. Indeed, on the contrary, it inherently threatens it in a cumulative fashion. The more the current structure of thought and action prevails in the relationship between states, the more the bio-environment is going to be endangered. There is then an urgent need to examine the current development ideology pursued by nation states as well as the structure of relationship (whether economic, political, military or technological) among nation states. Unless a fundamental change of perception and value is forthcoming, the problem of protecting, maintaining, and enhancing "bios" will remain unsolved. Should it be allowed to enlarge through neglect or lack of common purpose, then mankind would have failed in its most basic responsibility, its responsibility as the guardian of the bio-environment without which it does not deserve to be its beneficiary.

THE BIO-ENVIRONMENT - INSTITUTIONAL AND LEGAL IMPERATIVES

The preceding statement should not be construed to mean that there is no awareness or concern for the protection, maintenance and enhancement of "bios". Neither does it imply that there are no efforts both at the national and international levels to counter the threats posed to the bio-environment. However, such efforts by and large do not question or challenge the basic premises of natural environment in general. To development planners, for example, both the biotic and non-biotic components of the environment could be subjected to human intervention and manipulation so long as the results envisaged are produced, whether from national or international perspectives. To do so, they have emphasised the technocentric mode. Consequently, there is insufficient recognition for bioethics, that cluster of beliefs that stresses the essential humility of man in the face of natural forces. Bioethics "incorporates the notion of limits, or non-negotiable barriers to certain uses of nature" (T. O'Riordan, Environmentalism 1981, p.6). To ignore it, would lead to human peril.

However, the technocentric mode or faith in the ability of science and technology to solve the problems of existence have become so deep-seated and pervasive in the minds of development planners that it would be difficult to make them alter course in any significant way in the immediate future. There is no doubt that science and technology must be the means for the protection, maintenance, and enhancement of the bio-environment but in doing so, they must be subsumed under a system of bioethics that not only gives protection to "bios" but equally ensures that mankind's material and spiritual needs are at the same time adequately met. This implies that given the problematic of international co-operation to maintain, protect, and enhance "bios", steps taken to realise it will have to take into account the realities governing international relationships be it of political, economic, military, technological or scientific nature. It is questionable whether a workable legal framework could be constructed and implemented to ensure that nation states adhere to its requirements.

However, this does not mean that this is the only solution nor necessarily the most effective one concerning the enhancement of "bios" in general. Short of a radical change of attitudes and life style what seems clear is that in seeking solutions for the protection of the bio-environment ecocentric, biocentric and technocentric considerations will have to be satisfactorily weighed and balanced so as to maximise human well-being. It is within this parameter of thought and action that the issues of institutional and legal imperatives at the international level will be examined.

Given the complexity of the international order, underlined as it is by varied levels of development attained by the constituent member states (not to mention the perceived inequality of economic relationship by less developed nation states), efforts initiated to protect the bio-environment will have to take into account the multi-dimensional nature of the problem. Many forms of co-operation, integrating and linkage based on national, intra-regional and inter-regional considerations according to levels of activity envisaged could be formulated and promoted. To be effective, some kind of common strategy should be worked out by experts representing nation states so as to provide the necessary overall perspective, and, in doing so, ensure co-ordination and mutual support.

Proposal made with a view to enhancing "bios" must take into account various realities and peculiarities of a national or regional character. For example, in more developed nation states, the problem is perhaps not of creating awareness but a matter of wise legislation to ensure that all competing interest groups are adequately catered for. In most underdeveloped and developing nation states the problem is not only creating awareness among the populace at large but the enactment of appropriate laws and the provision of adequate infra-structural support to ensure

that environmental requirements are met and observed.

Similarly, the level of education (and therefore public awareness) varies tremendously among developed and developing nation states. Without adequate knowledge of the bio-environment through education, no awareness of its importance can be effectively created. It is a fact that the higher the level of education and the wider it's spread, the greater is the likelihood of organised pressure groups in defence of "bios" as a matter of principle. Seen in the context of many developing nation states such pressure groups quite often provide a necessary counterweight to unprincipled political behaviour influenced by the desire for profit. In some cases the question of the bio-environment is a matter of protection, in others it might be more a matter of maintenance and in others enhancement, or a combination of two or three.

Efforts at enhancing "bios" can be dichotomised into the national and international dimensions, though it must be mentioned that in certain areas they are integral to each other.

At the national level, one may again view the problem in two dimensions, in terms of the official role in enhancing the bio-environment and in terms of the role of private organisations in fulfilling that same obligation.

It should be a matter of national policy for every government to protect, maintain and enhance the bio-environment. Without such a commitment in principle it would be impossible to plan and institute procedures necessary for the protection of "bios". A Ministry of Environment should be established and given adequate authority to ensure that basic rules laid down for the protection of critical bio-environments are observed, and such a Ministry should be provided with sufficient financial, organisational and research facilities to enable it to perform its tasks effectively without hindrance and interference from other ministries and interest groups.

In this regard some of the recommendations made at the OECD Meeting of Ministers of Environment on Environment Policies for the 1980's may be worth adopting (see Organisation for Economic Co-operation and Development, Paris. 1980). The institutional arrangements regarded as vital by the Meeting included the following:

- a. that the Environment Minister be automatically informed of policies and plans in other fields that have, or may have, significant impact on the bio-environment (my emphasis);
- b. that suitable mechanisms are developed to ensure that environmental considerations are brought to the centre of major decision-making processes;
- c. that better instruments are found to encourage public participation and make it more informed and effective;
- d. that the Environment and other Ministers are informed of evolving public views concerning the bio-environment or environment in general.

The foregoing implies that the political system concern is more or less democratised to an extent that allows for wide public participation in matters pertaining to the protection of "bios". If such a condition is absent then efforts will have to be made to create it. Naturally, nation states provide a wide variety of cultural-political traditions as well as modes of decision making. From the legal point of view, there is also some variation. For example, some nation states allow judicial bodies and courts to hear litigation pertaining to environmental problems whilst others do not. This latter point determines crucially the impact of private organisations and environment pressure groups in their efforts to promote bio-environment issues.

Few underdeveloped and developing nations have private organisations or pressure groups devoted to the protection of the public good in general. Fear of adverse repercussion and sometimes the political elite's monopoly of power make environmental protection efforts ineffectual and inconsequential. Moreover, few political parties take up environmental protection issues in any consistent or programmatic way.

The experience of developed countries (Europe as a whole and North America) seems to suggest that the growth of awareness for the protection of the bio-environment is crucially connected to the growth of interest groups: environmentalists/ecologists vs. government or industrialists; local residents vs. housing developers; commercial farmers vs. herders, ranging from issues of industrial wastes disposal to the citing of military and nuclear installations. Such contests for the use of the environment are not necessarily exclusive to the developed and democratically organised political systems of Western Europe and North America. However, in less developed nation states, the government of the day usually has far greater power in matters pertaining to the use of the environment and by extension the future of the bio-environment as well. Moreover, local interest groups do not cohere sufficiently to counteract development policies damaging to the bio-environment.

The formation of local environment protection groups is a necessary step at the national level to ensure that the public is well informed about the dangers posed to the bio-environment due to badly conceived development policies. Such groups should make demands for freer access to information on planning and development as well as more direct participation in decision-making. In order that such groups function effectively or have public support they must be free of partisanship. Furthermore, there must be a basic sense of responsibility in that such groups should be cognisant of both the constraints and opportunities associated with their efforts to promote the well-being of the bio-environment. In other words, the work of private environment protection groups should be properly understood by the public and by the government. Unless both environment protection groups and the government have established a clear understanding of each other's intention and responsibility including a sense of trust in each other, a condition of mutual distrust will emerge. This seems to be the lesson in the case of

the various "environment movements" in Europe where divergent ideologies and the tendency to ignore traditional political frames of action to achieve public support for the protection of "bios" have given rise to consternation and fear of political instability (see pg. 88-89, OEDC Ministers of Environment Meeting, 1980). In many developing nation states the problem faced by private environment protection groups is gaining official recognition of their role in the conservation and protection of the bio-environment. To make things worse, such groups are plagued by shortages of manpower, scientific expertise and financial support. Their continued existence is dependent on donations received from local well-wishers or internationally based environment protection organisations such as the International Union for the Conservation of Nature and Natural Resources (IUCN).

Seen from the international perspective, the protection of the bio-environment would do well to heed the principles declared at the UN Conference on the Human Environment in Stockholm in June 1972. The Declaration's implicit message was that "improvement in the administration of government is necessary for the effective implementation of environmental policies" (see Organisation and Administration of Environment Programmes, United Nations, 1974, New York, mimeo. p.2.).

Principle 2 stresses that, "the natural resources ... must be safeguarded through careful planning and management as appropriate".

Principle 4 declares that, "man has a special responsibility to safeguard and wisely manage the heritage of wild life and its habitat ... Nature conservation including wild-life must therefore receive importance in planning for economic development".

Principle 7 admonishes all States to "... take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life ..."

Principle 11 declares that, "the environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries ...".

Principle 12 incorporates the issue of additionally, advocating that additional international, technical, and financial assistance be made available to the developing countries to cover costs of incorporating environmental safeguards into their development planning.

Principle 13 declares that, "in order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and co-ordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve the human environment for the benefit of their population".

The principles enunciated in the UN Conference on the Human Environment, 1972, are good to the extent that nation states adhere to them by taking stringent and consistent measures to implement them, preferably in close co-operation with each other. As a first step, it might be useful to conduct regional discussions among nation states (among political leaders, among scientists and among environmentalists) on the protection and enhancement of "bios". Currently, the prevalent attitude of nation states is to look at the bio-environment mainly in terms of its economic value of its purported potential for development. Thus, one finds the increasing tendency of nation states to enact laws to protect their fishing grounds or extend their territorial waters to embrace larger economic zones. These tendencies are not in themselves without merit given the political and economic realities underlying relationships among states. Each nation state will make every attempt to enhance and optimise its national interests. Indeed the trust of the UN Charter is fundamentally in recognition of the sovereign rights of member states. As an illustration, though the three UN sponsored conferences on the Law of the Sea (the eleventh and final session ended in April, 1982) were able to adopt a convention establishing rules for the use and exploitation of the seas and sea-bed, there was no consensus achieved.

The lack of unanimity in regard to the use of the sea-bed illustrates a number of realities relevant to a better appreciation of the international dimension in bio-environment protection. First of all, there is the prevalence of economic considerations over others in determining action and perception. Secondly, there is the problem of enacting a transnational code of conduct with legal force to ensure that nation states conform to the wishes of the majority. Finally, there is the problem of powerful interests (whether in the form of super-powers, maritime powers or multi-national corporations) who in the nature of things feel disinclined to conform because of the constraints on their basic economic and political instincts.

The protection and enhancement of "bios" therefore entails the structuring of procedures that are able to safeguard the needs of the smaller nations and simultaneously accommodate those of the powerful ones. It is a rule of international relations that applies not only to the issue of "bios" and its enhancement but to all important issues of a transnational dimension. If powerful nations see their global important interest threatened, they will bring pressure (whether economic or political or both) to bear to get their way. The issue of "bios" and its protection for the benefit of future generations cannot be divorced from the political and economic realities of the current international order. In the short or immediate long term (short of a catastrophic change in the bio-environment threatening mankind) it appears that there is not much that can be done to radically transform the motivations and political attitudes of nation states to bring about a redefinition of mankind's relationship with his bio-environment. To do so would entail a fundamental re-alignment of values, greater discipline as well as anticipatory planning in the use of the bio-environment for human benefit. This does not discount the important role and contribution of science and technology in the protection and enhancement of "bios". Indeed, in specific areas or activities pertaining to the protection of "bios" science can and should improve its quality and variety. However, science and technology are essentially instrumental and correct values and precepts must guide their use and application.

The question of the protection and enhancement of "bios" at the international level then entails as much the question of rights as it does responsibilities. In this connection, the determination of rights and responsibilities should be based on the premise that nation states who choose to exercise rights should at the same time be made to shoulder responsibilities in the protection of "bios" according to their means,

whether seen in terms of economic resources, political influence or scientific-technological expertise. In saying the obvious, one is reminded of several essential truths which no amount of rationalisation will negate viz., interdependence of nation states in their separate quest for national fulfilment; the continuing need for an international division of labour in the broadcast sense of the word in accordance with the specific ecological and socio-cultural circumstances of each nation state; the cumulative influence of transnational organisations (both economic and non-economic in their objectives) in national life; and the essential disconnectedness underlying biosystems. Furthermore, if one could speak of a universal culture that binds all mankind to one frame of cognition, it is the culture of science.

Given the fact that the world is one and that the biotic heritage of man is also a unitary and indivisible system, then it follows that the protection, maintenance and enhancement of "bios" must necessarily involve a collective effort as well. This then must be the "collective conscience" of nation states in their dealings with each other. Given the structural and attitudinal difficulties underlying relationships among states currently, it might be judicious to adopt the following lines of action to promote "bios":

- a. strengthening, enhancing and expanding the influence of existing international organisations charged with the protection and maintenance of "bios" in the broadest sense of the word such as the International Convention for the Protection of Endangered Species. Wherever necessary and appropriate the scope of such organisations should be enlarged.
- b. instituting or strengthening co-operating among Ministers charged with the task of environmental protection on an intra-regional and inter-regional basis. In this connection, development projects initiated by a nation state which have potential adverse effect on "bios" should be made known and discussed.
- c. initiating discussions among nation states either regionally or multilaterally with a view to evolving a common acceptable plan for the protection of the bio-environment(s) including of course a commitment of resources in the form of financial contribution and scientific manpower.
- d. exploring the feasibility of a charge on transnational organisations whose activities pose dangers to the bio-environment or alternatively, nation states could pass legislation which would require transnational co-operations whose activities have potential adverse effects to adhere to standards of operation conducive to the protection of "bios". This is justified on the grounds that transnational organisations operating on the principle of profit and gain have a social responsibility beyond their basic inter-organisational objectives. In a sense, transnational organisations with economic objectives in mind are also directly or indirectly extensions of powerful nation states whether seen politically or economically. That being the case, it is imperative that they accept and discharge their responsibilities accordingly. This does not imply that no efforts have been made in this direction. For example, some industrialised countries have set up mechanisms to ensure that industries bear the social costs arising from the pollution of the air and water. A committed acceptance of this role as a matter of principle is necessary.
- e. since the protection and enhancement of "bios" requires a multi-dimensional approach, systematised efforts should be made to control the manufacture, supply and use of toxic substances. Here again a fair amount of effort has already been exerted both in the form of legislation and international co-operation but most are directed at the protection of human life and not of "bios" in general. It might be timely at this stage to declare a general moratorium on "bios" so that follow-up efforts could be instituted on a more systematic basis. Currently, oil pollution not to mention threats posed by nuclear wastes represent the most immediate dangers to the protection of "bios". These problems are multi-national in their impact and should make clear the question of responsibility.
- f. the UN should have a larger role in matters pertaining to the protection of the bio-environment. Perhaps it is time that the UN gives greater emphasis and orientation to life preserving activities and programmes. Quite obviously, in doing so, member states must give existing UN organs and agencies their committed support, otherwise, efforts made to preserve, maintain and enhance the bio-environment would continue to lack common direction or unity of purpose.
- g. finally, the protection of "bios", being as it is a multi-national concern, requires the enactment of common legal procedures of two categories in order to be effective: those enacted by the nation state which allows to act unilaterally and remove threats to the bio-environment, and those enacted to ensure that nation states act according to accepted standards of international conduct conducive to the preservation and enhancement of "bios" in general. The latter in particular would require the establishment of co-ordinating agencies charged with administrative and regulatory powers. In some countries a Department of the Environment has been established to co-ordinate activities pertaining to the protection of the environment but such efforts, based as they are on national objectives, are not always the most effective for the purposes of bio-environment protection in general. Furthermore, current laws enacted at the national level by industrialised countries for the protection of the environment fall into 4 categories:
 1. those pertaining to the protection of human health;
 2. those pertaining to the allocation of resources emphasising equitable or economically optimal allocation;
 3. those pertaining to the conservation of natural resource quality and quantity with emphasis on the proper use of resources to avoid degradation or depletion from exploitation;
 4. those pertaining to the need to achieve administrative co-ordination vis-à-vis programmes for environmental management (see Stephen C. McCaffrey and Francoise Burhenne-Guilmin, "The Use of the Law in Environment Conservation: A Survey of Legal Responses to Selected Problems in Organisation and Administration of Environment Programmes", UN 1974).

There is no doubt that such laws should be enacted by other countries if they have not done so already. However, such laws should take into account not only the preservation or conservation of biotic and abiotic forms which have obvious value for human existence, but also those which are of unknown value and significance. Biotic forms maintained and cultivated by man are determined by his perceptions of usefulness

and the stage of his scientific knowledge. Hence the survival of a biotic form is more often than not guided by man's scheme of values as well as prejudices. To create a situation conducive to the protection of "bios" would require an alteration of certain values of a negative character and simultaneously the inculcation of a respect for "bios" in general. This is a necessary adjunct to the role of the law in bio-environmental protection. Laws for the protection of "bios" are useful to the extent that they are relevant to the purposes aimed at. Equally, their implementation must be seen to be equally binding by disputing parties whether at the national or international level. While the constitutional authority vested in a national government would normally allow for the passage of the law, at the international level matters are less straight forward. For example, the imposition of sanctions on recalcitrant nations for defying UN sponsored resolutions have not been too successful mainly because there is no shared perception of a collective threat. The best selling point then for the enactment of international law aimed at the protection of "bios" is to emphasise the collective threat posed to mankind by the wanton and indiscriminate exploitation of the bio-environment.

CONCLUDING STATEMENT

The maintenance and enhancement of the bio-environment inherently questions certain fundamental beliefs held by modern industrialised societies about human action. Bio-environment protection required man to strike a symbiosis with nature whereas the ethos of modern industrialised societies, as well as others who aspire to achieve a similar level of physical well-being, stresses the exploitation of nature and man for material betterment. In doing so, it denies implicitly the essential spirituality underlying "bios" as a manifestation. However, implicit in the foregoing statement is the fact that Mankind is faced with two alternative paths for achieving an enhanced state of existence: one path requires that he identifies himself with nature (in which case he might gain spiritually but lose out materially) and the other path requires that he detaches himself from nature (in which case he might gain materially but lose out spiritually). The question then is whether the first path is manifestly superior to the second and if so how can it be operationalised both nationally and internationally? As noted earlier, "bios" as a physical manifestation is an integrated system that recognises no political boundaries. Thus to optimise efforts at protection "bios" would require that the aforementioned fact be recognised. However, given the nature of the international system a shift to a bio-oriented existential strategy for man (as against the current technocentric-capitalistic mode) would spell disaster for nation states with no natural resources, large populations and small land areas.

Furthermore, nation states whose survival is locked into the technocentric-capitalistic mode of economic production and exchange would find it impossible to adjust. No doubt the problem is not necessarily a zero sum game. Yet such crucial questions call for a thorough examination of all relevant concerns.

Another question of fundamental importance requiring debate and deliberation is whether nation states can be brought to a common consensus conducive to the enhancement of "bios" in the broadest sense of the word. As intimated earlier, such a step would require nation states to surrender at least a part of their sovereignty to enable relevant international agencies to undertake the task of protecting the bio-environment on behalf of mankind. In this connection, three methods have been proposed to achieve a solution: re-organisation of the international order (Falk R.A., 1972; Brown, L.R., 1922; Ward, B., and Dubos, R., 1972); centralised authoritarianism (Toffler, E., 1975; Ophuis, W. 1973, 1977 and Harding G., 1972); and the anarchist solution which postulates a return to a communal or tribal existence (Bookchin, M., 1971; Weisberg, B., 1971 and Roszak, T., 1973). Such proposals, however, neither explain how each can be brought about nor do they explore the various implications involved. Given the realities of the international order, the question then is whether nation states are willing to guide their development policies by giving due regard to the concept of the common good. Alternatively will the appeal to enlightened self-interest move a nation state adequately so that it gives due recognition to the protection of mankind's common biotic heritage? There are obviously no easy answers.

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Professor Chee Seong Tham is a world expert on sociology and anthropology, with special reference to the Malay-Indonesian culture. He is currently teaching at the National University of Singapore's Department of Malay Studies, of which he was Departmental Head from 1989 to 1997. Other positions previously held include membership of the Board of Trustees at the Institute of Southeast Asian Studies from 1971 to 1974 and from 1979 to 1995, of the Board of Advisers at the Singapore National Library from 1971 to 1979, of the Board of Advisers at the Ford Foundation Regional Advisory Committee on Southeast Asian Studies from 1971 to 1983, and of the MENDAKI Social and Cultural Affairs Committee, in 1990. Furthermore, he was Vice-Chairman of the UNESCO Advisory Committee on the Study of Southeast Asian Cultures from 1981 to 1983, Vice-President of the Singapore Association for the Advancement of Science as from 1983, and President of the UN Association of Singapore from 1980 onwards. He has seen several of his articles, papers and book reviews published in international journals, and has himself been Editor of the Review of Southeast Asian Studies from 1969 to 1975, and a Member of the Regional Advisory Board at the Southeast Asian Journal of Social Change (SOJOURN) from 1985 onwards. He has published widely on the topic of the Malay and Singapore societies and has been a member of the International Board of Trustees of the Biopolitics International Organisation from 1987 to this day