CONCLUSION

Geographic synthesis of this continent projects many interesting facts. Antarctica by definition is both a continent and an ocean. It is the only continent of the world which fully lies within the polar region. This isolated and relatively fragile continent has long been an object of interest not only to the scientists but also to commercial explorers and then diplomats. With main land much bigger than India and China put together, Antarctica is now a scene of increasing activity and there is much speculation about its natural resources.

By the year 2000 A.D. the total demand of fish both for reduction and direct consumption would be of the order of 130-135 million mt, of which approximately 120 million mt is of marine origin. Such a large marine catch could be sustained only by a major increase in the exploitation of so-called unconventional species, such as Antarctic Krill the protein source of the last frontier, squid, and other cephalopods, and mesopelagic fish species that are not taken in substantial quantities. Indeed the finfish resource of Antarctica have already been badly depleted and pressures on renewed seal stock and Antarctic krill are growing with subsequent intensification, a matter of international concern that now attends the development of Antarctic fisheries.

Taking economics into account, participation of fishing fleets from the free market economy countries in commercial exploitation of Antarctic fishery resources will be influenced
mainly by the market factors existing in particular western countries. Major present share of the Krill catch is done by USSR, Japan, Poland, Korea, etc. For the US, the economic importance of these resources, at present negligible, will be shaped primarily by availability of competitive and still underdeveloped fishery resources in the US fishery conservation zone.

Although the history of commercial exploitation of the marine living resources of the Southern Ocean was one of overexploitation and mismanagement, the Convention on Conservation of Antarctic Marine Living Resources provided a positive and reasonable approach towards conservation and management prior to heavy utilization of the fishery. The convention reflects the compromise and accommodation necessary to achieve agreement on a wide variety of disputed issues. However, its fundamental provisions follow ecosystem approach, but several shortcomings; such as unanimity in decision-making, a failure to account for the interests of the international community, and the inability to create institutions to facilitate adequately the accumulation of crucial information regarding the ecosystem, may emaculate the great promise it brings to the Antarctic marine environment. Further the Convention embraces the High seas, an unquestioned global commons, but also covers some areas under coastal jurisdiction (i.e. EEZ). To deal with the latter, the convention has developed a so-called bifocal approach, in which it operates "without prejudice to coastal jurisdiction" in certain areas.
No doubt CCAMLR's conservation oriented intent is stronger than that of other existing regional instruments, and it uniquely intends to deal with living resources before they become depleted. Nonetheless, if the signatory parties ratify the convention, adhere in good faith to its objectives, and interpret and apply its provisions with conservation as their goal, it will stand as a model of international cooperation in achieving a balance, between the vagaries of commercial exploitation and the values of conservation and environmental protection.

Antarctic mineral distribution and size assessment is yet not fully understood. More field studies and collection of reconnaissance multichannel seismic data in near offshore region, coupled with aerogeophysical surveys over the continent are desperately needed. Further, in today's world market, their exploration and exploitation may not be economic, but in long term with appreciation of our planet's limited resources and our continuing conspicuous consumption of them, cautions us not to discount the possible long-term utilization of selected minerals, particularly strategic minerals like chromium, vanadium, nickel, cobalt and platinum. For example, the Dufek Massif in the Pensalola Mountains is a layered ultramafic complex second in size only to the Bushveld Complex of South Africa. Gold might possibly lead the prospectors to the Antarctic as it did in the far north, but deposits would have to be rich indeed. For lower grade and low unit-value ores it is hard to see circumstances in which Antarctic resources could compete against more accessible alternatives. For Antarctic offshore oil fields, to be worth
tapping it may be guessed that oil prices should rise some tenfold in real terms, except in the case of giant or supergiant oil fields being discovered. The costs of technology, drilling, safety measures, transport, energy, support and personnel will be high. Secondly the oil companies themselves do not seem to be over excited about Antarctic prospects, unless financial support provided by governments. Antarctic oil at present is rated less than production of syncrude from coal, extraction of tar sands and oil shales on land. Current literature survey on the subject presents a pessimistic outlook for any short-term extraction of Antarctica minerals. Nonetheless, a concrete understanding of the mineral potential of the continent is important in guiding future Antarctic mineral policy and assessing long-term mineral and oil reserves.

1959 Antarctic Treaty was elaborate enough to deal with this mineral policy because it was designed more as a mechanism to sidestep problems than as a way to resolve them. A sui generis general solution for management of mineral resource is likely to be needed. Alexander lists 5 goals which in turn will lead to (1) Continued demilitarization of Antarctica; (2) The continued freedom of scientific research and compulsory sharing of scientific information; (3) Maintenance of environmental integrity of Antarctica; (4) The political stabilization of Antarctica through the establishment of a legal regime sufficient to provide security for investment necessary to commence resource activities, and (5) An orderly and efficient exploitation and sharing of Antarctic resources for the common well-being of the international.
To these five one might add maintenance of the spirit of cooperation. Recently, the 1987 meeting at Wellington has brought Antarctic Mineral Resource Regime nearer to the solution front. If political accommodation can be reached between claimant states and non-claimant States over decision-making in the Regulatory Committees, then very likely there will be an Antarctic Minerals Treaty available for signature before the end of 1988. Possible alternative regime may be either fall in the line of Svalabard Treaty or Condominium Model, or Joint Antarctic Resource Jurisdiction Model or UN Trusteeship Model under ISA (inherent in it is the principle of CHM).

The sovereignty issue need not be explicitly addressed, but it will be much more difficult to sidestep than it has been. Negotiations should be done finally on some concrete foundation, so that future infrastructural development could be carried out without any fear or suspicion. Further inadequate or inaccurate information and analysis may yield results that could help policy makers arriving at a wrong and unreasonable solution. On the other hand failure of reaching an agreement on this issue, may prompt the technologically advanced nations to take unilateral action for resource extraction. However, besides these, there exists an overriding consideration which the Antarctic minerals regime states can never escape i.e. the cardinal necessity to protect the Antarctic environment from becoming befouled with pollutants, generated by extractive minerals activities in both on-and off-shore area of the continent. According to Christopher C. Joyner, over the long term concern for environmental integrity
and political accommodation will persist as the principal challenges to the emergent Antarctic minerals regime. Given the present realities of international ideological antagonisms and politico-economic rivalries, these can hardly be considered an easy task. Sir Peter Scott at the 10th meeting of the Fourth Special Consultative meeting, rightly pointed out at Montevideo on 11-12 May 1987,

"Although the present draft convention incorporates some good general principles to ensure the protection of the environment, it is only too easy to pay lip-service to environmental protection, while in practice allowing short-term commercial interests to have the upper hand...I urge you to have the wisdom not to let it happen in the earth's last remaining wilderness".

The recented concluded conference of May-June 1988 at Wellington will be followed by one more negotiating session for final arrangements. According to Beck Experience, in conjunction with an appreciation of recent signs of strain within the ATS over UN related matters, incline one to introduce a note of caution regarding the inevitability of a successful outcome of the negotiations.

On the side of environmental implications of mineral extraction, there are considerable uncertainties which impede the critical evaluation of the probable consequences of possible mineral developments. Some of these relate to possible serious global effects, say on ocean chemistry or even on climate.
Conclusions from the Ross Sea Bellagio workshop study should establish an approach capable of transference to other possible areas, such as the Weddel sea and Antarctic Peninsula.

Further, Antarctic icebergs moving at 4 Km/hr, would present an extreme hazard to a stationary drilling ship or platform because it would be too massive to deflect or disintegrate by presently available technology. Steep and narrow continental slope of Antarctica produces a slumping effect, thus causing the structural deformity and making extraction risky and impossible. Besides drilling sedimentary basins lying underneath a moving ice sheet (e.g. in the Ross, Filchner Ronne or Amery Ice-shelf) is more difficult than in grounded ice. Large scale hydrocarbon extraction will be needing an established port facility, while hard mineral mining or milling activities would present nearly insurmountable transportation problems across the moving ice sheet and floating ice shelves.

Most of the Consultative Parties, besides active non-governmental conservationist organisations are generally interested in establishing a regime that adequately deals with them and are in fact bound to do so by Recommendation XI-1.

Further, given needed concern of developing countries, the long term acceptable solution to the Antarctic minerals issue may tilt towards CHM principle, involving a rejection of national sovereignty and the establishment of some international management mechanism. Any such arrangement is unlikely to be negotiated in near future because of the stiff resistance of the Treaty powers.
Protection of Antarctic ecosystem involves not only geophysical or ecological context, but also intricacies and ramifications of Antarctica's legal status. Antarctica being the regulator of global climate and thereby planet's natural balance at large, needs the most urgent and practical conservation and in true sense, a real alternative eco-development i.e. development leading to economic equality, social harmony and environmental balance. Effects of future large scale commercial activities in southern ocean and on ice-free areas of the continent are still not precisely known, both in short term and long term. In the light of the past experience where national interest has always prevailed over ecological requirements, environmental protection has become the most important issue for this virgin continent. In fact, there is a real need for close collaboration among concerned scientists, for studying ecosystems, for evaluating the technical and economical aspects primarily for assessing harvesting capacities and environmental thresholds. Political ecology has gained real value in terms of Antarctic ecosystem protection. Environmentally appropriate technology cannot only help in protecting Antarctica ecosystem, but also in rational development of its resource base ensuring future production and purifying capacities relatively unimpaired.

In the reverse situation when the ruthless exploitation of Antarctic environment by technologically developed countries are preferred, it is only a matter of time before the Antarctic falls victim to man's self-serving rapacity and myopic avarice. According to Christopher C. Joynee, "Such a course of events
would indeed be regrettable and would stand as a tragic commentary on the perverted progress of man's dominion over nature."

Seeing the out-right possibility of prohibition of hydrocarbon development on Southern Ocean impossible, the minimum legal pre-requisite for preventing pollution may be an eco-catastrophe, in long-run, should be establishment of an internationally acceptable mineral regime.

The major inadequacy of the Treaty-related framework for environmental protection is that it fails legally to bind third parties. Besides role of developing countries especially of such politically crucial countries like India and China should be encouraged, by involving them more and more in management of Antarctic and with efforts of scientific and technological aid to them. In the words of I.G. Simmons:

"Given the abandonment of ideology of Growth, the redistribution of technological effort becomes possible and its contribution to a harmonious relation of man and nature immense."

Antarctic Treaty system has successfully served the international community well during the last 27 years now. It would be quite unrealistic in current environmental circumstances, to expect that any new instrument could have the same provisions for de-militarisation, for setting aside potential disputes over territorial sovereignty, and for maintaining harmonious international cooperation in scientific and environmental
protection. Any attempt to reverse this situation would risk opening the very contention and competition which the treaty was created to do away with.

According to Woolcott, Ambassador of Australia to UN: "Antarctica's political and economic future needs also be protected from ideologies, however well intentioned that may be. On their part, the treaty partners need to be flexible and understanding in their approach to the legitimate concerns of others and to avoid seeking narrow rational advantage".

Recent developments project a picture of the ATS on the process of responding to and accommodating new circumstances and situations. The specific nature of response involves an opportunity for greater involvement in the operation of the consultative mechanism by non-consultative parties, an opportunity for the emergence of closer functional ties between the ATS and other international bodies, including the functional component of the UN system, and an opportunity for greater information flow, to and from the components of the ATS. From a broader perspective, however, those developments fit the pattern of flexible and pragmatic institutional development that has been characteristic of ATS from its earlier days.

Thus, we may say that, Antarctic Treaty System is still unfinished, but remains a politically useful institution. It is presently facing twin crisis concerning resources and non-signatory nations. Emerging from behind the closed doors of the treaty powers' meetings, and in the corridors of the UN, is some new kind of N-S relationship, very different from the
confrontationist relationship of the 1970s which perhaps one day will give birth to one agreement that allows poorer nations to participate in Antarctic Science. India's inclusion as member with consultative status within least time limit, second only to FRG, was a big step towards N-S cooperation. The Indian success at the very first attempt is recognised all over the world as a remarkable achievement, a constant source of inspiration for other third world countries interested in advanced, expensive, purely scientific research with no territorial ambition. Before the first Indian expedition left, the Indian government notified other developing countries of its plan - in effect, testing the waters of developing world opinion. Moreover, with both India and China as consultative members, treaty group could assert that most of the mankind was inside, not outside, its tent.

The NIEO-type regime for Antarctica would aim at giving developing nations control over decision-makings, on Antarctic minerals and other gainful resources. It would be quite in contrast with the present ATS, whereby each ATPC retains an absolute veto on key decisions by the mechanism of consensus voting. Revenues from resource development in Antarctica should be shared according to a formula giving special benefits to the developing countries. It is also being suggested that the evolving regime should be entrusted with powers of employing economic sanctions and peace keeping forces. Complexity attached with UN handling of Antarctica is being felt all over the world, mainly regarding its functional validity and capacity. UN practical failure in implementation of Deep Seabed regime under
Table
Accession to the Antarctic Treaty
by Third World states (as of January 1987)

<table>
<thead>
<tr>
<th>Countries</th>
<th>Dates</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>23 June 1961b</td>
<td>Original signatory; consultative party</td>
</tr>
<tr>
<td>Chile</td>
<td>23 June 1961b</td>
<td>Original signatory; consultative party</td>
</tr>
<tr>
<td>Brazil</td>
<td>16 May 1975</td>
<td>Became consultative party on 12 September 1983</td>
</tr>
<tr>
<td>Uruguay</td>
<td>11 January 1981</td>
<td>Became consultative party on 7 October 1985</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>16 March 1981</td>
<td>Acceded to the Treaty after becoming independent</td>
</tr>
<tr>
<td>Peru</td>
<td>10 April 1981</td>
<td>Became consultative party on 7 October 1985</td>
</tr>
<tr>
<td>China (PRC)</td>
<td>8 June 1983</td>
<td></td>
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<tr>
<td>India</td>
<td>19 August 1983</td>
<td>Became consultative party on 12 September 1983</td>
</tr>
<tr>
<td>Cuba</td>
<td>16 August 1984</td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>28 November 1986</td>
<td>Disclosed a plan to build a base in the 1987–88 season</td>
</tr>
<tr>
<td>North Korea</td>
<td>21 January 1987</td>
<td></td>
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</tbody>
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Notes:

a Also original signatory of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).
b Dates of the deposition of the ratification instrument.
c Also acceded to the CCAMLR on 22 March, 1985.
da Also acceded to the CCAMLR on 17 June, 1985.
e Also acceded to the CCAMLR on 29 March, 1985.
UNCLOS III is under severe criticism. According to Shapely: "While trying to address issues like equitable resource development, the NIEO proposals for Antarctic tend to reopen old issues that have been solved by the present treaty, such as political stability, a continuing human presence, and demilitarization. Thus, Antarctic is unlikely to be brought under the jurisdiction of the UN even though the burden of settling a dispute, as the ATS counts itself as the legitimate forum for legislating an Antarctic matters.

In nutshell it may be said that while the ultimate goal of N-S Dialogue, NIEO, UN Regulation on CHM principle may be sounding very good, but their functional utility in Antarctic is doubtful. However, the issue for 1991 and beyond is, how well treaty system of law and administration will stack up against whatever alternative the developing nations purpose.

Even 1956-57 stand of India for putting Antarctics under UN control had a different logic. In the words of Jawaharlal Nehru:

"Broadly speaking we are not challenging any body's rights there. There are certain countries which according to them have certain rights there. We are not challenging them. But it has become important more specially because of the possible experimentation of atomic weapons and the like, that the matter should be considered by the UN and not left in a chaotic state - various countries are trying to grab the area".

Other legal loopholes exist while dealing with mineral resources including jurisdiction, exchange of information and power
notification of activities undertaken over the continent. James Barnes, discussing the drastic compromise between the conflicting principles of universalism and functional exclusiveness of ATS, defines international community's interest in Antarctic as almost purely environmental and peaceful. Likelihood of revolution by evolution i.e. by much more accession and attainment of consultative status, seems to be a remote possibility. However, according to Shapely, "India's actions may foreshadow the future of Antarctic more than all the law papers combined. India is only major nation looking south across the ocean toward Antarctica that has no historic presence there. Nehru tried to introduce the subject of Antarctic to the UN at the time of treaty was being negotiated. His remarks at the time suggest that he was more concerned with keeping the peace than elaborating Third World rights. India's two recent expeditions to Antarctica clearly indicated about the government's is capability of major scientific undertakings. Its Antarctic programme may be but the latest efforts to secure recognition as a serious technological power. It has launched its own satellite (taken to the launch pad on a bullock cart), detonated a nuclear device, and finally it has expanded its oceanographic and offshore petroleum exploration". However, present Indian approach to the Antarctic Treaty System as a New Consultative Party, may be somewhat critical, but it always advocated the continuation of ATS rather than any UN control or implementation of CHM principle. According to Indian Government, today's situation in Antarctic is quite different from the 1959 one. At that time it was mainly for science and
conservation. But now resource exploitation has become a major issue, particularly the mineral one. At many points India has taken very clear-cut stand, although subject to lot of criticism from Third World nations. However, what is not only important but very essential today is to strengthen the Treaty mechanism and allow for wider participation of countries. The question of UN takeover would not be practicable. Further Indian Government firmly believes that in present global and political scenario is not conducive for even giving any thought of a formation of new regime. However, since beginning India has been stressing on complete prohibition of military and nuclear activity in the region. The geopolitics of Antarctica has been given a low key in near future, provided the stability of regime is in safer position after 1991 and it keeps solving politico-economic concerns attached to the region. Only in the shadow of present ATS, reason and rationality, rather than rashness and misguided rectitude would prevail and thus conserve the region in the near future. Besides the Antarctic region certainly could incur appreciable ecological harm in the absence of such a workable regime.

Further the 1959 Antarctic Treaty has been rightly praised as a forerunner of the international law of detente. Yet it is questionable, whether in the light of the fuller knowledge since gained of the resources, actual and potential, to be exploited in the area, it would still be possible to reach any comparable agreement. Although up to present level it qualifies sufficiently the proposition of Detente.