

THE INTERNATIONAL SEABED AUTHORITY

AS PROTOTYPE

FOR

FUTURE INTERNATIONAL RESOURCE MANAGEMENT INSTITUTIONS

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We start from the assumption that, in the context of a NIEO, there must be some degree of international resource planning and management. Without such planning and management it would be impossible to reach the goal of a NIEO.

International resource planning and management will have to be undertaken for a variety of reasons, serve a variety of purposes, and therefore take a number of different forms.

There are resources which are beyond the limits of present national jurisdiction, such as the resources of the deep sea beds, of Antarctica and, eventually, of outer space, the moon and other celestial bodies. Within the context of a NIEO such resources must not be exploited by a few nations which have the technologies to exploit them. They must be explored and exploited for the benefit of mankind as a whole, with special regard for the needs of developing people. This requires an international system of management.

There are resources whose uneven distribution may cause, and is already causing, grave imbalances and explosive world tension. Food and energy and some other commodities fall into this category. It is impossible to establish a more equitable world order without some degree of international planning and management with regard to such resources.

There are, finally, resources, such as a clear resources whose development for peaceful purposes entails concomitant dangers of large-scale environmental degradation or diversion for military purposes. Neither peace nor development can be safeguarded with regard to these resources.

Thus the main purposes of international resource planning and management are:

- . to insure equitable sharing in the production and consumption of resources;
- . to insure the participation of developing countries in international decision making;
- . to reduce international tension;
- . to increase international security.

International resource planning and management exists, at present, in a number of different forms: There is target setting (UNCTAD); there are commodity agreements (OPEC); there is large-scale international planning in the private sector; and there is the goal of a global commodity authority. The most highly developed model for an international resource management institution is the International Seabed Authority: the first to make a global public international institution operational; to give it an operational arm; to play an important role on the commodity market; to generate and redistribute income.

The idea of an Enterprise, as embodiment of the Common Heritage Principle with its management corollaries, has by now a rather long history.

The Center for the Study of Democratic Institution can boast a certain priority in this matter. "Ocean Enterprises" were discussed in the Center's Ocean Regime project as early as 1968. The first Center model draft treaty (The Ocean Regime, 1968) provided for the representation and participation of companies in management decision-making in a multi-chamber Assembly: thus attempting to integrate political and economic decision making and to bring private management under public control. A revised Center Draft (1970) proposed, in addition, a system of "Maritime Corporations" for ocean mining, fisheries, navigation, and the management of scientific research, to be half financed and governed by the Ocean Authority, and half by companies. Although potentially already extending the concept to all areas of marine resource exploitation and services, this proposal anticipated proposals introduced in the Law of the Sea Conference several years later.

The Committee on the Peaceful Uses of the Seabed entertained a number of proposals for a seabed mining Enterprise which was to be the operational arm of the Authority and would have a monopoly on seabed mining. The first proposal came from the Latin-American Group and was inspired by the experience of the nationalization of the copper mines in Peru. It was incorporated in a Working Paper on the Regime for the Seabed and Ocean Floor and the Subsoil Thereof Beyond the Limits of National Jurisdiction (A/AC.138/49) submitted by Chile, Colombia, Ecuador, El Salvador, Guatemala, Guyana, Jamaica, Mexico, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela. Article 23 of this paper provides that "The Enterprise is the organ of the Authority empowered to undertake all technical industrial or commercial activities relating to the exploration of the area and exploitation of its resources (by itself, or in joint ventures with juridical persons duly sponsored by States)." Article 34 specifies that "The Enterprise shall have an independent legal personality and such legal capacity as may be necessary for the exercise of its functions and the fulfilment of its purposes." Article 35, which was to deal with questions relating to the structure and functions of the Enterprise, was

not elaborated in the Draft.

The Latin-American proposal gained the support of all developing countries. All developing countries agreed that resources which are the common heritage of mankind have to be managed and that management has to be embodied in an Authority which has to be provided, for this purpose, with an operational arm.

The industrialized countries demurred. Common heritage to them meant, if anything, a sharing of financial benefits, not joint management, and an Authority which left the economic structures, including the consortia, intact and unchanged.

The gap appeared to be unbridgeable. The introduction of the "parallel system" did not close it: it merely displaced it to another level of discussion, centering on the questions: How can the Enterprise be financed? How can it obtain the technologies enabling it to compete successfully with the consortia?

Negotiations were stifled by two basic, inherent contradictions: tragic contradictions, one might feel tempted to say:

The first arose from underlying disagreements on the very purpose of the Authority, which the industrialized countries wanted limited in scope and powers while the developing countries wanted it wide in scope and powerful. After all, one of the main reasons that pushed the industrialized countries to develop their costly and sophisticated deep-sea mining technologies was that they wanted to decrease their dependence on some developing countries, considered politically unstable -- especially for strategic metals such as cobalt and manganese or molybdenum, besides copper and nickel. While trying to gain independence from those countries, they found themselves slipping under the control of an International Seabed Authority, dominated by those very same countries they had tried to elude. The developing countries, on the other hand, soon discovered that seabed mining was to be a source of competition for land-based mining and that, far from benefiting them, it was going to decrease their export earnings. Total losses over a 20-year period, as calculated by UNCTAD, might run as high as 4 billion dollars. The powers with which they wanted to see the Authority endowed, therefore, were to include, above all, the power to control and limit seabed production. Canada, as a large-scale nickel producer, although not a developing country, played a leading role in giving expression to this concern.

The second, stemmed from self-contradictory attitudes among the developed countries themselves: Fear of Third-World domination suggested distrust in the Authority that was being established. No discretion was to be left to it in decision-making, lest such

decisions were dictated by the majority of developing countries and incompatible with the interests of the minority of rich nations which were to invest huge sums of money in seabed mining. Every detail, about modes of operation, rules and regulations, amounts of payments, had to be pre-arranged and inscribed immutably in the text of the Convention. Thus the Text grew longer and more complicated with every year that passed. At the same time, however, these same nations, loyal keepers of the proprietary secrets of their companies, avowed to know nothing, nothing at all, about the ways this totally new and untried industry might work out, in technological, managerial, and financial terms. How the Conference was to elaborate minute details and technicalities for a period of 25 years, about the running of an industry about which it could know nothing, was never explained.

These basic contradictions both determined and frustrated the technical work of the Conference in three main areas: Production policy and limitation; the financing of the Enterprise; and technology transfer to enable the Enterprise to compete with the established industry.

Negotiations on production limitation eventually led to a formula, acceptable to the largest consumer country (USA) and the largest producer country (Canada): a formula whose mathematical magic, unscrutable to the majority of delegates, in the long run could not hide its real weakness.

The formula is to be found in Article 191 ("Production Policies") of the Revised Informal Composite Negotiating Text:

- (b) "The production ceiling for any year, beginning with the year of the earliest commercial production, shall be the sum of (i) and (ii):
- (i) The difference between the trend line values for annual nickel consumption, as calculated pursuant to (subparagraph (c) for the year immediately prior to the year of the earliest commercial production and the year immediately prior to the commencement of the interim period;
 - (ii) Sixty per cent of the difference between trend line values for nickel consumption, as calculated pursuant to subparagraph (c), for the year for which the ceiling is being calculated, and the year immediately prior to the year of the earliest commercial production.
- (c) Trend line values used for computing the nickel production ceiling shall be those annual nickel consumption values on a trend line computed during the year in which a plan of work is approved. The trend line shall be derived from a linear regression of the logarithms of actual annual nickel consumption for the most recent 15 year period for which such data are available, time being the independent variable."

The difficulties that arose were, partly, exposed in a report by Ambassador Nodon, Chairman of a Committee of Experts appointed to cope with them, during the Seventh Session of the Conference. Attempts to solve these difficulties were very tentative, counselling greater flexibility and more discretion for the Authority in planning and decision making.

The overriding difficulty arose from the fact that the power of the Authority in limiting production is confined to "activities in the area." It is meaningless, however, to limit "activities in the area" if they cannot be so limited in areas under national jurisdiction. The opening of any new mine, in areas under national jurisdiction, potentially may have the same unsettling effect on the volatile mineral market as the opening of seabed mining. It should be noted, furthermore, that "land-based production" now explicitly includes production off-shore in areas under national jurisdiction. This is a point that was stressed repeatedly during the Seventh Session: it never had been dealt with so openly before. Considering, however, the looseness of the definition of the boundaries of the international area in the present Text (boundaries are determined unilaterally by coastal States who merely have to declare and register their claims), it is quite certain that if production is limited in the international area while it is free in areas under national jurisdiction, boundaries will simply be extended as necessary, and production will take place under national jurisdiction. The effects on the metal market will be the same -- ~~but~~ the International Seabed Authority will simply have limited itself out of production.

The second major difficulty arises from the fact that production policy and limitation is pegged to the demand of one single metal, nickel. This is undoubtedly due to the fact that Canada, a nickel producer, is the driving force behind the limitation policy, but it is of small solace to the producers of cobalt and manganese, nor does it take into account current shifts of attention by the industry, from nodules with a high nickel content to nodules of different metal and mineral composition. Ambassador Nodon's committee attempted to cope with the question by proposing that even if no nickel is produced by a mining operation, the non-extracted nickel content determines the limit on the other metals: but this leaves wide open the possibility of a wild over-production of cobalt and manganese.

And, all the while, industrialized States were demanding that there be not only a ceiling but a floor as well for production, in an attempt to rescue at least a limited access to the resources, while, on the other hand, it became clear that the present depression of land-based production will not encourage a rush into seabed mining in the near future.

The production policy of this first international resource management institution is yet to be hammered out, but a number of lessons are being learned: most of which with implications for other areas of future international resource planning and management.

Discussions on the financing of the Enterprise led to the elaboration of another set of most complex provisions, under the leadership of Ambassador Tommy Koh of Singapore. An application fee of \$500,000 was provided for, to cover the costs of processing the application of a contractor. An annual fixed fee of \$1,000,000 was set, to be paid from the date of entry into force of the contract and that of commencement of commercial production. This is to prevent speculative occupation of seabed real estate. Upon commencement of production, the contractor is either to continue to pay the annual fee or a production charge, whichever is greater. The production charge can be paid in either of two forms: a production charge (single system) or a combination between production charge and a share of net proceeds (mixed system). A detailed schedule of payments and percentages was established: "net proceeds" and "gross proceeds" as well as "attributable net proceeds (ANP)" were painstakingly defined. The latter was necessary because "activities in the area" are supposed to cover only exploration and exploitation, whereas subsequent stages of an integrated project -- transportation, processing and marketing -- are not to be accounted for to the Authority. This, in turn, gave rise to another set of complications, since the Enterprise itself, i.e., the Authority is explicitly empowered to engage in transportation, processing, and marketing, that is, in an area beyond its own limits of jurisdiction.

A range of figures has been negotiated up and down, and thus far, no acceptable compromise has emerged. Either the charges were low enough to be acceptable to the industrial States: but then the Authority's income was too low to be of any benefit to developing States or to the Enterprise: or charges were high enough to be of some use: but then they were totally unacceptable to the industrial States. In no case, however, would the Authority's revenue exceed 1.2 billion per contract over a 20-year period. This is about 60 million dollars per year: obviously totally inadequate to start the Enterprise on its own operation.

An agreement had, therefore, to be reached on the financing of the Enterprise, which had to cover, at least, the investment capital needed for one integrated mining operation, including exploration, exploitation, transporting, processing and marketing -- an investment which might run, roughly to a billion dollars. The question how this amount was to be raised remained undecided. Prospective sea-mining countries wanted the burden distributed among all States parties to the Convention, according to the U.N. scale of payments. Developing and socialist countries, presumably not among the first sea-miners, advocated a system under which the sea-mining countries who will be the primary beneficiaries of sea mining, would have the responsibility for providing this capital. Also they insisted on a 1:1 rate between cash payments and guaranteed

loans, whereas the industrialized countries took the position that the cash/loan ratio might well be 1:2.

A host of additional difficulties cropped up which, in the opinion of this writer, will turn out to be insoluble: they all derive from the fundamental error of trying to establish a system in which the Authority and its Enterprise are in direct competition with the established industry. It is easy to show, in a simple mathematical model, that this kind of "parallel system" is the most expensive and cost-ineffective of all conceivable systems: burdensome to industrialized countries, developing countries, and the Authority alike. This, too, holds lessons for the building of other international resource management systems.

Though related to the financial problems, the problem of access to technology and of technology transfer must be dealt with separately.

The principal transmitters of technology to Third-World countries have been the multinationals, and the abuses that have occurred -- from eight-fold overcharging to restrictions such as the so-called "black-box" technologies, to hard salesmanship of "inappropriate" or obsolete technologies are well known. Waste, aggravation of differences between rich and poor within a country, and growing dependence on the industrialized countries for spare parts and technicians, interference in domestic politics on the part of the foreign company providing the technology, have been among the best known consequences of technology transfer malpractices.

There is nothing to suggest that poor countries would fare better at sea than they did on land or that the transfer of the highly sophisticated seabed mining technology would be more successful and more beneficial to developing countries than the transfer of other industrial technology. Hence the seriousness of the issue of technology transfer from the "contractor" -- industrialized State or consortium -- to the Authority, its Enterprise, and developing countries: an issue considered by Third-World countries to be absolutely crucial for success or failure of the whole Conference.

The draft Treaty (RECON) defines "technology" in the broadest sense:

"'technology' means the equipment and technical know-how, including manuals, designs, operating instructions, training and technical advice and assistance necessary to assemble, maintain and operate a system for the exploration for and exploitation of the resources of the Area and the non-exclusive legal right to use these items for that purpose,"

and makes elaborate provisions for what might appear to be a mandatory transfer.

While too strict to be acceptable to industrialized countries, who frequently take refuge behind the shield of patent laws and the private-property based free-enterprise system, these provisions are not stringent enough for the developing countries

of each "contract" with a "contractor", of long drawn-out negotiations and arbitration procedures regarding the transfer of technologies -- leaving them without the technologies for the whole interim period of 20 or 25 years, up to the Review Conference. And the question whether they will do better at the Review Conference than they are doing now, is wide open. The difficulties of technology transfer, just like those arising from the financing of the Enterprise, originate in the faulty conception of a parallel system that places the Authority in a conflict situation with established industry.

Many of the lessons learned during the course of the long and difficult negotiations to build the prototype of an international resource management authority are applicable, or adaptable, to future international resource management institutions in other areas. They may be summarized as follows:

1. International resource planning and management cannot be based on the classical Roman-law concept of private ownership and on the classical, static concept of national sovereignty. Both the concepts of ownership and of sovereignty are being transformed by the new, revolutionary concept of the Common Heritage of Mankind -- which must be the basis of international resource planning and management in a NIEO just as it is the basis of the International Seabed Authority.
2. International resource planning and management cannot be restricted to the commodities (metals and minerals) of the international area alone. In the discussions on the International Seabed Authority it became amply clear that either the Authority has a voice in planning the production and distribution of the minerals it is managing, on a global basis, through commodity agreements or other mechanisms -- or it will not be able to do very much at all. International resource planning must follow functional rather than territorial lines, which means essentially that it can be applied just as well to resources other than those of the international or extranational area although these extranational resources, including those of the moon and other celestial bodies as well as those of Antarctica, are probably the best possible starting point.
3. It is futile to try to regulate the production of one commodity -- nickel, in the case of the International Seabed Authority -- and to peg the production of the other metals contained in the nodules -- copper, cobalt, manganese and others -- to the demand for nickel. Production and distribution must be planned for all metals: nodules must be stockpiled and metals extracted according to the conditions of the market. The stockpiling of millions of tons of tailings may of course cause some serious environmental problems.
4. A public international resource management system cannot be built in competition with established industry, whether State enterprises or private consortia. It is these latter that have the capital, the technology and the managerial skills required. They must be built into the new system in such a way that they

can continue to operate effectively while maximizing the benefits to the international community. Negotiations at the Law of the Sea Conference indicate that a joint-venture system would come closest to providing a solution of this kind. Under such a system, the consortia would provide half of the investment and operating capital, the International Seabed Authority, the other half. The Authority would appoint half of the Directors of the Board governing the Joint Venture, the consortia would appoint the other half, in proportion to their investments. Profits would be shared in the same proportion. The joint venture might comprise one or all phases of an integrated operation, from exploration to exploitation, processing and marketing. The Board members appointed by the Authority could all come from developing countries or from small industrialized countries without seabed mining capacity of their own. It really would be a new form of economic cooperation, facilitating enormously the transfer of technologies and the financing of the international authority. It would, for the first time, bring the multinationals under public international control. It would, in fact, create a new type of public international company: it would be a significant contribution to the building of a new international economic order.

5. International management of resources must be complemented and integrated with international management of technologies, without such integration, international resource management would be both unpractical and unacceptable. There are a number of converging reasons for this. Resources and technologies are interdependent. Resources become exploitable as the technologies, from simple to highly complex, from "labor-intensive" to "capital-intensive," become available and their cost can be borne by the market. Without "appropriate" technology, therefore, there cannot be any resource management at all. The generation of wealth through resource management has four component factors: resource, capital, labor, and technology: each factor assuming a variable proportion of importance throughout history. Industries based on highly developed technologies are less resource-intensive than industries based on less developed technologies, in as much as substitution, synthesizing and recycling reduce the amount of original raw materials required. It is therefore essential for developing countries that the international management (in which they participate) of resources and of technologies are balanced and integrated. Finally, there is a political reason for this integration: Resources, in today's post-colonial extraction economy, are located largely in developing countries. Technologies are the monopoly of industrialized countries. If developing countries are asked to accept a common-heritage status for resources over which they hold sovereign rights, industrial States, as a counterpart, must accept the same status for their technologies.

6. Effective ways have to be found to raise international capital for development purposes. In the case of the International Seabed Authority, its investment share in the joint-ventures has to be raised -- at least initially: for at a

later stage it is expected that the Authority will create a significant income, probably of the order of a billion and a half a year.

Perhaps the most practical solution would be the adoption, on the basis of international agreement, of an Ocean Development Tax.

Adoption of such a tax was proposed by the International Ocean Institute in 1970. As then proposed, a small levy (one percent) would be collected by States on the value of all major uses of ocean space, whether within or outside national jurisdiction. This would apply to commercial fisheries (value of landed catch); hydrocarbon production (wellhead value); shipping (value of cargoes); use of cables (per word); etc. The sums collected by States would be paid to the International Seabed Authority and to other intergovernmental organizations whose major activities are focused on the marine environment, in agreed proportions and for clearly specified purposes.

The idea of some form of international tax is not new. Revenue sharing in the so-called trusteeship zone was proposed by the United States in their Seabed Draft Treaty in 1971. An international tax or payment with regard to seabed minerals (including oil), beyond the limits of the territorial sea, was proposed by Canada in the United Nations Seabed Committee. The Draft Treaty elaborated by the U.N. Conference on the Law of the Sea (ICNT) proposes that "the coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles...." At the ~~Seventh~~ ^{Fourth} Session of this Conference, Nepal, supported by 15 other nations, introduced a proposal for revenue sharing and the establishment of a Common Heritage Fund to be financed in large part through a form of international taxation on offshore oil production.⁵⁷ There are many supporters of a New International Economic Order who advocate forms of international taxation as a means to achieve income redistribution and automaticity of transfers at the international level. The adoption of an Ocean Development Tax could be a pilot experiment for the establishment of systems to finance needed international public services in other areas.

What, then can be extrapolated from the lessons learned in building the prototype international resource management institution for the building of other categories of resource planning and management enumerated at the beginning of this paper?

There could be several approaches: all based on a new type of international relations and organization -- on a new relationship between "South" and "North," on new structural concepts cutting across divisions between "governmental" and "nongovernmental," "national" and "international," "political," "economic" and "technological."

The broadest approach would be to take the best available Seabed Authority model -- that is, the "unitary joint venture system" -- and apply it, with the necessary modifications, across the board to all multinational companies dealing with basic resource planning and management, above a certain quantitative floor, as well as to State companies and private consortia engaged in international activities, if the volume of such activities passes above the established floor. This would in fact amount to an international chartering, under U.N. auspices, of such companies and consortia, providing a degree of international public control and participation -- including the participation of developing countries and, more broadly, the representation of consumers and of labor on the boards of the of companies thus chartered. The Statute for European Companies, though still on the drawing board, could be studied as another "prototype" for this kind of arrangement. The chartering could be made obligatory, or it could be voluntary: in the latter case there should be such legal and financial incentives as to make it effectively the new modus operandi.

The building of an "Enterprise system" under UN auspices, and with the participation of the competent Specialized Agencies (FAO, IAEA, INTELSAT, ILMARSAT, UNIDO, IOC, etc.) would have another advantage: besides providing a necessary and long eluded control on the transnationals, this "Enterprise system" would also enhance the restructuring of the U.N. system of organizations as it would require, in each case, the adding of an operational arm to the agencies, patterned on the "Enterprise" of the Seabed Authority. If they are to be effective in the last quarter of this century and the beginning of the next, the U.N. agencies must indeed become "operational." This is one of the requirements of the NIFO.

Multinational food companies would be chartered by FAO. One part of FAO, the Committee on Fisheries, certainly will undergo structural changes making it more "operational," in the wake of the Law of the Sea Conference. Changes in COFI, in turn, are bound to affect FAO as a whole, which might become responsible for the international chartering of multinational food companies. With these companies, FAO might establish "Enterprises," just as the Seabed Authority establishes "Enterprises" with the mining consortia. This might indeed provide a new instrument to limit or reduce the hazards of the major food crises predicted by the U.N. Food Council for the early 80s.

The nuclear reactor industry must go public under charters provided by IAEA. The provisions of the charter would incorporate all the safety measures presently under discussion in the context of the Non-Proliferation Treaty and the International Nuclear Fuel Cycle Evaluation.

Multinational oil companies could be chartered by UNIDO: that is UNIDO could establish "Enterprises" with the participation of producer and consumer States, developed and developing coun-

tries. A precedent for this kind of arrangement is the newly established Arab Drilling and Workover Company (ADWC), with a private company (Santa Fe) holding 40 percent and the Arab Petroleum Services Company (APSC) holding 60%. APSC was established as an operational arm by OAPEC. ADWC is APSC's first subsidiary or "Enterprise."

As a final example, the space industries might be chartered by INTELSAT or INMARSAT. The establishment of "Enterprises" to manage satellite-based factories would be a most appropriate case for the application of the Common Heritage and Enterprise system since outer space and its resources has already been declared by the United Nations to be a Common Heritage of Mankind. Such factories are presently under consideration by the United States. The absence of gravity (weightlessness) offers certain advantages for the processing of certain materials (e.g., silicon, which is becoming increasingly important in the growing micro-electronic industries).

An Enterprise system of this kind would be operationally very much decentralized. Each Enterprise would be responsible for its own production plan. There should be special institutions within the system, on a regional and global basis, to integrate and harmonize plans.

The Law of the Sea Convention (ICNT, Rev.1) proposes the establishment of national and regional marine scientific and technological centres. The concept could be enlarged and applied to the building of regional scientific and technological centres in general. The functions of such centres could be threefold: Monitoring of the environment and environmental impact studies; training as a basis for technology transfer; and planning: the preparation of economic/technological models for resource production and distribution, to harmonize and guide the plans prepared by the "Enterprises." Financing for such Centres could be provided by international taxes on the pattern of the ocean development tax as well as from the revenues of the Enterprise system.

The unitary joint venture formula has the advantage of being very flexible. The proportion between public/international share-holding and representation and private/State share holding and representation could vary on a sliding scale: The more commercial the Enterprise, the greater could be private or State participation (e.g., the food industry); the greater the security aspects of an Enterprise, the greater should be public/international participation (e.g., the nuclear reactor industry).

Descriptions and prescriptions as those contained in this paper easily have a utopian ring and, certainly, the difficulties in the path towards the realization of such systems are enormous. Some of the industries mentioned -- e.g., nuclear reactor industries, space industries -- are among the most sensitive, and nations will resist international controls as long as they can. The free-enterprise is still resilient, and participation by

developing countries, by consumers, and by labor will be resisted by the multinationals to the utmost. Yet the ideas expressed here do not come out of "thin air." The idea of a U.N. charter for the multinationals has been vented on many occasions. It may be an idea whose time has come. The Charter for European Companies has been drawn up and adopted by the Commission of the European Communities. Private (national) and public (international) sectors work harmoniously together in the space industry; and the long negotiations on the International Seabed Authority, the prototype of international resource management institutions, are drawing to a close. None of the proposals made here is really new: They are merely projections of ongoing trends. It is only the conceptual framework that is new: that of the NIEO.

The first industrial revolution, based on coal and oil and cheap labor, was resource- and labor-intensive. It led to the subjugation and exploitation of the non-industrialized world. The second industrial revolution, based on renewable energy resources, micro-electronics, and bio-industries, is neither resource- nor labor-intensive. Commodities and cheap labor are rapidly ceasing to be bargaining values. The second industrial revolution may well lead to the marginalization of the non-industrial world. This might entail a serious set-back to development. On the other hand the challenge could be met by a leap forward: If it is recognized that reliance on an extraction economy and on cheap labor is not conducive to development in any case and if the developing countries, abandoning these obsolete values, join instead the second industrial revolution from the outset. This requires internal restructuring. It also requires participation in the new industrial developments of the industrialized countries. This can only be achieved through the kind of international Enterprises initiated with the Seabed Authority and expanded, through international agreements embodied in Treaties, to other sectors of production. If the international community succeeds in building one of these Enterprises, it might as well succeed in building them all.

- 1/ The Impact of World Trade on Developing Countries: Four Studies by E.H.B. Paper presented at a Seminar at the University of Hull, 1977.
- 2/ Arms Production and the New International Economic Order by E.H.B. "International Paper" 1, 9 (1976). Hull University Press, 1976.
- 3/ The ...