UNITED NATIONS

GENERAL
ASSEMBLY

COMMITTEE ON THE PEACEFUL USES OF THE
SEA-BED AND THE OCEAN FLOOR BEYOND
THE LIMITS OF NATIONAL JURISDICTION

POSSIBLE METHODS AND CRITERIA FOR THE SHARING BY THE INTERNATIONAL
COMMUNITY OF PROCEEDS AND OTHER BENEFITS DERIVED FROM THE
EXPLOITATION OF THE RESOURCES OF THE AREA BEYOND THE LIMITS OF
NATIONAL JURISDICTION

Report by the Secretary-General

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INTRODUCTION

1.   At its March 1970 session the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction endorsed the request of its Economic and Technical Sub-Committee for a study on the question of "possible methods and criteria for the sharing by the international community of proceeds and other benefits derived from the exploitation of the resources of the area".

2.   Accordingly, the Secretary-General prepared a preliminary note which was presented at the August 1970 session of the Committee. After discussion of this note the Committee requested that a further, more comprehensive report be prepared.

3.   The present report is submitted in accordance with this decision of the Committee, as contained in paragraph 17 of its report (A/8021), endorsing the suggestion by the Economic and Technical Sub-Committee for "a more comprehensive study on possible methods and criteria for the sharing by the international community of proceeds and other benefits derived from the exploitation of the resources of the area". It was recommended that this report be presented at one of the Committee sessions in 1971.

4.   In preparing this report the Secretary-General has taken into account the comments of delegations expressed during debate in the Committee and the Sub-Committees; and the relevant assumptions concerning the area, present technology and other variable factors. It should be noted that the view was also expressed that such a study, "though useful, would be premature in the absence of acceptable parameters relating to the area and its resources".

5.   In preparing this report, working papers presented to date have been considered: "Draft United Nations Convention on the International Sea-Bed Area" by the United States (A/AC.138/25); "International Régime" by the United Kingdom (A/AC.138/26); "Establishment of a Régime for the Exploration and Exploitation of the Sea-Bed" by France (A/AC.138/27); "Draft Statute for an International Sea-Bed Authority" by the United Republic of Tanzania (A/AC.138/33).

6.   The report attempts to comply with the guidelines set by General Assembly resolution 2749 (XXV) titled "Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National

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Jurisdiction", which states, in paragraph 9, that "the régime shall, _inter alia_, provide for the orderly and safe development and rational management of the area and its resources and for expanding opportunities in the use thereof _and ensure the equitable sharing by States in the benefits derived therefrom, taking into particular consideration the interests and needs of the developing countries, whether land-locked or coastal_".

7.   In a first introductory chapter, the variables involved in the problem of benefit sharing are briefly described. Factors affecting the magnitude of possible proceeds are referred to, such as possible breakthroughs in technology and changes in market conditions. In chapter II of the report, an attempt is made to arrive at a definition of net proceeds after having considered the types of benefits to be generated, the methods of collecting the machinery's "take" and the categories of operational expenditures to be incurred by the machinery.

8.   The report deals with the various possibilities of sharing financial benefits giving as examples alternative methods of sharing the proceeds directly by the countries and, finally, a few tentative approaches to the possibility of allocating benefits to the least developed countries during the early stages of sea-bed exploitation are put forward.

9.   It should be emphasized that in view of all the uncertainties and unknowns, the figures in the report are merely of a speculative and illustrative character. Indeed, this study constitutes an attempt to provide the basis for a conceptual approach to the problem which will be considered by the Committee when it examines the international régime and machinery in so far as sharing of benefits are concerned.

1. ASSESSMENT OF THE PROBLEM

10.   The types of benefits to be derived from the development of the mineral resources of the sea-bed and the ocean floor beyond the limits of national jurisdiction, as well as their magnitude, will depend directly upon a number of parameters, which at present cannot be precisely defined. In particular, the

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benefits to be derived will depend to a great extent on the development of off-shore mining technology and on future market conditions for minerals produced from the sea-bed.

11. A number of tentative proposals have been put forward to define the benefits to be derived from the international area. Furthermore, the international régime and the machinery to implement it can assume many different forms and one can envisage a variety of approaches to the problems of control and management of exploration and exploitation of the mineral resources in the area.

12. Indeed, such a variety of forms and approaches is found in the documents submitted to the Committee in connexion with the questions of the international régime and international machinery. The three working papers submitted by the United States of America,[1] the United Kingdom[2] and France[3] in August 1970, and the draft statute submitted by the United Republic of Tanzania[4] in March 1971 cover a considerable range of possibilities. The range increases markedly when statements made by delegations are taken into account.[5]

Technological developments and market conditions

13. In addition to the basic parameters above, there are additional variables which will influence the amount of benefits expected. In particular, it is possible that technological breakthroughs will bring more rapid developments in resource exploitation than are presently expected. Furthermore, market conditions for any of the minerals to be exploited from the sea-bed may also change in the future.

14. A glimpse at the present state of off-shore mining will help to bring estimates of possible proceeds for the machinery into proper perspective.

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[1]/[2]/[3]/ Annexed to the Committee's report to the General Assembly at its twenty-fifth Session (1970), Official Records of the General Assembly, twenty-fifth Session, Supplement No. 21 (A/8021).

[4]/ A/AC.138/33.

[5]/ The statements made at the March session of the Committee by the representatives of Canada (58th meeting) and Malta (57th meeting) serve as but two examples in which specific schemes were envisaged which would have a direct bearing on the nature and extent of benefits that could be derived. Many other examples could of course be cited. Reference may also be made in this connexion to the Montevideo and Lima declarations (A/AC.138/34 and A/AC.138/28) as well as to the relevant portion of the Lusaka Declaration and the report of the Asian-African Legal Consultative Committee (A/AC.138/34).

Hydrocarbons have by far the greatest revenue potential: in 1969, off-shore petroleum production accounted for 17 per cent of the world's total oil production and 6 per cent of the world's natural gas production; within ten years, off-shore production is expected to reach 25 million barrels a day, or about 33 per cent of total world output of 70 million barrels a day.[6] In fact, off-shore reserves are thought to be larger than on-shore reserves. Present off-shore petroleum production, however, is mostly limited to water depths less than 100 metres. Production costs escalate rapidly as water depth increases. Therefore, if the international area were to be defined as for example the sea-bed beyond a depth of 200 metres, only a relatively small proportion of off-shore oil production would be forthcoming from that area at least well into the 1980's.[7]

15. There is now considerable evidence to indicate that manganese nodule exploitation from deep-water areas may become important in the not too distant future. It is anticipated that at least one commercial venture to exploit these nodules will become operational in a few years, providing that remaining problems associated with full-scale mining systems and metallurgical problems are solved. Eventually, the extensive manganese nodule deposits found in all oceans may become the object of important economic activity.[8]

16. Considerations of technology and markets have influenced proposals made to date and, undoubtedly, these factors will have an important effect on the nature and scale of benefits which can be expected to come from activities in the international sea-bed area.

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[6] United Nations, Mineral Resources of the Sea, New York, 1970, (United Nations publication, Sales No.: 70.II.B.4), para. 5.

[7] The sedimentary basins of the continental shelf are thought to be very rich in petroleum resources. These are believed to extend to the outer shelf and the upper continental slope. Technological and economic considerations, however, explain the lack of development by the petroleum industry of the potential resources of these regions.

[8] See Secretary-General's report on the possible impact of sea-bed mineral production in the area beyond national jurisdiction on world markets, with special reference to the problems in developing countries (A/AC.138/36).

2. ANTICIPATED BENEFITS

(a) Types of benefits

17. Theoretically, all anticipated benefits can be classified into one of two groups: non-financial benefits and financial benefits. An outline of the possible range of benefits will be made, but the analysis will focus on the financial benefits.

Non-financial benefits

18. It is not possible to quantify these benefits although they present potential advantages for the international community. Among those that have been mentioned the following may be cited.

(i) Expansion of world mineral resources.

19. Present estimates indicate that world demand for some minerals may exceed the supply from land-based sources within a few decades. The advance of sea-bed technology toward economically feasible exploitation, could assure additional mineral resources well into the future.

(ii) Orderly development of resources.

20. An international régime would promote the systematic development of resources through procedures aiming at the optimization of exploration and exploitation activities. Advanced resource management techniques could be utilized; methods to prevent or at least minimize conflicts could be enacted.

(iii) Protection of the marine environment.

21. An international régime would create and enforce a set of rules and standards governing all sea-bed activities directed at ensuring the preservation of the whole marine environment.

(iv) Enlarging the number of nationals with sea-bed technical competence.

22. The international machinery could institute training programmes for nationals of developing countries to guarantee the participation of personnel from all countries in the application of rapidly expanding sea-bed technology. Thus,

each country could gradually acquire a corps of technically competent sea-bed experts, while the international community would have the broadest knowledge-base on which to work.

(v) <u>Increasing the knowledge of the marine environment and sea-bed area.</u>

23.   It is expected that the machinery would generate a vast volume of scientific and technical knowledge, which would be made available to all countries. Systematic dissemination of such information should be part of its normal functions.

(vi) <u>Stability of raw material markets.</u>

24.   An international machinery could endeavour to foster resource exploitation in a way to promote a greater degree of stability of the raw material markets.

(vii) <u>Preferential access to raw material for less developed countries.</u>

25.   It is possible to imagine that under an international régime, adequate provisions could be made to enable developing countries to acquire raw materials produced from the sea-bed under preferential conditions.[9]

   Financial benefits

26.   The financial benefits which might be available for sharing by the international community would consist of the balance remaining after deduction of the expenditures from the revenues of the international machinery.   The expenditures of the machinery (personnel, supplies, training, research, etc.) are discussed below.

      (b)   <u>Possible costs of an international machinery</u>

27.   In order to assess the net revenue which might accrue to the international machinery for distribution among the Member States, it is necessary to have an idea of the overhead costs which may be incurred by it.   These expenditures would be:

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[9]   A/AC.138/36.

(i) Administrative costs

28. The usual costs of running an administrative structure will be present, namely personnel, office rental, supplies, etc.

(ii) Facilities to supervise compliance

29. Unlike most existing international organizations, the machinery might require physical means such as vessels, airplanes, telecommunication facilities, to supervise compliance with regulations and contractual obligations, as well as in connexion with any functions that it might be given in respect of investigations of disputes or complaints.

30. Some administrative and supervisory cost components are inherent in any type of machinery; other costs, however, may not be absolutely essential for the functioning of such machinery.

Research and training

31. Research and training of personnel are two areas which are likely to call for expenditures by the machinery. An essential function of the régime must be the co-ordination of research on the sea-bed and the effective dissemination of research findings. Ideally, training of personnel in techniques of exploration and exploitation of sea-bed resources could be conducted in conjunction with research programmes.

Pollution

32. Licenses for exploration and exploitation of resources of the area would have to incorporate all possible safeguards for the environment, making the licensee responsible for damages originating from oil spills and other sources of pollution arising from their activities. However, insurance and financial responsibility bonds may not be sufficient to cover the full costs of damage done to the environment. Therefore, the international authority might set aside funds to provide for additional insurance against the risks of pollution. It is even conceivable that the authority may promote and support certain pollution detection systems and measures to prevent and control damage to the marine environment.

Price fluctuations

33. The last preambular paragraph of the declaration of principles (General Assembly resolution 2749 (XXV)) specified that "... the development and use of the area and its resources shall be undertaken in such a manner as to foster the healthy development of the world economy and balanced growth of international trade, and to minimize any adverse economic effects caused by the fluctuation of prices of raw materials resulting from such activities,". Given the crucial role of mineral earnings for several developing countries, the machinery would accordingly be expected to seek to minimize the possible negative effects of sea-bed mining production on the export earnings of these developing countries. "It might also be enabled to enter into some form of compensatory arrangement with those developing countries which might feel the brunt of this new competition, particularly in the case of a country whose economy, being heavily dependent on production of a given mineral, could therefore suffer severe consequences".[10] Such schemes might involve additional expenditures by the international machinery which would reduce the net proceeds available for distribution.[11]

Financing operations

34. It is expected that during an initial period costs will outstrip revenues. The break-even point between costs and revenues is likely to be attained only when production of minerals from the area reaches certain minimum levels. Until that time provision will have to be made to finance the net operational outlay of the international machinery.

35. The concept of a stage requiring temporary financing presupposes that the international machinery is intended to become self-sufficient eventually. However, it might also be possible to assume that operational expenses of the machinery would be shared by the international community on a continuing basis, while the revenues to be eventually derived would be distributed in such a manner as to favour the developing countries. This procedure might be one way to comply with the distribution of benefits derived from the exploitation of the resources of the sea-bed in the spirit of the declaration of principles.

10/ Report of the Committee (1970), document A/8021, p. 101.

11/ A/AC.138/36.

Costs of a fully operational régime

36. Expenditures of an international machinery which would directly undertake the exploitation of the resources of the area would be very similar in nature to those of existing international mining enterprises, namely: administration, exploration and prospecting, training of personnel, research into mining and processing technology, capital costs for machinery and equipment and ongoing current costs.

37. Given the very nature of mining ventures, it is expected that the initial financial requirements of an international sea-bed mining enterprise are likely to be considerably larger than for the above considered types of regulating international machinery. This raises the complex question of securing the large initial captial required in relation to the subsequent sharing of net benefits.

Handling of physical output

38. For some time to come, the handling of physical output is likely to be concentrated to a large extent in the hands of the advanced industrial countries. Relevant in this case is the location of processing facilities for the minerals produced in the area, in view of the linkages and multiplier effects on income and employment. The advanced industrial countries are likely to benefit more from the handling of physical output, because they will remain major importers of these minerals. Since the productive units (mineheads) for hydrocarbons and other minerals to be derived from the area will require ocean transportation to an importing centre, the economics of transport would strongly favour shipments in bulk directly to the final importing-consuming centres for processing there.

39. Similarly, in view of the highly sophisticated requirements of deep-sea mining, the supply of needed inputs, for exploration and exploitation activities in the sea-bed, is likely to benefit the advanced countries. Thus, the technological and engineering industries in these countries will be further spurred to develop, with the resulting linkages and indirect technological benefits. These probabilities would appear to require consideration in relation to the general issue of sharing of benefits.

(c) Sources of revenues

40. It has to be assumed that a legal framework for the development of resources in the area would stipulate the manner in which the international machinery would derive its revenues.[12]

41. Various licensing arrangements can be envisaged for non-exclusive and exclusive exploration, evaluation of deposits and for exploitation. A fee structure for exploration activities should tend to encourage the development of sea-bed resources.

42. A fee structure for exploitation activities would probably have to consider the conditions of each area. Factors, such as distance from land base, ocean depth, corrosive effect of the water (hot brines), quality of mineral grade - would have to be taken into account. The type of mineral should also figure in the fee scale depending on whether activity is for hydrocarbons, manganese or other associated minerals.

43. Several flexible programmes could be devised. They could be a combination of different charges: an initial "fee" for exploration and exploitation rights, a "royalty" based on value of production, and an "income tax" based on the profits of the operation.

44. The character and magnitude of various levies which would constitute the machinery's "take", will have to be determined by the international régime to be established. Again, the total "take" of the machinery minus its expenditures as tentatively outlined in section (b) above, will determine the mass of financial resources to be distributed. At this stage, it is not yet possible to attempt to quantify the proceeds which might be available, for example, in ten or twenty years. However, in order to put forward some conceptual alternatives for the sharing of benefits, it is assumed that a hypothetical sum, say $500 million, might be available for distribution at the end of this decade.

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[12] Government measures pertaining to the development of mineral resources on the continental shelf, review prepared by the Secretariat (A/AC.138/21).

3. ALTERNATIVE CRITERIA FOR THE DISTRIBUTION OF BENEFITS

45. This chapter presents a number of alternative methods and criteria for sharing the benefits which might be generated by the exploitation of resources of the sea-bed and the ocean floor beyond the limits of national jurisdiction. For the sake of this exercise, it is assumed that an international régime, with its required machinery, would be established to govern the exploration and exploitation of resources in the area. It is also assumed that after the deductions to cover the various overhead expenditures mentioned in preceding paragraphs a certain amount would be available for sharing among the members of the international community, taking into consideration the special interests and needs of developing countries.

46. The number of alternatives that one could conceive in this regard is practically unlimited. These alternative distributive methods could be classified into two general categories, namely (1) direct distribution to all Governments, and (2) allocation to specific international programmes of prrticular interest to developing countries.

47. The magnitude of proceeds available for distribution will be an important factor affecting the desirability of one distributive method over another. Before net proceeds reach a sufficiently large volume, direct distribution to all Governments might result in a fragmentation of financial resources which would result in benefits of modest significance to the receiving countries. During this initial period, there might be some advantages to concentrate available proceeds in programmes of high priority, such as the promotion of development in the least developed countries. This should not be confused with foreign aid, the latter

involving the transfer of resources from the advanced to the developing
countries. The proceeds of the international machinery which might be
allocated to programmes of special interest to developing countries is
by and large rightfully theirs, and as such, cannot be termed aid and
must not be thought of as a substitute for existing foreign aid
arrangements. These programmes should be interpreted as being within
the spirit of the declaration of principles governing the area, namely
that the resources of the area shall be used "in such a manner as to
foster the healthy development of the world economy". The allocation
of proceeds to promote growth in the least developed countries would
also comply with the concept of "a rational management of the area
and its resources".

(a) Direct distribution to Governments

48. A number of criteria can be devised to distribute the net balance
directly to Governments departing from the principle that the
resources of the sea-bed are a common heritage of all mankind. This
seems to indicate that any sharing of proceeds would be based to
some extent on each country's population as a percentage of the world's
total, adjusted in such a way as to favour the developing countries.
49. In devising criteria for the distribution of net benefits according
to schemes favouring the developing countries, it will be useful to
keep in mind the distribution of world population according to levels
of per capita income.

Table 1.   Distribution of world population by levels of per capita
gross domestic product (GDP) in 1968

(US dollars)

Level of gross domestic product (GDP) per capita	Percentage of total world population
Under $100	24.6
$100 to $250	32.1
$250 to $500	10.6
$500 to $1,000	5.7
Over $1,000	27.0
	100.0

Source: United Nations Secretariat.

50.   In 1968, the median per capita income level was about $150; that is, about
half of the world population was in countries with an average per capita gross
domestic product of less than $150.

51.   In order to facilitate discussions on possible methods of distribution of
net proceeds directly to Governments, five examples have been worked out.   These
examples are presented in table 2 at the end of this section.   This table, for
comparison purposes, also shows the percentage of each country's population in
the world total and its share of the proceeds with population the only
criterion.

52.   The figures presented in table 2 represent the percentage of the total
funds available for distribution which would be allocated to each country.
Calculations are based on estimated mid-year population in 1967 and per capita
GDP for 1968.   It is well known that per capita GDP figures, reduced to a
common US dollar denominator, have serious shortcomings for purposes of
international comparison of levels of living.   However, alternative indices such
as per capita energy consumption, doctors per 1,000 population, degree of

literacy, percentage of population in agriculture, and others, present even greater problems of comparability. Therefore per capita GDP figures were used to provide an indicator of relative degree of development in the elaboration of alternative criteria for consideration. Naturally, other indices of relative development could be used instead of GDP per capita without changing the mechanics of the criteria presented.

53. An explanation of the calculations used in the five criteria follows. For each criterion, examples of calculations are provided for three developing countries at different levels of per capita GDP, namely: Somalia ($61), Ceylon ($159) and Brazil ($381). In order to give a more concrete idea of magnitudes involved, the illustrative examples end up with the share that these three countries would have of a hypothetical $500 million net revenue of the international machinery available for distribution.

54. The five criteria can be compared with the results which would be obtained if proceeds were divided proportionately to population, i.e. according to the percentage of each country's population in the world's total. On this basis, disregarding the differences in the levels of economic development, the following calculation would indicate the relative shares in the three examples chosen.

55. Illustrative calculations based on population alone:

Total world population, 3,407,813,000

Share of Somalia:	0.0769% x $500 million =	$384,500
Share of Ceylon:	0.3434% x $500 million =	$1,717,000
Share of Brazil:	2.5135% x $500 million =	$12,567,500

Criterion A

56. Per capita proceeds inversely related to level of per capita GDP. The countries' shares are obtained by: (1) calculating the ratio of the world per capita GDP ($US705.14) over each country's per capita GDP; (2) multiplying each country's share of world population by the ratio obtained in (1); and (3) reducing the figures derived in step (2) to percentage form, i.e., dividing each country's figure by the sum total of the figures for all countries in stage (2).

57. This criterion is particularly favourable to countries with a per capita GDP below $US150. This result is explained by the heavy distribution of world population at low levels of income. One corollary of this heavy concentration of world population with low income is that with the use of this criterion, those developing countries with slightly higher per capita GDP than the $US150 world median end up with a share of net benefits lower than their share of world population.

58. Illustrative calculations:

	Somalia	Ceylon	Brazil

(1) Ratio of world per capita GDP over country's per capita GDP:

$$\frac{705.14}{61} = 11.5596 \qquad \frac{705.14}{159} = 4.4348 \qquad \frac{705.14}{381} = 1.8508$$

(2) Multiplying country's share of population by ratio (1):

$$0.0769 \times 11.5596 \qquad 0.3434 \times 4.4348 \qquad 2.5135 \times 1.8508$$
$$= 0.8889 \qquad\qquad = 1.5229 \qquad\qquad = 4.6519$$

(3) Figures in (2) as percentage of sum for all countries:

$$\frac{0.8889}{458.6668} = 0.1938 \qquad \frac{1.5229}{458.6668} = 0.3320 \qquad \frac{4.6519}{458.6668} = 1.0142$$

(4) Share of hypothetical $500 million:

$$0.1938\% \times \$500 \text{ million} \qquad 0.3320\% \times \$500 \text{ million} \qquad 1.0142\% \times \$500 \text{ million}$$
$$= \$969,000 \qquad\qquad = \$1,660,000 \qquad\qquad = \$5,071,000$$

Criterion B

59. Proceeds are divided into three equal blocks. The first block is shared by all countries irrespective of per capita GDP level. The second block is shared by all countries with per capita GDP below $1,000 and the third block by those countries with per capita GDP under $150. Each block is shared proportionately to the countries' population share in that group.

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60. This distribution method, like criterion A, increases only the shares of those countries with a per capita GDP under $150, as compared to each country's share of world population. Countries with a GDP per capita slightly above $150 end up with shares of proceeds significantly smaller than their shares of world population.

61. Illustrative calculations:

	Somalia	Ceylon	Brazil

(1) First block: all countries as percentage of world population x 1/3:

0.0769 x 1/3 = 0.0256   0.3434 x 1/3 = 0.1145   2.5135 x 1/3 = 0.8378

(2) Second block: countries under $1,000 as percentage of population of this group x 1/3:

0.1054 x 1/3 = 0.0351   0.4709 x 1/3 = 0.1570   3.4469 x 1/3 = 1.1490

(3) Third block: countries under $150 as percentage of population of this group x 1/3:

0.1523 x 1/3 = 0.0508   —   —

(4) Total share:

(1) + (2) + (3)

0.1115   0.2715   1.9868

(5) Share of hypothetical $500 million:

0.1115% x $500 million   0.2715% x $500 million   1.9868% x $500 million
= $557,500   = $1,357,500   = $9,934,000

Criterion C

62. Similar to criterion B, except that the proceeds are divided into five blocks to be shared by: all countries; countries with per capita GDP under $1,000; countries with per capita GDP under $500; countries with per capita GDP under $250; and countries with per capita GDP under $100. The shares from each block are always proportionate to each country's population as a percentage of the total population of all countries in that group.

63. This method of distribution would result in all countries with incomes above $250 having a share of proceeds smaller than their share of population. Countries in the income group of $100 to $250 would receive a share of proceeds some 12 per cent above their share of population, while those with incomes below $100 would receive a share 93 per cent greater.

64. Illustrative calculations:

Somalia	Ceylon	Brazil

(1) First block: all countries as a percentage of world population x 1/5

$0.0769 \times 1/5 = 0.0154$ $0.3434 \times 1/5 = 0.0687$ $2.5135 \times 1/5 = 0.5027$

(2) Second block: countries under $1,000, as a percentage of population of that group x 1/5

$0.1034 \times 1/5 = 0.0211$ $0.4709 \times 1/5 = 0.0942$ $3.4469 \times 1/5 = 0.6894$

(3) Third block: countries under $500 as a percentage of population of that group x 1/5

$0.1143 \times 1/5 = 0.0229$ $0.5105 \times 1/5 = 0.1021$ $3.7366 \times 1/5 = 0.7473$

(4) Fourth block: countries under $250 as a percentage of population of that group x 1/5

$0.1352 \times 1/5 = 0.0270$ $0.6038 \times 1/5 = 0.1208$ –

(5) Fifth block: countries under $100 as a percentage of population of that group x 1/5

$0.3110 \times 1/5 = 0.0622$ –   –

(6) Total share: sum of shares in (1) + (2) + (3) + (4) + (5)

0.1486   0.3858   1.9394

(7) Share of hypothetical $500 million

0.1486% x $500 million   0.3858% x $500 million   1.9394% x $500 million
     = $743,000   = $1,929,000   = $9,697,000

Criterion D

65. The share of world population is used as a starting point. An arbitrary level of per capita GDP is chosen, $US500 in this example, so that those countries with GDP per capita above this level would have their share reduced by a certain factor. The amounts withdrawn from these countries would be redistributed to those countries below that income level. In table 2, countries with a per capita GDP above $500 keep a share of proceeds equal to their share of world population divided by the ratio of their per capita GDP over $500. For example, a country with $US2,000 would have a share of revenues equal to one quarter of its share of population ($2,000 ÷ $500 = 4; share of population ÷ 4 = 1/4 of share of population). For purposes of redistribution, the total amount withdrawn, from the initial shares based on population of those countries with a GDP per capita above $500, is divided into two equal blocks. The first block is distributed to all countries with GDP per capita under $500, proportionate to their population. The second block is shared to the least developed countries, which are assumed here to be those suggested by the Committee for Development Planning[13] again proportionate to their population. This formula would allow the international community to decide the level of per capita GDP above which countries would be awarded shares smaller than their share of world population, and below which countries would obtain a share of net revenues greater than their share of world population. This method, moreover, has the merit of resembling a progressive world income tax. It would permit the world community to determine the minimum level of GDP per capita subject to the "tax", as well as the degree of progressivity of this levy. By the same token, it would be possible to redistribute alternatively the "tax revenue" to the least developed countries in any desired way.

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[13] Committee for Development Planning, report on the seventh session (27 March-2 April) Official Records of the Economic and Social Council, fifty-first session, Supplement No. 7 (E/4990), chapter 2: "Least developed among developing countries in the context of the United Nations Second Development Decade; identification and special measures".

66. Illustrative calculations:

	Somalia	Ceylon	Brazil

(1) Half the shares "taxed" from countries with <u>per capita</u> GDP above $500, redistributed to all countries below $500, proportionate to the population of that group:

0.1143 x 10.2460 = 0.0117	0.5103 x 10.2460 = 0.0523	3.7367 x 10.2460 = 0.3829

(2) Other half of "taxed" shares redistributed to countries with <u>per capita</u> GDP up to $100:

0.1677 x 10.2460 = 0.0172	–	–

(3) Total share: (1) + (2) + share of world population:

0.0117 + 0.0172 + 0.0769 = 0.1058	0.0523 + 0.3434 = 0.3957	0.3829 + 2.5135 = 2.8964

(4) Share of hypothetical $500 million:

0.1058% x $500 million = $529,000	0.3957% x $500 million = $1,978,500	2.8964% x $500 million = $14,482,000

Criterion E

67. A variant of criterion D. Countries with GDP <u>per capita</u> above $500 would be "taxed" in the same way. The "tax revenue", however, would be redistributed in a progressive way with decreasing levels of <u>per capita</u> GDP starting from $500. The calculations for redistribution would be similar to criterion B involving the following steps: (1) ratio of $500 over each country's GDP <u>per capita</u>; (2) each country's population as a percentage of total population for country group under $500 GDP <u>per capita</u>; (3) ratio in (1) multiplied by population share of this group; (4) reducing all figures in (3) to percentage, i.e. dividing each country's figure by the sum total for all countries in this group; (5) multiplying share of each country in (4) by the "tax revenue" available for redistribution; (6) adding figures in (5) to countries' share of world population to obtain total share for countries with GDP <u>per capita</u> below $500.

68.   In this method the redistribution of the "tax revenue" is carried out along a smooth function inversely related to the level of per capita GDP of those countries below the level of $500.. A certain degree of inequity inherent in distributions based on discrete groupings is avoided.

69.   Illustrative calculations:

	Somalia	Ceylon	Brazil

(1)   Ratio of $500 over each country's per capita GDP

500/61 = 8.1967   500/159 = 3.1447   500/381 = 1.3123

(2)   Country's population as a percentage for all countries in group below $500

$\frac{2,620,000}{2,292,324,000}$ = 0.1143 $\frac{11,703,000}{2,292,324,000}$ = 0.5105 $\frac{85,655,000}{2,292,324,000}$ = 3.7367

(3)   Ratio in (1) multiplied by population share of this group as in (2)

8.1967 x 0.1143   3.1447 x 0.5105   1.3123 x 3.7367
   = 0.9369   = 1.6054   = 4.9037

(4)   Figure in (3) as percentage for all countries in this group

0.9369 ÷ 465.3195   1.6054 ÷ 465.3195   4.9037 ÷ 465.3195
   = 0.2013   = 0.3450   = 1.0538

(5)   Share of each country from "taxed shares" available for redistribution

0.2013 x 20.4921   0.3450 x 20.4921   1.0538 x 20.4921
   = 0.0413   = 0.0707   = 0.2160

(6)   Total share of each country: figure in (5) plus share of world population

0.0413 + 0.0769   0.0707 + 0.3434   0.2160 + 2.5135
   = 0.1182   = 0.4141   = 2.7295

(7)   Share of hypothetical $500 million proceeds

0.1182% x $500 million   0.4141% x $500 million   2.7295% x $500 million
   = $591,000   = $2,070,500   = $13,647,500

70.   The various criteria presented exemplifying possible distribution of net revenue of the international machinery are based primarily on population and levels of per capita income. No maximum or minimum limitations were made. It is possible, however, to introduce in any method a maximum share, as well as the minimum share

that any country would be entitled to no matter how small it may be. These
provisions are already used by international organizations, as for instance in the
assessment of contributing shares of member countries to cover the expenses of
the regular budget of the United Nations and the limitation set by the International
Development Association on loans granted annually to the two largest least
developed countries. The implications of establishing a ceiling on the maximum
share of proceeds from the international machinery to any one country is seen
by the fact that, by criterion E, for instance, two countries alone are granted
almost half (49.1 per cent) of total proceeds. If the maximum share of any one
country were limited to, for instance, 10 per cent of total proceeds, the other
developing countries would receive a significant increase in their shares,
amounting in the case of the least developed countries to over 50 per cent of
the shares derived in criterion E.

71. The international community might deem it appropriate to assign a certain
proportion of proceeds for direct distribution to the least developed among the
developing countries, before the general sharing to all countries. If such
procedure is decided upon, it would be necessary to agree on (1) the classification
of the least developed countries; (2) the proportion of proceeds earmarked for
this purpose, i.e. 5 per cent, 10 per cent, etc.; and (3) the formula for
distribution, which could either be a simple arithmetic division or a complex
formula taking into account any number of socio-economic indicators such as
level of income, population density, rate of increase in population, illiteracy
rate, access to the sea and others.

Table 2. Hypothetical distribution of net benefits from the exploration and exploitation of sea-bed resources directly to Governments - five alternative illustrative methods

Country	Per capita gross domestic product in 1968 (US dollars)	Population (mid-year 1967) (Thousands)	Population as a percentage of world total	A: Per capita benefits inversely related to per capita GDP*	B: Proceeds divided into equal blocks to be shared proportionate to population by countries in the following income groups: All countries up to $1,000 up to $150	C: All countries under $1,000 under $500 under $250	D: Two equal blocks shared proportionate to population: all up to $500; Least developed countries	E: Countries with income above $500 receive: share of world population divided by the ratio of their GDP per capita over $500. The total withdrawn from these countries is redistributed: Per capita benefits inversely related per capita GDP
Africa:								
Algeria	255	12,540	.3680	.2219	.2909	.2839	.4241	.4153
Angola	170	5,293	.1553	.1405	.1228	.1745	.1819	.1852
Botswana	99	593	.0174	.0270	.0255	.0337	.0626	.0232
Burundi	52	3,340	.0980	.2897	.1422	.1894	.3559	.1597
Cameroon	163	5,470	.1605	.1514	.1269	.1802	.1849	.1927
Central African Republic	122	1,459	.0428	.0539	.0622	.0481	.0493	.0543
Chad	70	3,430	.1006	.2209	.1460	.1944	.3655	.1477
Congo, Democratic Republic	85	16,354	.4799	.8889	.6963	.9273	.5530	.6692
Dahomey	83	2,505	.0735	.1361	.1066	.1421	.2662	.1025
Equatorial Guinea	100	277	.0081	.0124	.0118	.0091	.0111	.0107
Ethiopia	63	23,667	.6945	1.6947	1.0076	1.3420	2.6855	1.0554
Gabon	504	473	.0139	.0042	.0109	.0066	.0138	.0138
Gambia	122	343	.0101	.0127	.0146	.0113	.0016	.0028
Ghana	253	8,139	.2388	.1451	.1888	.1843	.2752	.2697
Guinea	87	3,702	.1086	.1919	.1576	.2099	.1948	.1495
Ivory Coast	279	4,010	.1177	.0649	.0930	.0908	.1356	.1315
Kenya	122	9,928	.2913	.3671	.4227	.3272	.3357	.3695
Lesotho	85	805	.0260	.0470	.0577	.0501	.0936	.0360
Liberia	297	1,110	.0326	.0169	.0258	.0838	.0376	.0362
Libya	1,276	1,758	.0510	.0061	.0170	.0102	.0200	.0200
Madagascar	116	6,350	.1865	.2469	.2703	.2093	.2147	.2389
Malawi	66	4,146	.1217	.2855	.1765	.2351	.4856	.1821
Mali	88	4,697	.1378	.2407	.1999	.2664	.4598	.1891
Mauritania	162	1,100	.0323	.0307	.0256	.0362	.0372	.0388
Mauritius	258	774	.0227	.0335	.0180	.0175	.0262	.0256

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Table 2 (continued)

				A	B	C	D	E
Africa (cont'd):								
Morocco	190	14,140	.4149	.3357	.3280	.4661	.4781	.4864
Mozambique.	159	7,124	.2090	.2021	.1653	.2354	.2408	.2520
Namibia	707	594	.0174	.0058	.0138	.0083	.0123	.0123
Niger	95	3,705	.1087	.1759	.1577	.2100	.3953	.1462
Nigeria	70	61,450	1.8032	3.9602	2.6162	3.4842	2.0779	2.6465
People's Republic								
of the Congo. . . .	265	860	.0252	.0146	.0199	.0195	.0290	.0283
Portuguese Guinea	150 a/	528	.0155	.0159	.0225	.0173	.0179	.0189
Rwanda.	46	3,306	.0970	.3242	.1407	.1874	.3522	.1660
Senegal	217	3,620	.1062	.0752	.0840	.1195	.1224	.1222
Sierra Leone.	161	2,439	.0716	.0684	.0566	.0804	.0825	.0862
Somalia	61	2,620	.0769	.1938	.1115	.1486	.2785	.1182
South Africa.	727	18,733	.5497	.1162	.4345	.2607	.3781	.3781
Southern								
Rhodesia.	229	4,780	.1403	.0942	.1109	.1576	.1617	.1604
Sudan	109	14,355	.4212	.5941	.6112	.4730	1.5833	.5477
Swaziland	194	385	.0113	.0090	.0090	.0128	.0130	.0132
Togo	135	1,724	.0506	.0585	.0734	.0568	.0583	.0631
Tunisia	210	4,819	.1414	.1035	.1117	.1588	.1629	.1635
Uganda.	98	7,934	.2328	.3652	.3577	.4500	.8578	.3106
United Arab								
Republic.	187	30,907	.9069	.7456	.7169	1.0188	1.0450	1.0657
United Republic								
of Tanzania . . .	73	11,261	.3304	.6958	.4794	.6385	1.2302	.4786
Upper Volta	49	5,054	.1483	.4653	.2151	.2866	.5415	.2474
Zambia.	516	3,945	.1158	.0563	.0915	.0894	.1334	.1278
Others.	-	1,235	.0361	.0401	.0505	.0505	.0552	.0446
Total, Africa		327,841	9.6198	14.2222	11.3550	13.8933	17.9887	12.4133
The Americas:								
Argentina	646	23,255	.6824	.1624	.5394	.3237	.5282	.5282
Bahamas	440 b/	144	.0042	.0015	.0033	.0033	.0048	.0045
Barbados.	423	249	.0073	.0027	.0057	.0057	.0084	.0079
Bolivia	166	4,561	.1338	.1239	.1058	.1504	.1542	.1602
Brazil.	381	85,655	2.5135	1.0142	1.9868	1.9394	2.8964	2.7295

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Table 2 (continued)

				A	B	C	D′	E
The Americas (cont'd):								
British Honduras	391	115	.0034	.0013	.0026	.0026	.0039	.0037
Canada	2,856	20,441	.5998	.0323	.1999	.1200	.1050	.1050
Chile	612	9,137	.2681	.0673	.2120	.1271	.2190	.2190
Colombia	519	19,191	.5631	.2714	.4451	.4345	.6489	.6209
Costa Rica	456	1,590	.0466	.0164	.0366	.0360	.0537	.0501
Cuba	440 b/	7,957	.2329	.0634	.1841	.1989	.2634	.2502
Dominican Republic	284	3,889	.1141	.0618	.0902	.0680	.1315	.1273
Ecuador	238	5,503	.1616	.1044	.1278	.1247	.1877	.1838
El Salvador	281	3,151	.0925	.0506	.0731	.0714	.1066	.1033
Grenada	440 b/	101	.0030	.0010	.0024	.0023	.0035	.0032
Guatemala	308	4,717	.1384	.0691	.1094	.1069	.1595	.1531
Guyana	352	698	.0205	.0090	.0162	.0158	.0256	.0224
Haiti	90	4,577	.1343	.2294	.1949	.2595	.4896	.1832
Honduras	254	2,333	.0685	.0415	.0541	.0529	.0789	.0773
Jamaica	557	1,876	.0550	.0152	.0435	.0261	.0494	.0494
Mexico	538	45,671	1.3402	.3830	1.0593	.6556	1.2456	1.2456
Nicaragua	379	1,783	.0523	.0212	.0413	.0405	.0603	.0568
Panama	602	1,329	.0390	.0100	.0308	.1148	.0324	.0324
Paraguay	228	2,161	.0654	.0428	.0501	.0713	.0731	.0725
Peru	290	12,385	.3634	.1926	.2872	.2805	.4187	.4044
St. Lucia	440 b/	105	.0031	.0011	.0024	.0023	.0036	.0033
St. Vincent	440 b/	91	.0027	.0009	.0021	.0020	.0031	.0029
Surinam	567	365	.0106	.0029	.0084	.0050	.0094	.0094
Trinidad and Tobago	826	1,010	.0296	.0055	.0234	.0140	.0179	.0179
United States	4,058	199,114	5.8429	.2224	1.9476	1.1686	.7234	.7234
Uruguay	620	2,783	.0817	.0203	.0645	.0387	.0659	.0659
Venezuela	986	9,352	.2744	.0428	.2169	.1302	.1392	.1392
Others		3,977	.1172	.0252	.0898	.0671	.0888	.0799
Total, Americas		479,249	14.0635	3.3275	8.2569	6.6598	9.0026	8.4358
Asia								
Afghanistan	88	15,751	.4622	.8074	.6706	.8951	1.7448	.6341
Bahrain	5,700 c/	193	.0057	.0002	.0019	.0011	.0008	.0008
Bhutan	83 d/	750	.0220	.0407	.0519	.0424	.0792	.0307
Brunei	320 e/	108	.0032	.0015	.0025	.0024	.0037	.0035
Burma	70	25,811	.7574	1.6634	1.0989	1.4635	.8728	1.1116

Table 2 (continued)

Asia (cont'd):				A	B	C	D	E
Ceylon	159	11,703	.3434	.3320	.2715	.3858	.3957	.4141
China, mainland	100 f/	720,000	21.1279	32.4806	30.6526	23.7312	24.3461	28.0442
China (Taiwan)	272	13,145	.3857	.2180	.3049	.2976	.4445	.4321
Cyprus	722	614	.0180	.0038	.0142	.0085	.0125	.0125
Hong Kong	602	3,834	.1125	.0287	.0889	.0534	.0934	.0934
India	81	511,125	14.9986	28.4665	21.7602	28.9815	17.2832	21.0601
Indonesia	94	110,079	3.2302	5.2829	4.6864	6.2414	3.7222	4.3551
Iran	300	26,284	.7713	.3953	.6097	.5951	.8888	.8555
Iraq	273	8,725	.2560	.1442	.2023	.1975	.2950	.2867
Israel	1,510	2,669	.0785	.0080	.0261	.0157	.0259	.0259
Japan	1,201	99,918	2.9320	.3753	.9773	.5864	1.2206	1.2206
Jordan	267	2,040	.0599	.0345	.0474	.0462	.0690	.0673
Korea, Democratic People's Republic of	160 g/	12,700	.3727	.3581	.2946	.4185	.4295	.4490
Kuwait	3,757	650	.0191	.0008	.0064	.0038	.0025	.0025
Khmer Republic	134	6,415	.1882	.2159	.2731	.2114	.2169	.2342
Laos	70	2,759	.0810	.1779	.1175	.1565	.2955	.1189
Lebanon	484	2,520	.0739	.0235	.0584	.0571	.0852	.0789
Malaysia	324	10,034	.2944	.1399	.2327	.2271	.3393	.3242
Maldives	129	104	.0030	.0036	.0044	.0034	.0035	.0038
Mongolia	400	1,174	.0344	.0132	.0272	.0265	.0396	.0372
Muscat and Oman	200 h/	565	.0166	.0128	.0131	.0185	.0191	.0193
Nepal	83	10,463	.3070	.5686	.4454	.5953	1.1403	.4281
Pakistan	129	107,258	3.1474	3.7508	4.5663	3.5253	3.6268	3.9461
People's Democratic Republic of Yemen	200	1,170	.0343	.0264	.0271	.0386	.0395	.0399
Philippines	305 i/	34,656	1.0169	.5126	.8039	.7847	1.1718	1.1260
Qatar	3,700 c/	75	.0022	.0001	.0007	.0004	.0003	.0003
Republic of Korea	159	29,784	.8740	.8451	.6908	.9817	1.0071	1.0539
Republic of Viet-Nam	168	16,973	.4981	.4558	.3941	.5594	.5740	.5952
Saudi Arabia	458	6,990	.2051	.0689	.1622	.1583	.2363	.2198
Sikkim	83 d/	183	.0054	.0100	.0078	.0104	.0193	.0075
Singapore	638	2,956	.0574	.0138	.0453	.0272	.0450	.0450
Syria	211	5,540	.1626	.1185	.1285	.1826	.1902	.1878
Thailand	155	32,680	.9590	.9512	.7581	1.0751	1.1051	1.1615
Trucial Oman	3,700 c/	180	.0053	.0002	.0018	.0011	.0007	.0007

Table 2 (continued)

			A	B	C	D	E
Asia (cont'd)							
Turkey	352	.9603	.4194	.7591	.7410	1.1066	1.0496
Viet-Nam, Democratic Republic of . .	180 i/	.5898	.5037	.4662	.5170	.6796	.6971
Yemen	110	.1467	.2050	.2129	.1647	.5356	.1904
Others	-	.1118	.0859	.1245	.1540	.1747	.1287
Total, Asia . . .	1,899,152	55.7309	79.7647	72.0694	74.1804	64.5802	70.7938
Europe							
Albania	300 j/	.0577	.0296	.0456	.0615	.0665	.0640
Austria	1,465	.2149	.0225	.0716	.0430	.0734	.0734
Belgium	2,019	.2811	.0214	.0937	.0562	.0696	.0696
Bulgaria	973	.2438	.0385	.1928	.1157	.1253	.1253
Czechoslovakia . .	14,305	.4198	.0416	.1399	.0840	.1554	.1554
Denmark	4,839	.1420	.0087	.0473	.0284	.0282	.0282
Finland	4,666	.1369	.0112	.0456	.0274	.0363	.0363
France	49,548	1.4539	.0956	.4846	.2908	.3110	.3110
German Democratic Republic	16,001	.4695	.0446	.1565	.0939	.1451	.1451
Germany, Federal Republic	57,699	1.6931	.1211	.5644	.5386	.3940	.3940
Greece	8,716	.2558	.0496	.2022	.1213	.1615	.1615
Hungary	10,217	.2998	.0417	.0999	.0600	.1355	.1355
Iceland	199	.0058	.0003	.0019	.0012	.0011	.0011
Ireland	2,899	.0851	.0124	.0284	.0170	.0404	.0404
Italy	52,354	1.5363	.1774	.5121	.3073	.5772	.5772
Luxembourg	335	.0098	.0007	.0033	.0020	.0023	.0023
Malta	319	.0094	.0026	.0074	.0045	.0086	.0086
Netherlands . . .	12,597	.3696	.0315	.1232	.0739	.1024	.1024
Norway	3,784	.1110	.0076	.0370	.0222	.0246	.0246
Poland	31,944	.9574	.1332	.3125	.1875	.4332	.4332
Portugal	9,382	.2753	.0867	.2176	.2125	.3172	.2938
Romania	19,285	.5659	.1098	.4473	.2684	.3573	.3573
Spain	32,291	.9476	.1757	.7490	.4494	.5715	.5715
Sweden	7,868	.2309	.0116	.0770	.0462	.0576	.0576
Switzerland . . .	6,071	.1781	.0107	.0492	.0356	.0349	.0349

Table 2 (continued)

				A	B	C	D	E
Europe (cont'd)								
United Kingdom	1,976	55,068	1.6159	.1257	.5386	.3232	.4088	.4088
USSR	1,184	235,520	6.9112	.8974	2.3037	1.3822	2.9186	2.9186
Yugoslavia	475	19,949	.5854	.1895	.4627	.3464	.6746	.6258
Others	—	306	.0091	.0009	.0045	.0057	.0023	.0030
Total, Europe		685,341	20.0521	2.4998	8.0195	5.0060	8.1944	8.1204
Oceania								
Australia	2,295	11,810	.3466	.0232	.1155	.0693	.0755	.0755
Fiji	129 k/	490	.0144	.0172	.0209	.0162	.0166	.0181
New Zealand	2,039	2,726	.0800	.0060	.0267	.0160	.0196	.0196
Others	—	3,204	.0936	.1394	.1361	.1590	.1224	.1235
Total, Oceania		18,230	.5346	.1858	.2992	.2605	.2341	.2367
SUMMARY								
Total, Africa		327,841	9.6198	14.2222	11.3550	13.8933	17.9887	12.4133
Total, Americas		479,249	14.0635	3.3275	8.2569	6.6598	9.0026	8.4358
Total, Asia		1,899,152	55.7309	79.7647	72.0694	74.1804	64.5802	70.7938
Total, Europe		683,341	20.0521	2.4998	8.0195	5.0060	8.1944	8.1204
Total, Oceania		18,230	.5346	.1858	.2992	.2605	.2341	.2367
World total		3,407,813	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000

Source: United Nations, Demographic Yearbook; United Nations, Monthly Bulletin of Statistics; United Nations, Yearbook of National Accounts Statistics.

Notes: The per capita GDP for countries without published figures were estimated on the basis of figures for countries with similar economies, as indicated in the following notes; calculations based on data for 1968.

a/ Average of Senegal and Guinea.

b/ Arithmetic average of Barbados, Guyana and Jamaica.

c/ Based on Kuwait.

(Foot-notes to table 2 continued on following page)

Table 2 (continued)

d/ Based on Nepal.

e/ Based on figure for West Malaysia.

f/ Based on gross national product of 73.3 billion US dollars for 1965, assuming that per capita gross domestic product remained unchanged from 1965 to 1967 (period of the Cultural Revolution); E.F. Jones, "The Emerging Pattern of China's Economic Revolution", in An Economic Profile of Mainland China, Joint Economic Committee, Congress of the United States, 90th Congress, 1st session, page 96.

g/ Based on figure for Republic of Korea.

h/ Based on People's Democratic Republic of Yemen.

i/ Based on Republic of Viet-Nam.

j/ Based on southern provinces of Yugoslavia.

k/ Based on average of all Asia.

The designations employed and the presentation of the material in this table do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

*Note on criterion A: The countries' shares based on population are inflated or deflated by the percentage difference from each country's per capita GDP from the world's weighed per capita GDP, in such a way that if country X has a per capita GDP ten times that of country Y, benefits per capita in the latter would be ten times greater than in the former.

GDP_i: gross domestic product of each country.

GDP_t: gross domestic product of all countries.

N_i : population of each country.

N_t : population of all countries.

i. $\dfrac{\Sigma GDP_i}{\Sigma N_i} = \dfrac{GDP_t}{N_t}$

ii. for each country

$\dfrac{\frac{GDP_t}{N_t}}{\frac{GDP_i}{N_i}} \times \dfrac{N_i}{N_t} =$

$= \dfrac{GDP_t}{GDP_i} \times \dfrac{\left(N_i\right)}{\left(N_t\right)}$

iii. and allowing for differential levels of GDP:

$\dfrac{GDP_t}{GDP_i} \times \left(\dfrac{N_i}{N_t}\right)^2$

iv. each country's share becomes

$\dfrac{\frac{GDP_t}{GDP_i} \times \left(\frac{N_i}{N_t}\right)^2}{\sum \frac{GDP_t}{GDP_i} \left(\frac{N_i}{N_t}\right)^2}$

(b) Allocation to programmes of special interest to developing countries

72.   Naturally, if proceeds are distributed directly to all Governments, the
possible share of each country will only become meaningful when the total volume
of proceeds reaches a certain minimum. For instance, in the example of the
hypothetical $500 million net revenue distributed directly to States according to
criterion E, the actual shares of Somalia, Ceylon and Brazil would only amount to
2.0 per cent, 0.6 per cent and 0.7 per cent of their respective export earnings
in 1958. Since even this level of net revenue for the international machinery is
not very likely to be attained before the 1980s, each country's share as a
percentage of their export earnings at that time would be considerably lower.[14]
Thus, until the net revenues of the international machinery reach a certain minimum
amount, the direct distribution to all States would be of relatively minor
consequence to individual countries and would hardly have any impact on
international development.

73. Alternatively, until the proceeds reach a certain magnitude, it might be
conceivable to concentrate the available funds on programmes - regional or national
to promote development in the least developed countries. Such programmes could
perhaps be administered by existing international organizations, with the implicit
savings in overhead expenditures, under guidelines to be established by the
international community.

74.   The impact of such an approach, during the early stages of sea-bed resources
development, could be quite considerable. As even some of the more advanced
developing countries would be contributing their share - no matter how small it
may be - this example of international concern for the least developed countries
would make possible concerted effort towards narrowing the gap between the two
extremes of world income levels. It may be recalled that the least developed
countries at present do not benefit extensively from the programmes of existing
international lending organizations.

75.   The least developed countries would derive considerable benefit from such a
programme of international co-operation. A hypothetical $500 million distributed
to these countries would amount to an average of 4.4 per cent of their GDP in 1968.

14/ Assuming that the export growth target of 7 per cent per year for the
Second Development Decade will be attained; and that the hypothetical $500 million
proceeds will be available by 1980, their share of proceeds as a percentage of
their export earnings in 1980 would be: Somalia 0.9 per cent; Ceylon 0.3 per cent
and Brazil 0.3 per cent.

If these sums were actually invested, they might be able to accelerate development
in these countries by an additional 2 per cent per year. In table 3, it is shown
that these countries' shares of the hypotehtical $500 million would represent in
most cases over one-third of their export income in 1968. The additional capital
resources and professional skills, which could be made available by concentrating,
for instance until 1980 the flow of net proceeds to the least developed countries,
might be a meaningful contribution towards the achievement by these countries
of the targets of the Second United Nations Development Decade.

76. It is possible to envisage that these funds might, in part, be used to finance
certain international or regional programmes of interest to developing countries.
Under such an arrangement, the developing countries could have a decisive say in
the planning and management of the programmes of interest to them, in contrast with
most "foreign aid" schemes. This approach to distribution of net proceeds should,
in principle, take place under conditions that should not affect existing
multilateral and bilateral aid programmes. Some examples of these programmes, which
could be administered at the global or regional level are: (a) educational
programmes designed to supply the skills required for the implementation of economic
development plans in developing countries; (b) development of labour intensive
technology which might be more appropriate for the industrial requirements of
developing countries; (c) surveys of natural resource availability in developing
countries, which could be brought into use to promote development; (d) comprehensive
programmes for the development of infrastructure services: transportation, energy,
communications, water, etc. These programmes could be geared to financing of
general surveys in the context of the developing countries plans; pre-feasibility
studies to determine priorities; and the preparation of detailed projects, which
could then be submitted to existing multilateral or bilateral organizations for
financing; (e) arrangements to permit the developing countries which presently
import crude petroleum, to purchase at least part of their requirements, from the
producers in the area beyond national jurisdiction, at the best prices prevailing
for the large buyers in the industrial countries with the exemption of the
international machinery "take".[15]

77. The distributive methods and criteria presented in this report are by no
means exhaustive of the possible alternatives for distribution of net proceeds

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15/ See Secretary-General's Report A/AC.138/36.

Table 3. Allocation to least developed countries of hypothetical
500 million dollars: based on share of population in
this group

Country	GDP in 1968 (million $US) 1/	Exports in 1968 (million $US)	Population in thousands 1967 3/	By percentage of group	Share of hypothetical 500 million dollars available for distribution (000 of $US)
Africa:					
Botswana	65	...	593	.4363	2,181
Burundi	180	...	3,340	2.4573	12,286
Chad	252	28	3,430	2.5235	12,617
Dahomey	233	22	2,505	1.8430	9,215
Ethiopia	1,551	106	23,667	7.4123	87,061
Guinea	337	...	3,702	2.7236	13,618
Lesotho	76	...	885	.6511	3,255
Mali	439	11	4,697	3.4557	17,278
Malawi	294	48	4,146	3.0503	15,251
Niger	340	38	3,705	2.7258	13,629
Rwanda	146	...	3,306	2.4323	12,161
Somalia	170	30	2,620	1.9276	9,638
Sudan	1,694	233	14,355	10.5613	52,806
Uganda	772	186	7,934	5.8372	29,186
United Rep. of Tanzania	871	227	12,261	9.0207	45,103
Uper Volta	265	21	5,054	3.7183	18,591
Asia:					
Afghanistan	1,473	...	15,751	11.5883	57,941
Bhutan	...	...	750	.5518	2,759
Laos	202	6	2,759	2.0299	10,149
Maldives	...	...	104	.0765	382
Nepal	872	...	10,463	7.6979	38,489
Sikhim	...	...	183	.1346	673
W. Samoa	...	...	134	.0986	493
Yemen	550	110	5,000	3.6786	18,393
The Americas:					
Haiti	386	36	4,577	3.3674	16,837

Source: Secretariat of the United Nations.

1/ Yearbook of National Accounts Statistics, 1969.
2/ Yearbook of International Trade Statistics, 1968.
3/ Monthly Bulletin of Statistics, Dec., 1970.

available to the international machinery. Once the international community decides on the nature of the regime and machinery, and the delimitation of the area beyond national jurisdiction, and more information is available on the technology and economics of deep-sea mining and petroleum exploitation, it will be necessary to elaborate in greater depth various methods and criteria for equitable sharing of benefits generated in the area, taking into account the special needs and interests of the developing countries.