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POLICY ISSUES RELATING TO ENVIRONMENTAL MANAGEMENT

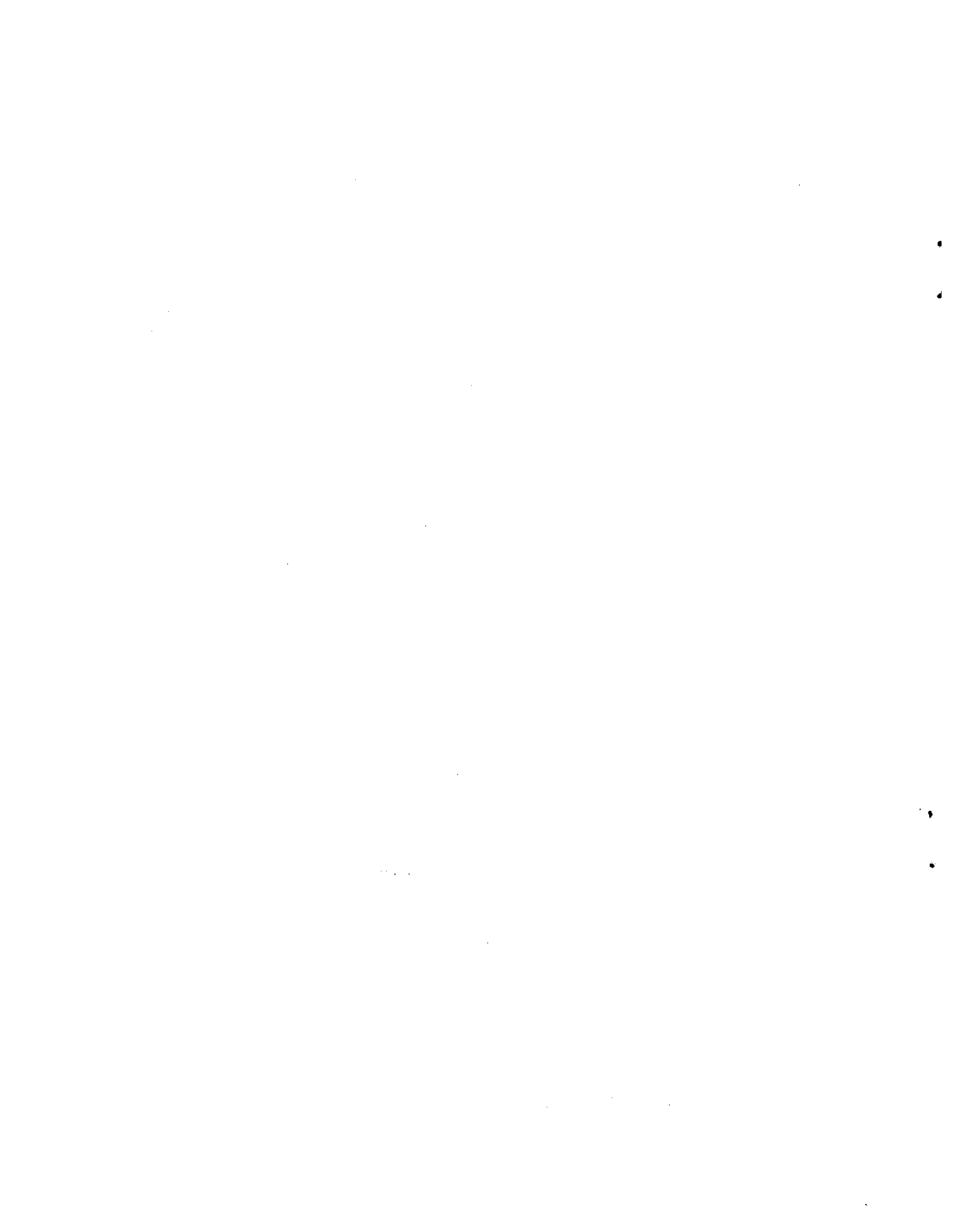
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UNITED NATIONS

ECONOMIC COMMISSION FOR LATIN AMERICA Office for the Caribbean



POLICY ISSUES RELATING TO ENVIRONMENTAL MANAGEMENT*

by Mel Gajraj

1. Scenario

Development can be broadly described as a process whereby man utilises the natural environment for the production of objects for material and spiritual satisfaction. By its very definition, therefore, development must have an impact on the natural environment. Whether this impact is beneficial to society or detrimental, is a function of the development process and the technology used.

The foremost criterion for planned development is the attainment of perceived fundamental socioeconomic objectives. The objectives may be briefly summarised as the provision of food and water, clothing and shelter, together with certain infrastructure and services such as sanitation, electricity, transport and communications, health services and education. At the same time, adequate employment must be generated and the benefits of development must be spread throughout the society, thereby raising the standard of living and quality of life for all of its members.

If the development process results in the despoilation of the environment and/or results in, sickness, death and destruction, prevention of the enjoyment of the natural environment for recreational and therapeutic purposes, then that process can be considered to be dysfunctional and against the interests of the population for whose benefit it was planned.

*This paper incorporates information obtained by the author, for the Caribbean Environment Project. However, the views expressed are those of the author and do not necessarily reflect those of the Caribbean Environment Project.

The environmental factor has, in general, been given only scant (if any) consideration in development planning, in the Region, up to the present time. In this regard, not only the Caribbean countries nor indeed just developing countries, have been negligent. Sound environmental management has been singularly lacking in virtually every country of the World. In this brief paper, the reasons for this state of affairs cannot be dealt with. The purpose of this paper is merely to raise certain policy issues relating to environmental management in the Caribbean sub-Region.

2. The Environmental Issues

The issues relating to the breakdown or maintenance of the natural environmental processes are so complex that it is a virtual impossibility for any single individual to analyse all the facets of these complexities. In this respect, the following quotation from Commoner serves to illustrate the point:

"Unlike the automobile, the ecosystem cannot be subdivided into manageable parts, for its properties reside in the whole, in the connections between the parts. A process that insists on dealing only with the separate parts is bound to fail.....technology can design a useful fertilizer, a powerful automobile, or an efficient nuclear bomb. But since technology, as presently construed, cannot cope with the whole system on which the fertilizer, the automobile, or the nuclear bomb intrudes disastrous ecological surprises.....are inevitable. Ecological failure is apparently a necessary consequence of the nature of modern technology, as Galbraith defines it."*

*COMMONER, Barry - "The Closing Circle" Pub. Jonathan Cape.
London 1973, Page 187.

The limited number of studies which have been carried out in the sub-Region indicate that environmental problems are becoming quite serious, particularly in the more developed Caribbean countries. There are serious problems relating to: liquid and solid waste disposal (domestic and industrial); the increasing use of inorganic fertilizers and pesticides resulting in accelerated aquatic and marine weed growth, a dramatic increase in the level of nitrites and nitrates in subterranean water and fish kills; poor agricultural and other land use practices resulting in erosion of the soil and siltation of the rivers; deforestation leading to erosion and siltation problems as well as to the loss of water-shed protection, increased flash flooding and reductions in aquifer recharge; increased mobility occasioned by the proliferation of the private motor vehicle, thereby accelerating the process of urban and suburban spread, which more often than not has resulted in the placing of valuable agricultural and forestry land under buildings and roads.

Planned development which ignores the environmental factor, inevitably leads to serious problems (short-term and long-term). Solutions to these problems are then sought via a "technological fix". However, such "solutions", in general, treat only the symptoms, rather than the cause.

One of the problems seems to be related to the doctrine of economic growth. Progress is measured in terms of growth in GNP (both in gross terms and per capita terms), growth in productivity, growth in consumption. This doctrine automatically leads to the requirement, ultimately, of infinite consumption, which in turn requires infinite resources and infinite environmental sinks for waste materials and energy. This clearly is unobtainable in our finite World, and far less so in the small fragile island ecosystems which comprise the majority of the countries within this sub-Region.

As the countries of the Region move forward with their development, and if they are to avoid ecological catastrophies, then the principle of ecodevelopment must be adopted as a fundamental policy. Ecodevelopment was "defined" in 1976 as "environmentally sound socio-economic development." (UNEP/IG, 4/3, 1976.12.2). One of the basic tenets

of the 1974 Cocoyoc declaration was that:

"the threats to the Outer Limits of the Earth's biosphere, as well as the failure to satisfy fundamental human needs, are rooted primarily in economic and social structures and behaviour, including maldistribution and misuse of resources, within and between nations"
(UNEP/UNCTAD Symposium on Patterns of Resource Use, Environment and Development Strategies, COCOYOC, Mexico, Oct. 1974).

Much of the development which has taken place (and is continuing to take place) in the Caribbean, has been export oriented. The mineral and agricultural resources have been exploited on a scale in excess of the individual countries' (or even the sub-Region's) needs, or absorptive capacity. In addition, the sub-Region has seen the establishment of large (and in many instances, energy intensive) enclave industries not based on indigenous natural resources. Such development has inevitably led to environmental stresses. (See charts in Appendix I).

3. Future Development Trends and Their Environmental Implications

Several future development trends within the Region can be discerned and are summarised briefly, below:

- (i) All of the countries of the sub-Region are pursuing policies of industrial diversification, albeit at different levels. For example, those with fairly extensive hydrocarbon resources are planning to develop heavy, energy intensive, export-oriented industries such as: petrochemicals, iron and steel smelting, aluminum smelting and caustic/chlorine production; the LDC's, on the other hand, may continue to attract enclave non-indigenous resource based, potentially hazardous industries;
- (ii) The continuing process of urbanization, and other human settlements programmes, coupled with the high rate of natural population growth will continue to cause severe environmental health problems and

further aggravate land management problems in the absence of carefully planned and controlled development;

- (iii) Intensification of agricultural development, could lead to increased rates of deforestation leading to the associated problems of soil degradation, erosion, water-shed destruction, reduction in the rate of aquifer recharge, siltation of rivers and climatic changes. In addition, it can be expected that there will be an increase in the use of inorganic fertilizers and agricultural chemicals, with all their attendant problems, if their usage is not carefully monitored and controlled;
- (iv) The sub-Regions' fairly high dependence on fish protein is likely to be maintained, and the fishing industry expanded. Intensive fishing coupled with increasing marine environmental stress, occasioned by on-shore development, could lead to a situation of over-exploitation;
- (v) Tourism, economically, one of the sub-Regions' more important industries, is likely to grow. This brings increased stresses to the coastal areas as well as social and cultural problems;
- (vi) As the sub-Region develops, the consumption of energy will inevitably rise. In addition to the increased environmental stress occasioned by the consumption itself, the tonnage of petroleum and its products shipped through the sub-Region will increase, thereby exposing the territories to a greater risk of accidents and spillages (intentional and unintentional). In the longer term, countries which have no indigenous fossil fuels will develop alternative energy sources. If not properly planned, these can also lead to serious environmental

decay.

All of these development trends are quite clearly interconnected, as developments in any one sector affect one or more of the other sectors. Careful studies must be made of the environmental conflicts which the individual sectors can cause viz-a-viz the other sectors.

If the principle of ecodevelopment is accepted as a fundamental policy, then all development planning must give sufficient attention to all of the environmental implications, and attempts must be made to include all costs, internal and external. This will inevitably result in the need for trade-offs to be made between socio-economic, and environmental, costs and benefits. For this to be carried out rationally, then the Governments of the Region will have to look critically at their development priorities.

4. The Establishment of Development Priorities Based on Environmental Considerations

A basic method for the establishment of developmental priorities has been suggested in a recent study*. Essentially, the method entails the determination of the effect on society which the denial of given goods and services would have, rather than the present method of determining the cost of producing those goods or services, plus the cost of the required environmental protection measures. Having determined a development strategy in this manner, environmental impact criteria need to be established, and the two measures used in conjunction. This is clearly a difficult and extensive exercise to undertake and is prone to a great deal of subjectivity. It requires highly trained multidisciplinary teams, embracing the natural, applied and social sciences, within the planning departments of the Governments.

However, for discussion purposes for this meeting, some illustrative

* GAJRAJ, A.M. - "The Environmental Consequences of the Industrialisation of the Commonwealth Caribbean with Particular Reference to Trinidad and Tobago" - Ch. 4. Caribbean Technology Policy Studies Project. IDS of Guyana and ISER University of the West Indies. 1977.

developmental priority indices are presented, based on the rationale of the following paragraph.

After extensive studies, one may determine that the most important goods based on the above criteria are air, water and food and by implication, land and energy. Secondly, clothing and shelter assume importance. Superimposed on these requirements, in order to give the population a reasonable quality of life, are health, educational, recreational and communications, goods and services.

This can lead to a developmental priority index table such as shown in Appendix II. There are then several ways in which the indices can be used. For example, they can be multiplied by the corresponding environmental impact index, or (which may be preferable) they may be used in a matrix incorporating the environmental impact indices.

It should be noted that for each category of activities, there is a range of values. The value within that range should be determined by the particular activity. For example, the range for primary agriculture is given as 0.1 to 1.5. A value of 0.1 may be assigned to the growing of crops essential to meet the nutritional requirements of the population (it should be noted that the agricultural techniques will be catered for by the environmental impact index). The development index should also take account of the labour factor. On the other hand, the growing of luxury food crops by capital and energy intensive methods may be assigned a value of 1.5. (Note that in this system, the most desirable activity has the lowest value).

It is suggested that the development of such a methodology will give the planners and Governments an excellent additional tool on which to make sound rational development decisions.

5. Involvement of the Citizens

Finally, the role of communications, education and community participation in sound environmental management cannot be stressed too strongly. The peoples of the sub-Region require strong leadership in this regard, but in order to gain their full support and

cooperation they must be made to feel that they can and do play a meaningful role in their countries' development. In support of this argument, the following lengthy quotation is given:

"In many ways, the cultural heritage and present culture of a people determine the ecological and economic status of their lands. To the misfortune of many who live on ocean islands, their culture is the most fragile of ingredients and can be kept strong only with active support and effort.....

What happens to the feeling the people of Hawaii have for Diamond Head when condominiums rise to block easy view of it? When a Waikiki is built, and a Condado, which hide the beaches from the citizens, then their personal involvement in their land tends to decrease?.....

When the culture of a people is challenged, their desire for a healthy land is likewise affected. People who believe they have no stake in where they live often believe they have no accountability for what happens there. As a result, the land and its resources can deteriorate without pause."*

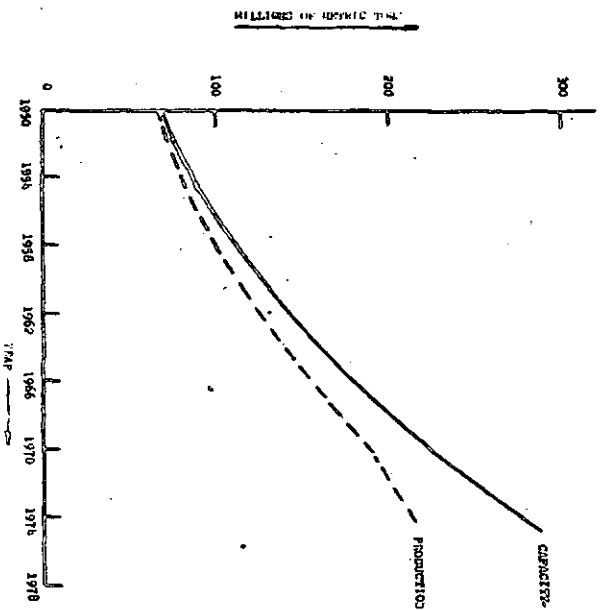
6. Policy Framework

The on-going Joint ECLA/UNEP Caribbean Environment Project which commenced in 1977 was commissioned to determine the present state of the Environment in the Wider Caribbean, to assess the future development trends and to draw up a Plan of Action for the Management of the Total Environment. This exercise should be completed by the middle of 1980 and the Action Plan will be submitted to an Inter-Governmental meeting for adoption and implementation. The Plan is expected to provide a basic policy framework for integrating environmental parameters into the process of planning and development by Caribbean Governments, at the National, sub-Regional and Regional levels.

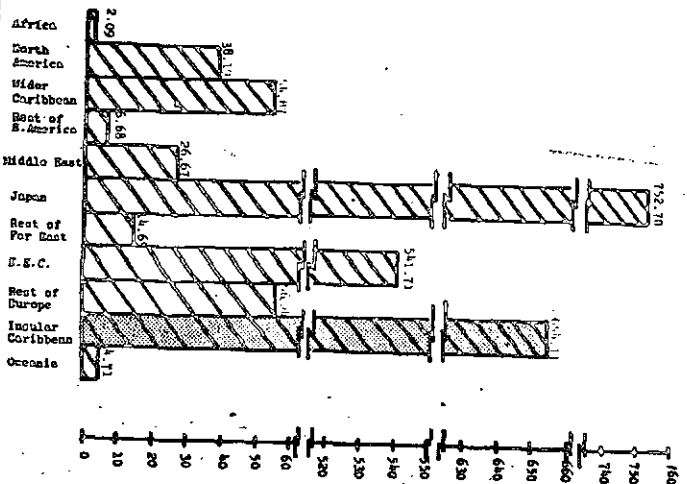
*BELLER, William S. - "Ocean Islands - Considerations for Their Coastal Zone Management" - Coastal Zone Management Journal 1973 1(1), 27-45.

APPENDIX I

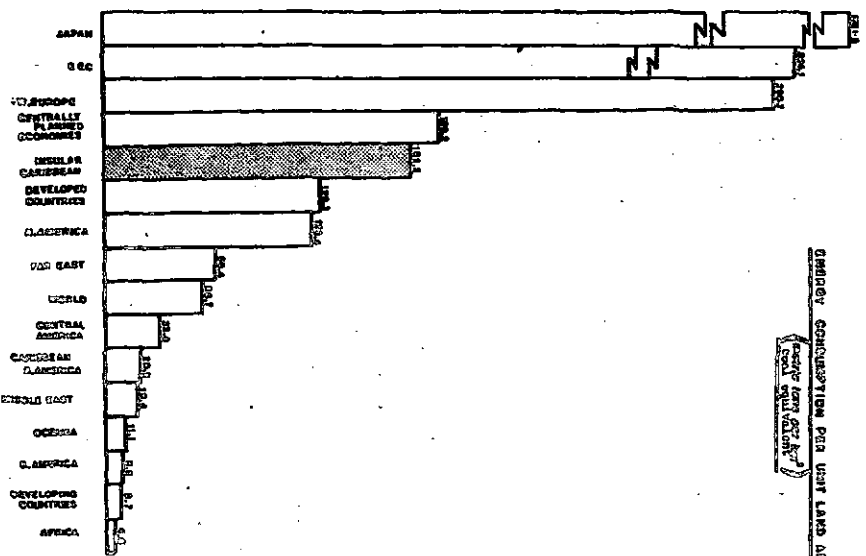
REQUIRED CAPACITY AND RETURN ASSOCIATION
IN THE HIGH CONCENTRATION ECONOMIES



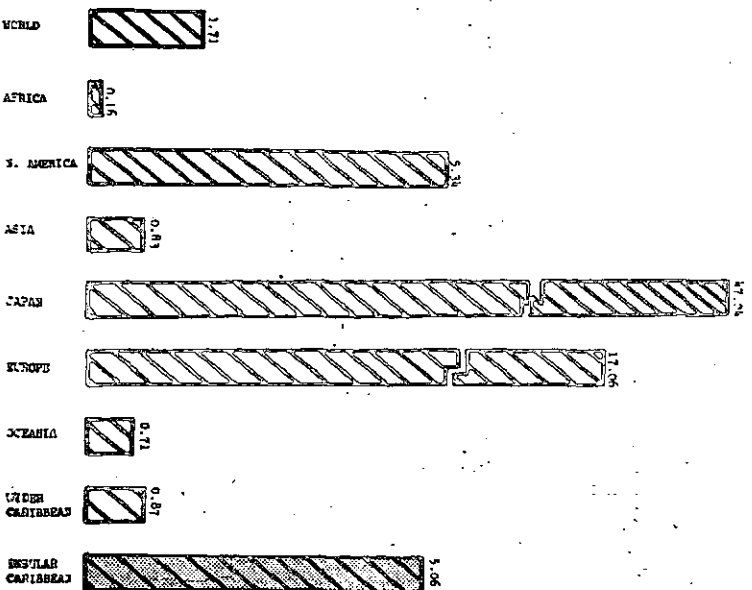
REQUIRED CAPACITY FOR SQUARE KILOMETERS FOR HEAVY DUTY SUB-REGIONS (1975)
(HEAVY DUTY: 1 KM SQUARE EQUIVALENT)



MINIMUM CONCENTRATION PER UNIT LAND AREA
(Average for 1980 & 1970)
(Scale: 1000 TON PER UNIT LAND AREA)

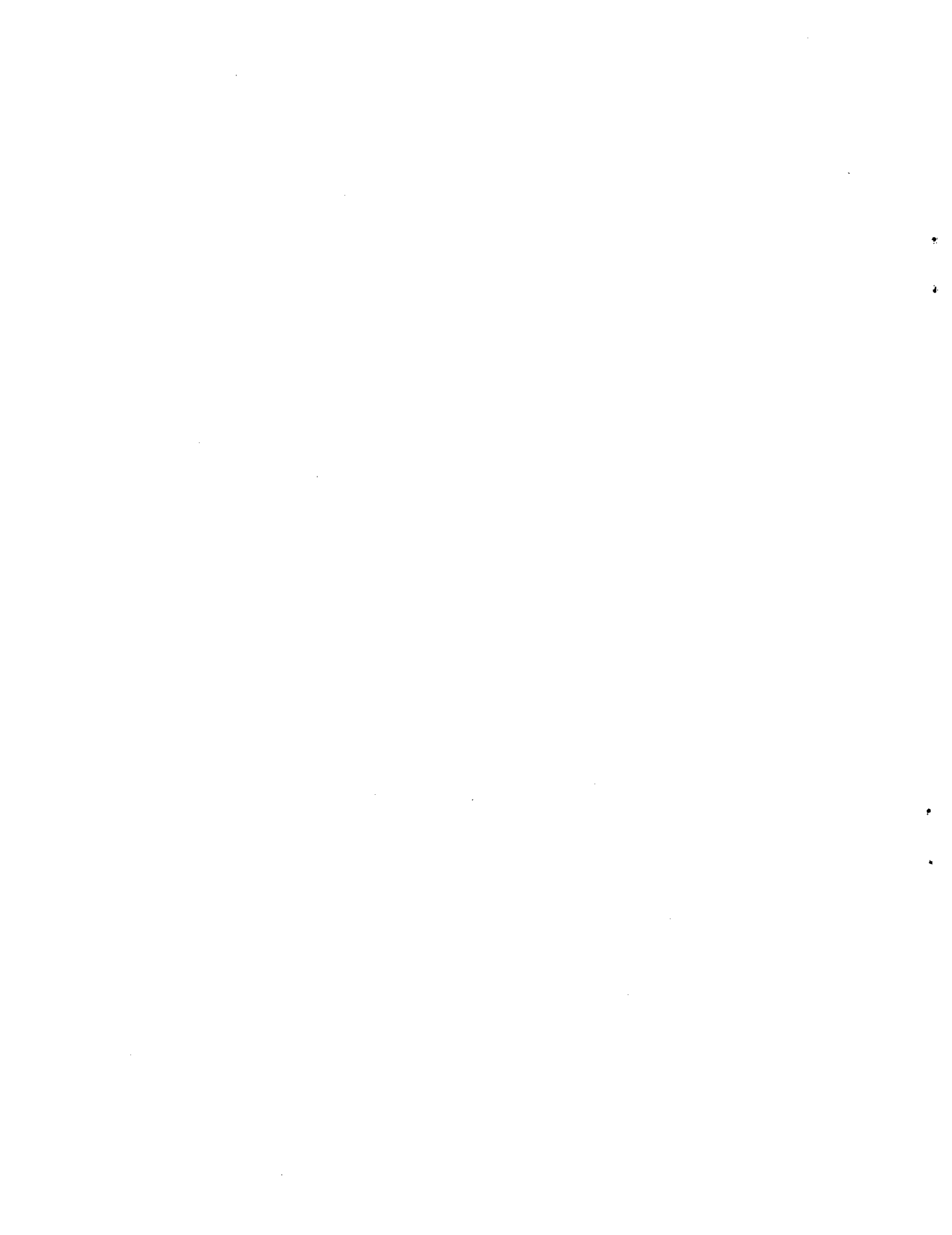


MINIMUM VEHICLES IN USE PER SQUARE KILOMETER OF LAND (1970)



Environmental Stress Indicators for the Caribbean

(continued)



APPENDIX II (i)

DEVELOPMENT PRIORITY INDEX

Index Range

0.1 to 1.5	<u>Primary Agriculture</u> Low - basic nutritional requirements High - luxury crops
0.5 to 1.5	<u>Clothing, including footwear</u> Low - manufacture of basic materials High - non-essential "fancy goods"
0.5 to 2.0	<u>Food processing including beverages and alcoholic drinks</u> Low - seasonal, basic foods Medium - non luxury essentials High - alcoholic drinks and luxury foods
1.0 to 3.0	<u>Housing</u> Low - fundamental building materials eg. lumber, clay bricks etc. Medium - soft furnishings High - luxury finishings
1.0 to 2.0	<u>Goods produced from renewable resources or which can be easily recycled</u> Low - fundamental goods High - non-essentials
1.0 to 2.0	<u>Educational aids including sports and toys</u>
1.5 to 5.0	<u>Manufacture of chemicals</u> Low - non-toxic agricultural High - toxic industrial
2.0 to 5.0	<u>Manufacture of consumer durables</u> Low - basic labour saving devices High - non-essential gadgets

APPENDIX II (ii)

Index Range

5.0 to 10.0

Manufacture of non-essential and
luxury items particularly those with
built-in obsolescence

Low - goods which genuinely provide
some improvement in quality of
life.

High - super luxury items which are
virtually non-productive.

