REGULATION OF ANTARCTIC MINERAL RESOURCE ACTIVITIES

Introductory note

In the course of the discussion leading to the negotiation of the Antarctic Treaty in 1959 the question was raised as to whether the Treaty should cover the question of mineral exploration and exploitation. It was concluded that to do so would be premature. In 1970, following inquiries from geophysical prospecting companies about the possibility of prospecting in the ocean surrounding Antarctica the Consultative Parties first came to consider the matter at the Sixth Consultative Meeting. It was understood that the question of how Antarctic mineral activity was to be regulated, were it ever to occur, would not now go away. It was not until eleven years later that the Consultative Parties agreed to recommend (XI-1) the convening of a Special Consultative Meeting to elaborate a regime governing Antarctic mineral resource development should it ever come about.

The Consultative Parties appreciated that the knowledge they possessed about Antarctica placed an obligation on them to consider the possible environmental consequences of mineral activity in the Antarctic. The matter was put to SCAR where a group of relevant scientists concluded, in effect, that the risks, while great, were not such as to rule out mineral activity *ab initio*. The main documents on this aspect are the 'Report of the SCAR Group of Specialists on the Environmental Impact Assessment of Mineral Exploration/Exploitation (EAMREA)' prepared at the request of the Eighth Consultative Meeting and the Special Preparatory Meeting (for the Ninth Consultative Meeting) held in Paris in June 1976; 'The Report of the Group of Experts on Mineral Exploration and Exploitation' prepared at a meeting held in conjunction with the Ninth Consultative Meeting and 'The Report of the Group of Ecological, Technological and other related Experts on Mineral Exploration and Exploitation in Antarctica' convened in accordance with Recommendation IX-1(3) and held in June 1979 in conjunction with the preparatory meeting for the Tenth Consultative Meeting.

The Consultative Parties, at the Ninth Consultative Meeting, agreed (Recommendation IX-1, para 8) to 'urge their nationals and other States to refrain from all exploration and exploitation of Antarctic mineral resources while making progress towards the timely adoption of an agreed regime...' The most important difference between Recommendations X-1 and XI-1 is that in X-1 there is nothing akin to paragraph 6 of XI-1 on the position of states regarding territorial sovereignty in the Antarctic. It was the negotiation of this paragraph that made possible the insertion of paragraphs 2 and 3 in XI-1 which, together, constituted the agreement to embark on the negotiation of a regime.

Recommendation VIII-14(3)(ii) invites SCAR to 'continue to co-ordinate national geological and geophysical research programmes in the Antarctic Treaty Area with the aim of obtaining fundamental scientific data on the geological structure of the Antarctic'.

It was recognized that such investigations would in some instances use methods that were virtually indistinguishable from those used in prospecting. The difference, however, lay in the requirement that applied to such investigations for prior notification under Article VII(5) of the Antarctic Treaty (as elaborated in Recommendation VII-6) and in the requirement for observations to be made freely available under Article III(1)(c)

The Convention on the Regulation of Antarctic mineral Resource Activities (CRAMRA) was concluded at Wellington on 2 June 1988 after six years of negotiation. It was a necessary condition for the entry into force of the Convention that all states with claims to territorial sovereignty in Antarctica should be parties to it. In 1989 it became apparent that this would not happen. The present situation is that all mineral resource activities, except scientific research, are prohibited under Article 7 of the Protocol on Environmental Protection to the Antarctic Treaty. Article 25 of the Protocol lays down the conditions for amendment of, *inter alia*, Article 7. The Convention has not been ratified by any state.

Convention on the Regulation of Antarctic Mineral Resource Activities

Preamble

The States Parties to this Convention, hereinafter referred to as the Parties,

Recalling the provisions of the Antarctic Treaty;

Convinced that the Antarctic Treaty system has proved effective in promoting international harmony in furtherance of the purposes and principles of the Charter of the United Nations, in ensuring the absence of any measures of a military nature and the protection of the Antarctic environment and in promoting freedom of scientific research in Antarctica;

Reaffirming that it is in the interest of all mankind that the Antarctic Treaty area shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Noting the possibility that exploitable mineral resources may exist in Antarctica;

Bearing in mind the special legal and political status of Antarctica and the special responsibility of the Antarctic Treaty Consultative Parties to ensure that all activities in Antarctica are consistent with the purposes and principles of the Antarctic Treaty;

Bearing in mind also that a regime for Antarctic mineral resources must be consistent with Article IV of the Antarctic Treaty and in accordance therewith be without prejudice and acceptable to those States which assert rights of or claims to territorial sovereignty in Antarctica, and those States which neither recognise nor assert such rights or claims,

including those States which assert a basis of claim to territorial sovereignty in Antarctica;

Noting the unique ecological, scientific and wilderness value of Antarctica and the importance of Antarctica to the global environment;

Recognising that Antarctic mineral resource activities could adversely affect the Antarctic environment or dependent or associated ecosystems;

Believing that the protection of the Antarctic environment and dependent and associated ecosystems must be a basic consideration in decisions taken on possible Antarctic mineral resource activities;

Concerned to ensure that Antarctic mineral resource activities, should they occur, are compatible with scientific investigation in Antarctica and other legitimate uses of Antarctica;

Believing that a regime governing Antarctic mineral resource activities will further strengthen the Antarctic Treaty system;

Convinced that participation in Antarctic mineral resource activities should be open to all States which have an interest in such activities and subscribe to a regime governing them and that the special situation of developing country Parties to the regime should be taken into account.

Believing that the effective regulation of Antarctic mineral resource activities is in the interest of the international community as a whole;

HAVE AGREED as follows:

Chapter I: General Provisions

Article 1. Definitions

For the purposes of this Convention:

1. 'Antarctic Treaty' means the Antarctic Treaty done at Washington on 1 December 1959.
2. 'Antarctic Treaty Consultative Parties' means the Contracting Parties to the Antarctic Treaty entitled to appoint representatives to participate in the meetings referred to in Article IX of that Treaty.
3. 'Antarctic Treaty area' means the area to which the provisions of the Antarctic Treaty apply in accordance with Article VI of that Treaty.
4. 'Convention for the Conservation of Antarctic Seals' means the Convention done at London on 1 June 1972.
5. 'Convention on the Conservation of Antarctic Marine Living Resources' means the Convention done at Canberra on 20 May 1980.

6. ‘Mineral resources’ means all non-living natural non-renewable resources, including fossil fuels, metallic and non-metallic minerals.
7. ‘Antarctic mineral resource activities’ means prospecting, exploration or development, but does not include scientific research activities within the meaning of Article III of the Antarctic Treaty.
8. ‘Prospecting’ means activities, including logistic support, aimed at identifying areas of mineral resource potential for possible exploration and development, including geological, geochemical and geophysical investigations and field observations, the use of remote sensing techniques and collection of surface, seafloor and sub-ice samples. Such activities do not include dredging and excavations, except for the purpose of obtaining small-scale samples, or drilling, except shallow drilling into rock and sediment to depths not exceeding 25 metres, or such other depth as the Commission may determine for particular circumstances.
9. ‘Exploration’ means activities, including logistic support, aimed at identifying and evaluating specific mineral resource occurrences or deposits, including exploratory drilling, dredging and other surface or subsurface excavations required to determine the nature and size of mineral resource deposits and the feasibility of their development, but excluding pilot projects or commercial production.
10. ‘Development’ means activities, including logistic support, which take place following exploration and are aimed at or associated with exploitation of specific mineral resource deposits, including pilot projects, processing, storage and transport activities.
11. ‘Operator’ means:
    a) a Party; or
    b) an agency or instrumentality of a Party; or
    c) a juridical person established under the law of a Party; or
    d) a joint venture consisting exclusively of any combination of any of the foregoing,
    e) which is undertaking Antarctic mineral resource activities and for which there is a Sponsoring State.
12. ‘Sponsoring State’ means the Party with which an Operator has a substantial and genuine link, through being:
    a) in the case of a Party, that Party;
    b) in the case of an agency or instrumentality of a Party, that Party;
    c) in the case of a juridical person other than an agency or instrumentality of a Party, the Party:
        i) under whose law that juridical person is established and to whose law it is subject, without prejudice to any other law which might be applicable, and
        ii) in whose territory the management of that juridical person is located, and
        iii) to whose effective control that juridical person is subject;
    f) in the case of a joint venture not constituting a juridical person:
        i) where the managing member of the joint venture is a Party or an agency or instrumentality of a Party, that Party; or

ii) in any other case, where in relation to a Party the managing member of the joint venture satisfies the requirements of subparagraph (c) above, that Party.

13. 'Managing member of the joint venture' means that member which the participating members in the joint venture have by agreement designated as having responsibility for central management of the joint venture, including the functions of organising and supervising the activities to be undertaken, and controlling the financial resources involved.

14. 'Effective control' means the ability of the Sponsoring State to ensure the availability of substantial resources of the Operator for purposes connected with the implementation of this Convention, through the location of such resources in the territory of the Sponsoring State or otherwise.

15. 'Damage to the Antarctic environment or dependent or associated ecosystems' means any impact on the living or non-living components of that environment or those ecosystems, including harm to atmospheric, marine or terrestrial life, beyond that which is negligible or which has been assessed and judged to be acceptable pursuant to this Convention.

16. 'Commission' means the Antarctic Mineral Resources Commission established pursuant to Article 18.

17. 'Regulatory Committee' means an Antarctic Mineral Resources Regulatory Committee established pursuant to Article 29.

18. 'Advisory Committee' means the Scientific, Technical and Environmental Advisory Committee established pursuant to Article 23.

19. 'Special Meeting of Parties' means the Meeting referred to in Article 28.

20. 'Arbitral Tribunal' means an Arbitral Tribunal constituted as provided for in the Annex, which forms an integral part of this Convention.

Article 2. Objectives and General Principles

1. This Convention is an integral part of the Antarctic Treaty system, comprising the Antarctic Treaty, the measures in effect under that Treaty, and its associated separate legal instruments, the prime purpose of which is to ensure that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord. The Parties provide through this Convention, the principles it establishes, the rules it prescribes, the institutions it creates and the decisions adopted pursuant to it, a means for:
   a) assessing the possible impact on the environment of Antarctic mineral resource activities;
   b) determining whether Antarctic mineral resource activities are acceptable;
   c) governing the conduct of such Antarctic mineral resource activities as may be found acceptable; and
   d) ensuring that any Antarctic mineral resource activities are undertaken in strict conformity with this Convention.

2. In implementing this Convention, the Parties shall ensure that Antarctic mineral resource activities, should they occur, take place in a manner consistent with all the components of the Antarctic Treaty system and the obligations flowing therefrom.
3. In relation to Antarctic mineral resource activities, should they occur, the Parties acknowledge the special responsibility of the Antarctic Treaty Consultative Parties for the protection of the environment and the need to:
   a) protect the Antarctic environment and dependent and associated ecosystems;
   b) respect Antarctica's significance for, and influence on, the global environment;
   c) respect other legitimate uses of Antarctica;
   d) respect Antarctica's scientific value and aesthetic and wilderness qualities;
   e) ensure the safety of operations in Antarctica;
   f) promote opportunities for fair and effective participation of all Parties; and
   g) take into account the interests of the international community as a whole.

Article 3. Prohibition of Antarctic Mineral Resource Activities Outside this Convention

No Antarctic mineral resource activities shall be conducted except in accordance with this Convention and measures in effect pursuant to it and, in the case of exploration or development, with a Management Scheme approved pursuant to Article 48 or 54.

Article 4. Principles Concerning Judgments on Antarctic Mineral Resource Activities

1. Decisions about Antarctic mineral resource activities shall be based upon information adequate to enable informed judgments to be made about their possible impacts and no such activities shall take place unless this information is available for decisions relevant to those activities.
2. No Antarctic mineral resource activity shall take place until it is judged, based upon assessment of its possible impacts on the Antarctic environment and on dependent and on associated ecosystems, that the activity in question would not cause:
   a) significant adverse effects on air and water quality;
   b) significant changes in atmospheric, terrestrial or marine environments;
   c) significant changes in the distribution, abundance or productivity of populations of species of fauna or flora;
   d) further jeopardy to endangered or threatened species or populations of such species; or
   e) degradation of, or substantial risk to, areas of special biological, scientific, historic, aesthetic or wilderness significance.
3. No Antarctic mineral resource activity shall take place until it is judged, based upon assessment of its possible impacts, that the activity in question would not cause significant adverse effects on global or regional climate or weather patterns.
4. No Antarctic mineral resource activity shall take place until it is judged that:

f) technology and procedures are available to provide for safe operations and compliance with paragraphs 2 and 3 above;
g) there exists the capacity to monitor key environmental parameters and ecosystem components so as to identify any adverse effects of such activity and to provide for the modification of operating procedures as may be necessary in the light of the results of monitoring or increased knowledge of the Antarctic environment or dependent or associated ecosystems; and
h) there exists the capacity to respond effectively to accidents, particularly those with potential environmental effects.

5. The judgments referred to in paragraphs 2, 3 and 4 above shall take into account the cumulative impacts of possible Antarctic mineral resource activities both by themselves and in combination with other such activities and other uses of Antarctica.

Article 5. Area of Application

1. This Convention shall, subject to paragraphs 2, 3 and 4 below, apply to the Antarctic Treaty area.
2. Without prejudice to the responsibilities of the Antarctic Treaty Consultative Parties under the Antarctic Treaty and measures pursuant to it, the Parties agree that this Convention shall regulate Antarctic mineral resource activities which take place on the continent of Antarctica and all Antarctic islands, including all ice shelves, south of 60° south latitude and in the seabed and subsoil of adjacent offshore areas up to the deep seabed.
3. For the purposes of this Convention 'deep seabed' means the seabed and subsoil beyond the geographic extent of the continental shelf as the term continental shelf is defined in accordance with international law.
4. Nothing in this Article shall be construed as limiting the application of other Articles of this Convention in so far as they relate to possible impacts outside the area referred to in paragraphs 1 and 2 above, including impacts on dependent or on associated ecosystems.

Article 6. Cooperation and International Participation

In the implementation of this Convention cooperation within its framework shall be promoted and encouragement given to international participation in Antarctic mineral resource activities by interested Parties which are Antarctic Treaty Consultative Parties and by other interested Parties, in particular, developing countries in either category. Such participation may be realised through the Parties themselves and their Operators.

Article 7. Compliance with this Convention

1. Each Party shall take appropriate measures within its competence to ensure compliance with this Convention and any measures in effect pursuant to it.

2. If a Party is prevented by the exercise of jurisdiction by another Party from ensuring compliance in accordance with paragraph 1 above, it shall not, to the extent that it is so prevented, bear responsibility for that failure to ensure compliance.
3. If any jurisdictional dispute related to compliance with this Convention or any measure in effect pursuant to it arises between two or more Parties, the Parties concerned shall immediately consult together with a view to reaching a mutually acceptable solution.
4. Each Party shall notify the Executive Secretary, for circulation to all other Parties, of the measures taken pursuant to paragraph 1 above.
5. Each Party shall exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any Antarctic mineral resource activities contrary to the objectives and principles of this Convention.
6. Each Party may, whenever it deems it necessary, draw the attention of the Commission to any activity which in its opinion affects the implementation of the objectives and principles of this Convention.
7. The Commission shall draw the attention of all Parties to any activity which, in the opinion of the Commission, affects the implementation of the objectives and principles of this Convention or the compliance by any Party with its obligations under this Convention and any measures in effect pursuant to it.
8. The Commission shall draw the attention of any State which is not a Party to this Convention to any activity undertaken by that State, its agencies or instrumentalities, natural or juridical persons, ships, aircraft or other means of transportation which, in the opinion of the Commission, affects the implementation of the objectives and principles of this Convention. The Commission shall inform all Parties accordingly.
9. Nothing in this Article shall affect the operation of Article 127 of this Convention or Article VIII of the Antarctic Treaty.

Article 8. Response Action and Liability

1. An Operator undertaking any Antarctic mineral resource activity shall take necessary and timely response action, including prevention, containment, clean up and removal measures, if the activity results in or threatens to result in damage to the Antarctic environment or dependent or associated ecosystems. The Operator, through its Sponsoring State, shall notify the Executive Secretary, for circulation to the relevant institutions of this Convention and to all Parties, of action taken pursuant to this paragraph.
2. An Operator shall be strictly liable for:
   a) damage to the Antarctic environment or dependent or associated ecosystems arising from its Antarctic mineral resource activities, including payment in the event that there has been no restoration to the status quo ante;

b) loss of or impairment to an established use, as referred to in Article 15, or loss of or impairment to an established use of dependent or associated ecosystems, arising directly out of damage described in subparagraph (a) above;
c) loss of or damage to property of a third party or loss of life or personal injury of a third party arising directly out of damage described in subparagraph (a) above; and
d) reimbursement of reasonable costs by whomsoever incurred relating to necessary response action, including prevention, containment, clean up and removal measures, and action taken to restore the status quo ante where Antarctic mineral resource activities undertaken by that Operator result in or threaten to result in damage to the Antarctic environment or dependent or associated ecosystems.

3.

a) Damage of the kind referred to in paragraph 2 above which would not have occurred or continued if the Sponsoring State had carried out its obligations under this Convention with respect to its Operator shall, in accordance with international law, entail liability of that Sponsoring State. Such liability shall be limited to that portion of liability not satisfied by the Operator or otherwise.
b) Nothing in subparagraph (a) above shall affect the application of the rules of international law applicable in the event that damage not referred to in that subparagraph would not have occurred or continued if the Sponsoring State had carried out its obligations under this Convention with respect to its Operator.

4. An Operator shall not be liable pursuant to paragraph 2 above if it proves that the damage has been caused directly by, and to the extent that it has been caused directly by:
   a) an event constituting in the circumstances of Antarctica a natural disaster of an exceptional character which could not reasonably have been foreseen; or
   b) armed conflict, should it occur notwithstanding the Antarctic Treaty, or an act of terrorism directed against the activities of the Operator, against which no reasonable precautionary measures could have been effective.
5. Liability of an Operator for any loss of life, personal injury or loss of or damage to property other than that governed by this Article shall be regulated by applicable law and procedures.
6. If an Operator proves that damage has been caused totally or in part by an intentional or grossly negligent act or omission of the party seeking redress, that Operator may be relieved totally or in part from its obligation to pay compensation in respect of the damage suffered by such party.
7.

a) Further rules and procedures in respect of the provisions on liability set out in this Article shall be elaborated through a separate Protocol which shall be adopted by consensus by the members of the Commission and shall enter into force according to the procedure provided for in Article 62 for the entry into force of this Convention.
b) Such rules and procedures shall be designed to enhance the protection of the Antarctic environment and dependent and associated ecosystems.
c) Such rules and procedures:

i) may contain provisions for appropriate limits on liability, where such limits can be justified;
ii) without prejudice to Article 57, shall prescribe means and mechanisms such as a claims tribunal or other fora by which claims against Operators pursuant to this Article may be assessed and adjudicated;
iii) shall ensure that a means is provided to assist with immediate response action, and to satisfy liability under paragraph 2 above in the event, *inter alia*, that an Operator liable is financially incapable of meeting its obligation in full, that it exceeds any relevant limits of liability, that there is a defence to liability or that the loss or damage is of undetermined origin. Unless it is determined during the elaboration of the Protocol that there are other effective means of meeting these objectives, the Protocol shall establish a Fund or Funds and make provision in respect of such Fund or Funds, *inter alia*, for the following:
- financing by Operators or on industry wide bases;
- ensuring the permanent liquidity and mandatory supplementation thereof in the event of insufficiency;
- reimbursement of costs of response action, by whomsoever incurred.

8. Nothing in paragraphs 4, 6 and 7 above or in the Protocol adopted pursuant to paragraph 7 shall affect in any way the provisions of paragraph 1 above.

9. No application for an exploration or development permit shall be made until the Protocol provided for in paragraph 7 above is in force for the Party lodging such application.

10. Each Party, pending the entry into force for it of the Protocol provided for in paragraph 7 above, shall ensure, consistently with Article 7 and in accordance with its legal system, that recourse is available in its national courts for adjudicating liability claims pursuant to paragraphs 2, 4 and 6 above against Operators which are engaged in prospecting. Such recourse shall include the adjudication of claims against any Operator it has sponsored. Each Party shall also ensure, in accordance with its legal system, that the Commission has the right to appear as a party in its national courts to pursue relevant liability claims under paragraph 2(a) above.

11. Nothing in this Article or in the Protocol provided for in paragraph 7 above shall be construed as to:
    a) preclude the application of existing rules on liability, and the development in accordance with international law of further such rules, which may have application to either States or Operators; or
    b) affect the right of an Operator incurring liability pursuant to this Article to seek redress from another party which caused or contributed to the damage in question.

12. When compensation has been paid other than under this Convention liability under this Convention shall be offset by the amount of such payment.

Article 9. Protection of Legal Positions under the Antarctic Treaty

Nothing in this Convention and no acts or activities taking place while this Convention is in force shall:

a) constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in the Antarctic Treaty area or create any rights of sovereignty in the Antarctic Treaty area;
b) be interpreted as a renunciation or diminution by any Party of, or as prejudicing, any right or claim or basis of claim to territorial sovereignty in Antarctica or to exercise coastal state jurisdiction under international law;
c) be interpreted as prejudicing the position of any Party as regards its recognition or non-recognition of any such right, claim or basis of claim; or
d) affect the provision of Article IV(2) of the Antarctic Treaty that no new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the Antarctic Treaty is in force.

Article 10. Consistency with the other Components of the Antarctic Treaty System

1. Each Party shall ensure that Antarctic mineral resource activities take place in a manner consistent with the components of the Antarctic Treaty system, including the Antarctic Treaty, the Convention for the Conservation of Antarctic Seals and the Convention on the Conservation of Antarctic Marine Living Resources and the measures in effect pursuant to those instruments.
2. The Commission shall consult and cooperate with the Antarctic Treaty Consultative Parties, the Contracting Parties to the Convention for the Conservation of Antarctic Seals, and the Commission for the Conservation of Antarctic Marine Living Resources with a view to ensuring the achievement of the objectives and principles of this Convention and avoiding any interference with the achievement of the objectives and principles of the Antarctic Treaty, the Convention for the Conservation of Antarctic Seals or the Convention on the Conservation of Antarctic Marine Living Resources, or inconsistency between the measures in effect pursuant to those instruments and measures in effect pursuant to this Convention.

Article 11. Inspection under the Antarctic Treaty

All stations, installations and equipment, in the Antarctic Treaty area, relating to Antarctic mineral resource activities, as well as ships and aircraft supporting such activities at points of discharging or embarking cargoes or personnel at such stations and installations, shall be open at all times to inspection by observers designated under Article VII of the Antarctic Treaty for the purposes of that Treaty.

Article 12. Inspection under this Convention

1. In order to promote the objectives and principles and to ensure the observance of this Convention and measures in effect pursuant to it, all stations, installations and equipment relating to Antarctic mineral resource activities in the area in which these activities are regulated by this Convention, as well as ships and aircraft supporting such activities at points of discharging or embarking cargoes or personnel anywhere in that area shall be open at all times to inspection by:
   e) observers designated by any member of the Commission who shall be nationals of that member; and
   f) observers designated by the Commission or relevant Regulatory Committees.
2. Aerial inspection may be carried out at any time over the area in which Antarctic mineral resource activities are regulated by this Convention.
3. The Commission shall maintain an up-to-date list of observers designated pursuant to paragraph 1(a) and (b) above.
4. Reports from the observers shall be transmitted to the Commission and to any Regulatory Committee having competence in the area where the inspection has been carried out.
5. Observers shall avoid interference with the safe and normal operations of stations, installations and equipment visited and shall respect measures adopted by the Commission to protect confidentiality of data and information.
6. Inspections undertaken pursuant to paragraph 1(a) and (b) above shall be compatible and reinforce each other and shall not impose an undue burden on the operation of stations, installations and equipment visited.
7. In order to facilitate the exercise of their functions under this Convention, and without prejudice to the respective positions of the Parties relating to jurisdiction over all other persons in the area in which Antarctic mineral resource activities are regulated by this Convention, observers designated under this Article shall be subject only to the jurisdiction of the Party of which they are nationals in respect of all acts or omissions occurring while they are in that area for the purpose of exercising their functions.
8. No exploration or development shall take place in an area identified pursuant to Article 41 until effective provision has been made for inspection in that area.

Article 13. Protected Areas

1. Antarctic mineral resource activities shall be prohibited in any area designated as a Specially Protected Area or a Site of Special Scientific Interest under Article IX(1) of the Antarctic Treaty. Such activities shall also be prohibited in any other area designated as a protected area in accordance with Article IX(1) of the Antarctic Treaty, except to the extent that the relevant measure provides otherwise. Pending any designation

becoming effective in accordance with Article IX(4) of the Antarctic Treaty, no Antarctic mineral resource activities shall take place in any such area which would prejudice the purpose for which it was designated.

2. The Commission shall also prohibit or restrict Antarctic mineral resource activities in any area which, for historic, ecological, environmental, scientific or other reasons, it has designated as a protected area.
3. In exercising its powers under paragraph 2 above or under Article 41 the Commission shall consider whether to restrict or prohibit Antarctic mineral resource activities in any area, in addition to those referred to in paragraph 1 above, protected or set aside pursuant to provisions of other components of the Antarctic Treaty system, to ensure the purposes for which they are designated.
4. In relation to any area in which Antarctic mineral resource activities are prohibited or restricted in accordance with paragraph 1, 2 or 3 above, the Commission shall consider whether, for the purposes of Article 4(2)(e), it would be prudent, additionally, to prohibit or restrict Antarctic mineral resource activities in adjacent areas for the purpose of creating a buffer zone.
5. The Commission shall give effect to Article 10(2) in acting pursuant to paragraphs 2, 3 and 4 above.
6. The Commission shall, where appropriate, bring any decisions it takes pursuant to this Article to the attention of the Antarctic Treaty Consultative Parties, the Contracting Parties to the Convention for the Conservation of Antarctic Seals, the Commission for the Conservation of Antarctic Marine Living Resources and the Scientific Committee on Antarctic Research.

Article 14. Non-Discrimination

In the implementation of this Convention there shall be no discrimination against any Party or its Operators.

Article 15. Respect for Other Uses of Antarctica

1. Decisions about Antarctic mineral resource activities shall take into account the need to respect other established uses of Antarctica, including:
   a the operation of stations and their associated installations, support facilities and equipment in Antarctica;
   b scientific investigation in Antarctica and cooperation therein;
   c the conservation, including rational use, of Antarctic marine living resources;
   d tourism;
   e the preservation of historic monuments; and
   f navigation and aviation,

that are consistent with the Antarctic Treaty system.

2. Antarctic mineral resource activities shall be conducted so as to respect any uses of Antarctica as referred to in paragraph 1 above.

Article 16. Availability and Confidentiality of Data and Information

Data and information obtained from Antarctic mineral resource activities shall, to the greatest extent practicable and feasible, be made freely available, provided that:

a as regards data and information of commercial value deriving from prospecting, they may be retained by the Operator in accordance with Article 37;

b regards data and information deriving from exploration or development, the Commission shall adopt measures relating, as appropriate, to their release and to ensure the confidentiality of data and information of commercial value.

Article 17. Notifications and Provisional Exercise of Functions of the Executive Secretary

1. Where in this Convention there is a reference to the provision of information, a notification or a report to any institution provided for in this Convention and that institution has not been established, the information, notification or report shall be provided to the Executive Secretary who shall circulate it as required.

2. Where in this Convention a function is assigned to the Executive Secretary and no Executive Secretary has been appointed under Article 33, that function shall be performed by the Depositary.

Chapter II: Institutions

Article 18. Commission

1. There is hereby established the Antarctic Mineral Resources Commission.

2. Membership of the Commission shall be as follows:

a each Party which was an Antarctic Treaty Consultative Party on the date when this Convention was opened for signature; and

b each other Party during such time as it is actively engaged in substantial scientific, technical or environmental research in the area to which this Convention applies directly relevant to decisions about Antarctic mineral resource activities, particularly the assessments and judgments called for in Article 4; and

c each other Party sponsoring Antarctic mineral resource exploration or development during such time as the relevant Management Scheme is in force.

3. A Party seeking to participate in the work of the Commission pursuant to subparagraph (b) or (c) above shall notify the Depositary of the basis upon which it seeks to become a member of the Commission. In the case of a Party which is not an Antarctic Treaty Consultative Party, such notification shall include a declaration of intent to abide by recommendations pursuant to Article IX(1) of the Antarctic Treaty. The Depositary shall communicate to each member of the Commission such notification and accompanying information.
4. The Commission shall consider the notification at its next meeting. In the event that a Party referred to in paragraph 2(b) above submitting a notification pursuant to paragraph 3 above is an Antarctic Treaty Consultative Party, it shall be deemed to have satisfied the requirements for Commission membership unless more than one-third of the members of the Commission object at the meeting at which such notification is considered. Any other Party submitting a notification shall be deemed to have satisfied the requirements for Commission membership if no member of the Commission objects at the meeting at which such notification is considered.
5. Each member of the Commission shall be represented by one representative who may be accompanied by alternate representatives and advisers.
6. Observer status in the Commission shall be open to any Party and to any Contracting Party to the Antarctic Treaty which is not a Party to this Convention.

Article 19. Commission Meetings

1.
   a) The first meeting of the Commission, held for the purpose of taking organisational, financial and other decisions necessary for the effective functioning of this Convention and its institutions, shall be convened within six months of the entry into force of this Convention.
   b) After the Commission has held the meeting or meetings necessary to take the decisions referred to in subparagraph (a) above, the Commission shall not hold further meetings except in accordance with paragraph 2 or 3 below.
2. Meetings of the Commission shall be held within two months of:
   a) receipt of a notification pursuant to Article 39;
   b) a request by at least six members of the Commission; or
   c) a request by a member of a Regulatory Committee in accordance with Article 49(1).
3. The Commission may establish a regular schedule of meetings if it determines that it is necessary for the effective functioning of this Convention.
4. Unless the Commission decides otherwise, its meetings shall be convened by the Executive Secretary.

Article 20. Commission Procedure

1. The Commission shall elect from among its members a Chairman and two Vice-Chairmen, each of whom shall be a representative of a different Party.
2.
   a Until such time as the Commission has established a regular schedule of meetings in accordance with Article 19(3), the Chairman and Vice-Chairmen shall be elected to serve for a period of two years, provided that if no meeting is held during that period they shall continue to serve until the conclusion of the first meeting held thereafter.
   b When a regular schedule of meetings has been established, the Chairman and Vice-Chairmen shall be elected to serve for a period of two years.
3. The Commission shall adopt its rules of procedure. Such rules may include provisions concerning the number of terms of office which the Chairman and Vice-Chairmen may serve and for the rotation of such offices.
4. The Commission may establish such subsidiary bodies as are necessary for the performance of its functions.
5. The Commission may decide to establish a permanent headquarters which shall be in New Zealand.
6. The Commission shall have legal personality and shall enjoy in the territory of each Party such legal capacity as may be necessary to perform its functions and achieve the objectives of this Convention.
7. The privileges and immunities to be enjoyed by the Commission, the Secretariat and representatives attending meetings in the territory of a Party shall be determined by agreement between the Commission and the Party concerned.

Article 21. Functions of the Commission

1. The functions of the Commission shall be:
   a) to facilitate and promote the collection and exchange of scientific, technical and other information and research projects necessary to predict, detect and assess the possible environmental impact of Antarctic mineral resource activities, including the monitoring of key environmental parameters and ecosystem components;
   b) to designate areas in which Antarctic mineral resource activities shall be prohibited or restricted in accordance with Article 13, and to perform the related functions assigned to it in that Article;
   c) to adopt measures for the protection of the Antarctic environment and dependent and associated ecosystems and for the promotion of safe and effective exploration and development techniques and, as it may deem appropriate, to make available a handbook of such measures;

d) to determine, in accordance with Article 41, whether or not to identify an area for possible exploration and development, and to perform the related functions assigned to it in Article 42;
e) to adopt measures relating to prospecting applicable to all relevant Operators:
    i) to determine for particular circumstances maximum drilling depths in accordance with Article 1(8);
    ii) to restrict or prohibit prospecting consistently with Articles 13, 37 and 38;
f) to ensure the effective application of Articles 12(4), 37(7) and (8), 38(2) and 39(2), which require the submission to the Commission of information, notifications and reports;
g) to give advance public notice of matters upon which it is requesting the advice of the Advisory Committee;
h) to adopt measures relating to the availability and confidentiality of data and information, including measures pursuant to Article 16;
i) to elaborate the principle of non-discrimination set forth in Article 14;
j) to adopt measures with respect to maximum block sizes;
k) to perform the functions assigned to it in Article 29;
l) to review action by Regulatory Committees in accordance with Article 49;
m) to adopt measures in accordance with Articles 6 and 41(1)(d) related to the promotion of cooperation and to participation in Antarctic mineral resource activities;
n) to adopt general measures pursuant to Article 51(6);
o) to take decisions on budgetary matters and adopt financial regulations in accordance with Article 35;
p) to adopt measures regarding fees payable in connection with notifications submitted pursuant to Articles 37 and 39 and applications lodged pursuant to Articles 44 and 53, the purpose of which fees shall be to cover the administrative costs of handling such notifications and applications;
q) to adopt measures regarding levies payable by Operators engaged in exploration and development, the principal purpose of which levies shall be to cover the costs of the institutions of this Convention;
r) to determine in accordance with Article 35(7) the disposition of revenues, if any, accruing to the Commission which are surplus to the requirements for financing the budget pursuant to Article 35;
s) to perform the functions assigned to it in Article 7(7) and (8);
t) to perform the functions relating to inspection assigned to it in Article 12;
u) to consider monitoring reports received pursuant to Article 52;
v) to perform the functions relating to dispute settlement assigned to it in Article 59;
w) to perform the functions relating to consultation and cooperation assigned to it in Articles 10(2) and 34;
x) to keep under review the conduct of Antarctic mineral resource activities with a view to safeguarding the protection of the Antarctic environment in the interest of all mankind; and
y) to perform such other functions as are provided for elsewhere in this Convention.

2. In performing its functions the Commission shall seek and take full account of the views of the Advisory Committee provided in accordance with Article 26.
3. Each measure adopted by the Commission shall specify the date on which it comes into effect.
4. The Commission shall, subject to Article 16 and measures in effect pursuant to it and paragraph 1(h) above, ensure that a publicly available record of its meetings and decisions and of information, notifications and reports submitted to it is maintained.

Article 22. Decision Making in the Commission

1. The Commission shall take decisions on matters of substance by a three-quarters majority of the members present and voting. When a question arises as to whether a matter is one of substance or not, that matter shall be treated as one of substance unless otherwise decided by a three-quarters majority of the members present and voting.
2. Notwithstanding paragraph 1 above, consensus shall be required for the following:
   a) the adoption of the budget and decisions on budgetary and related matters pursuant to Article 21(1)(p), (q) and (r) and Article 35(1), (2), (3), (4) and (5);
   b) decisions taken pursuant to Article 21(1)(i);
   c) decisions taken pursuant to Article 41(2).
3. Decisions on matters of procedure shall be taken by a simple majority of the members present and voting.
4. Nothing in this Article shall be interpreted as preventing the Commission, in taking decisions on matters of substance, from endeavouring to reach a consensus.
5. For the purposes of this Article, consensus means the absence of a formal objection. If, with respect to any decision covered by paragraph 2(c) above, the Chairman of the Commission determines that there would be such an objection he shall consult the members of the Commission. If, as a result of these consultations, the Chairman determines that an objection would remain, he shall convene those members most directly interested for the purpose of seeking to reconcile the differences and producing a generally acceptable proposal.

Article 23. Advisory Committee

1. There is hereby established the Scientific, Technical and Environmental Advisory Committee.
2. Membership of the Advisory Committee shall be open to all Parties.
3. Each member of the Advisory Committee shall be represented by one representative with suitable scientific, technical or environmental competence who may be accompanied by alternate representatives and by experts and advisers.

4. Observer status in the Advisory Committee shall be open to any Contracting Party to the Antarctic Treaty or to the Convention on the Conservation of Antarctic Marine Living Resources which is not a Party to this Convention.

Article 24. Advisory Committee Meetings

1. Unless the Commission decides otherwise, the Advisory Committee shall be convened for its first meeting within six months of the first meeting of the Commission. It shall meet thereafter as necessary to fulfil its functions on the basis of a schedule established by the Commission.
2. Meetings of the Advisory Committee, in addition to those scheduled pursuant to paragraph 1 above, shall be convened at the request of at least six members of the Commission or pursuant to Article 40(1).
3. Unless the Commission decides otherwise, the meetings of the Advisory Committee shall be convened by the Executive Secretary.

Article 25. Advisory Committee Procedure

1. 1 The Advisory Committee shall elect from among its members a Chairman and two Vice-Chairmen, each of whom shall be a representative of a different Party.
2.
   a) Until such time as the Commission has established a schedule of meetings in accordance with Article 24(1), the Chairman and Vice-Chairmen shall be elected to serve for a period of two years, provided that if no meeting is held during that period they shall continue to serve until the conclusion of the first meeting held thereafter.
   b) When a schedule of meetings has been established, the Chairman and Vice-Chairmen shall be elected to serve for a period of two years.
3. The Advisory Committee shall give advance public notice of its meetings and of matters to be considered at each meeting so as to permit the receipt and consideration of views on such matters from international organisations having an interest in them. For this purpose the Advisory Committee may, subject to review by the Commission, establish procedures for the transmission of relevant information to these organisations.
4. The Advisory Committee shall, by a two-thirds majority of the members present and voting, adopt its rules of procedure. Such rules may include provisions concerning the number of terms of office which the Chairman and Vice-Chairmen may serve and for the rotation of such offices. The rules of procedure and any amendments thereto shall be subject to approval by the Commission.
5. The Advisory Committee may establish such subcommittees, subject to budgetary approval, as may be necessary for the performance of its functions.

Article 26. Functions of the Advisory Committee

1. The Advisory Committee shall advise the Commission and Regulatory Committees, as required by this Convention, or as requested by them, on the scientific, technical and environmental aspects of Antarctic mineral resource activities. It shall provide a forum for consultation and cooperation concerning the collection, exchange and evaluation of information related to the scientific, technical and environmental aspects of Antarctic mineral resource activities.

2. It shall provide advice to:
   a) the Commission relating to its functions under Articles 21(1)(a) to (f), (u) and (x) and 35(7)(a) (in matters relating to scientific research) as well as on the implementation if Article 4; and
   b) Regulatory Committees with respect to:
      i) the implementation of Article 4;
      ii) scientific, technical and environmental aspects of Articles 43(3) and (5), 45, 47, 51, 52 and 54;
      iii) data to be collected and reported in accordance with Articles 47 and 52; and
      iv) the scientific, technical and environmental implications of reports and reported data provided in accordance with Articles 47 and 52.

3. It shall provide advice to the Commission and to Regulatory Committees on:
   a) criteria in respect of the judgments required under Article 4(2) and (3) for the purposes of Article 4(1);
   b) types of data and information required to carry out its functions, and how they should be collected, reported and archived;
   c) scientific research which would contribute to the base of data and information required in subparagraph (b) above;
   d) effective procedures and systems for data and information analysis, evaluation, presentation and dissemination to facilitate the judgments referred to in Article 4; and
   e) possibilities for scientific, technical and environmental cooperation amongst interested Parties which are developing countries and other Parties.

4. The Advisory Committee, in providing advice on decisions to be taken in accordance with Articles 41, 43, 45 and 54 shall, in each case, undertake a comprehensive environmental and technical assessment of the proposed actions. Such assessments shall be based on all information, and any amplifications thereof, available to the Advisory Committee, including the information provided pursuant to Articles 39(2)(e), 44(2)(b)(iii) and 53(2)(b). The assessments of the Advisory Committee shall, in each case, address the nature and scope of the decisions to be taken and shall include consideration, as appropriate, of, *inter alia*:
   a) the adequacy of existing information to enable informed judgments to be made;
   b) the nature, extent, duration and intensity of likely direct environmental impacts resulting from the proposed activity;
   c) possible indirect impacts;

d) means and alternatives by which such direct or indirect impacts might be reduced, including environmental consequences of the alternative of not proceeding;
e) cumulative impacts of the proposed activity in the light of existing or planned activities;
f) capacity to respond effectively to accidents with potential environmental effects;
g) the environmental significance of unavoidable impacts; and
h) the probabilities of accidents and their environmental consequences.

5. In preparing its advice the Advisory Committee may seek information and advice from other scientists and experts or scientific organisations as may be required on an ad hoc basis.

6. The Advisory Committee shall, with a view to promoting international participation in Antarctic mineral resource activities as provided for in Article 6, provide advice concerning the availability to interested developing country Parties and other Parties, of the information referred to in paragraph 3 above, of training programmes related to scientific, technical and environmental matters bearing on Antarctic mineral resource activities, and of opportunities for cooperation among Parties in these programmes.

Article 27. Reporting by the Advisory Committee

The Advisory Committee shall present a report on each of its meetings to the Commission and to any relevant Regulatory Committee. The report shall cover all matters considered at the meeting and shall reflect the conclusions reached and all the views expressed by members of the Advisory Committee. The report shall be circulated by the Executive Secretary to all Parties, and to observers attending the meeting, and shall thereupon be made publicly available.

Article 28. Special Meeting of Parties

1. A Special Meeting of Parties shall, as required, be convened in accordance with Article 40(2) and shall have the functions, in relation to the identification of an area for possible exploration and development, specified in Article 40(3).

2. Membership of a Special Meeting of Parties shall be open to all Parties, each of which shall be represented by one representative who may be accompanied by alternate representatives and advisers.

3. Observer status at a Special Meeting of Parties shall be open to any Contracting Party to the Antarctic Treaty which is not a Party to this Convention.

4. Each Special Meeting of Parties shall elect from among its members a Chairman and Vice-Chairmen, each of whom shall serve for the duration of that meeting. The Chairman and Vice-Chairman shall not be representatives of the same Party.

5. The Special Meeting of Parties shall, by a two-thirds majority of the members present and voting, adopt its rules of procedure. Until such time as this has been done the

Special Meeting of Parties shall apply provisional rules of procedure drawn up by the Commission.

6. Unless the Commission decides otherwise, a Special Meeting of Parties shall be convened by the Executive Secretary and shall be held at the same venue as the meeting of the Commission convened to consider the identification of an area for possible exploration and development.

Article 29. Regulatory Committees

1. An Antarctic Mineral Resources Regulatory Committee shall be established for each area identified by the Commission pursuant to Article 41.

2. Subject to paragraph 6 below, each Regulatory Committee shall consist of 1O members. Membership shall be determined by the Commission in accordance with this Article and, taking into account Article 9, shall include:
   a) the member, if any, or if there are more than one, those members of the Commission identified by reference to Article 9(b) which assert rights or claims in the identified area;
   b) the two members of the Commission also identified by reference to Article 9(b) which assert a basis of claim in Antarctica;
   c) other members of the Commission determined in accordance with this Article so that the Regulatory Committee shall, subject to paragraph 6 below, consist, in total, of 10 members:
      i) four members identified by reference to Article 9(b) which assert rights or claims, including the member or members, if any, referred to in subparagraph (a) above and
      ii) six members which do not assert rights or claims as described in Article 9(b), including the two members referred to in subparagraph (b) above.

3. Upon the identification of an area in accordance with Article 41(2), the Chairman of the Commission shall, as soon as possible and in any event within 90 days, make a recommendation to the Commission concerning the membership of the Regulatory Committee. To this end the Chairman shall consult, as appropriate, with the Chairman of the Advisory Committee and all members of the Commission. Such recommendation shall comply with the requirements of paragraphs 2 and 4 of this Article and shall ensure:
   a) the inclusion of members of the Commission which, whether through prospecting, scientific research or otherwise, have contributed substantial scientific, technical or environmental information relevant to the identification of the area by the Commission pursuant to Article 41;
   b) adequate and equitable representation of developing country members of the Commission, having regard to the overall balance between developed and developing country members of the Commission, including at least three developing country members of the Commission;

c) that account is taken of the value of a rotation of membership of Regulatory Committees as a further means of ensuring equitable representation of members of the Commission.

4.

a) When there are one or more members of the Regulatory Committee referred to in paragraph 2(a) above, the Chairman of the Commission shall make the recommendation in respect of paragraph 2(c)(i) above upon the nomination, if any, of such member or members which shall take into account paragraph 3 above, in particular subparagraph (b) of that paragraph.
b) In making the recommendation in respect of paragraph 2(c)(ii) above, the Chairman of the Commission shall give full weight to the views (which shall take into account paragraph 3 above) which may be presented on behalf of those members of the Commission which do not assert rights of or claims to territorial sovereignty in Antarctica and, with reference to the requirements of paragraph 3(b) above, to the views which may be presented on behalf of the developing countries among them.

5. The recommendation of the Chairman of the Commission shall be deemed to have been approved by the Commission if it does not decide otherwise at the same meeting as the recommendation is submitted. In taking any decision in accordance with this Article the Commission shall ensure that the requirements of paragraphs 2 and 3 above are complied with and that the nomination, if any, referred to in paragraph 4(a) above is given effect.

6.

a) If a member of the Commission which has sponsored prospecting in the identified area and submitted the notification pursuant to Article 39 upon which the Commission based its identification of the area pursuant to Article 41, is not a member of the Regulatory Committee by virtue of paragraphs 2 and 3 above, that member of the Commission shall be a member of the Regulatory Committee until such time as an application for an exploration permit is lodged pursuant to Article 44.
b) If a Party lodging an application for an exploration permit pursuant to Article 44 is not a member of the Regulatory Committee by virtue of paragraphs 2 and 3 above, that Party shall be a member of the Regulatory Committee for its consideration of that application. Should such application result in approval of a Management Scheme pursuant to Article 48, the Party in question shall remain a member of the Regulatory Committee during such time as that Management Scheme is in force with the right to take part in decisions on matters affecting that Management Scheme.

7. Nothing in this Article shall be interpreted as affecting Article IV of the Antarctic Treaty.

Article 30. Regulatory Committee Procedure

1. The first meeting of each Regulatory Committee shall be convened by the Executive Secretary in accordance with Article 43(1). Each Regulatory Committee shall meet thereafter when and where necessary to fulfil its functions.
2. Each member of a Regulatory Committee shall be represented by one representative who may be accompanied by alternate representatives and advisers.
3. Each Regulatory Committee shall elect from among its members a Chairman and Vice-Chairman. The Chairman and Vice-Chairman shall not be representatives of the same Party.
4. Any Party may attend meetings of a Regulatory Committee as an observer.
5. Each Regulatory Committee shall adopt its rules of procedure. Such rules may include provisions concerning the period and number of terms of office which the Chairman and Vice-Chairman may serve and for the rotation of such offices.

Article 31. Functions of Regulatory Committees

1. The functions of each Regulatory Committee shall be:
   a) to undertake the preparatory work provided for in Article 43;
   b) to consider applications for exploration and development permits in accordance with Articles 45, 46 and 54;
   c) to approve Management Schemes and issue exploration and development permits in accordance with Articles 47, 48 and 54;
   d) to monitor exploration and development activities in accordance with Article 52;
   e) to perform the functions assigned to it in Article 51;
   f) to perform the functions relating to inspection assigned to in Article 12;
   g) to perform the functions relating to dispute settlement assigned to it in Article 47(r); and
   h) to perform such other functions as are provided for elsewhere in this Convention.
2. In performing its functions each Regulatory Committee shall seek and take full account of the views of the Advisory Committee provided in accordance with Article 26.
3. Each Regulatory Committee shall, subject to Article 16 and measures in effect pursuant to it and Article 21(1)(h), ensure that a publicly available record of its decisions, and of Management Schemes in force, is maintained.

Article 32. Decision Making in Regulatory Committees

1. Decisions by a Regulatory Committee pursuant to Articles 48 and 54(5) shall be taken by a two-thirds majority of the members present and voting, which majority shall include a simple majority of those members present and voting referred to in Article 29(2)(c)(i) and also a simple majority of those members present and voting referred to in Article 29(2)(c)(ii).

2. Decisions by a Regulatory Committee pursuant to Article 43(3) and (5) shall be taken by a two-thirds majority of the members present and voting, which majority shall include at least half of those members present and voting referred to in Article 29(2)(c)(i) and also at least half of those members present and voting referred to in Article 29(2)(c)(ii).
3. Decisions on all other matters of substance shall be taken by a two-thirds majority of the members present and voting. When a question arises as to whether a matter is one of substance or not, that matter shall be treated as one of substance unless otherwise decided by a two-thirds majority of the members present and voting.
4. Decisions on matters of procedure shall be taken by a simple majority of the members present and voting.
5. Nothing in this Article shall be interpreted as preventing a Regulatory Committee, in taking decisions on matters of substance, from endeavouring to reach a consensus.

Article 33. Secretariat

1. The Commission may establish a Secretariat to serve the Commission, Regulatory Committees, the Advisory Committee, the Special Meeting of Parties and any subsidiary bodies established.
2. The Commission may appoint an Executive Secretary, who shall be the head of the Secretariat, according to such procedures and on such terms and conditions as the Commission may determine. The Executive Secretary shall serve for a four year term and may be reappointed.
3. The Commission may, with due regard to the need for efficiency and economy, authorise such staff establishment for the Secretariat as may be necessary. The Executive Secretary shall appoint, direct and supervise the staff according to such rules and procedures and on such terms and conditions as the Commission may determine.
4. The Secretariat shall perform the functions specified in this Convention and, subject to the approved budget, the tasks entrusted to it by the Commission, Regulatory Committees, the Advisory Committee and the Special Meeting of Parties.

Article 34. Cooperation with International Organisations

1. The Commission and, as appropriate, the Advisory Committee shall cooperate with the Antarctic Treaty Consultative Parties, the Contracting Parties to the Convention for the Conservation of Antarctic Seals, the Commission for the Conservation of Antarctic Marine Living Resources, and the Scientific Committee on Antarctic Research.
2. The Commission shall cooperate with the United Nations, its relevant Specialised Agencies, and, as appropriate, any international organisation which may have competence in respect of mineral resources in areas adjacent to those covered by this Convention.
3. The Commission shall also, as appropriate, cooperate with the International Union for the Conservation of Nature and Natural Resources, and with other relevant international

organisations, including non-governmental organisations, having a scientific, technical or environmental interest in Antarctica.

4. The Commission may, as appropriate, accord observer status in the Commission and in the Advisory Committee to such relevant international organisations, including non-governmental organisations, as might assist in the work of the institution in question. Observer status at a Special Meeting of Parties shall be open to such organisations as have been accorded observer status in the Commission or the Advisory Committee.
5. The Commission may enter into agreements with the organisations referred to in this Article.

Article 35. Financial Provisions

1. The Commission shall adopt a budget, on an annual or other appropriate basis, for:
   a) its activities and the activities of Regulatory Committees, the Advisory Committee, the Special Meeting of Parties, any subsidiary bodies established and the Secretariat; and
   b) the progressive reimbursement of any contributions paid under paragraphs 5 and 6 below whenever revenues under paragraph 4 below exceed expenditure.
2. The first draft budget shall be submitted by the Depositary at least 90 days before the first meeting of the Commission. At that meeting the Commission shall adopt its first budget and decide upon arrangements for the preparation of subsequent budgets.
3. The Commission shall adopt financial regulations.
4. Subject to paragraph 5 below, the budget shall be financed, *inter alia*, by:
   a) fees prescribed pursuant to Articles 21(1)(p) and 43(2)(b);
   b) levies on Operators, subject to any measures adopted by the Commission in accordance with Article 21(1)(q), pursuant to Article 47(k)(i); and
   c) such other financial payments by Operators pursuant to Article 47(k)(ii) as may be required to be paid to the institutions of this Convention.
5. If the budget is not fully financed by revenues in accordance with paragraph 4 above, and subject to reimbursement in accordance with paragraph 1(b) above, the budget shall, to the extent of any shortfall and subject to paragraph 6 below, be financed by contributions from the members of the Commission. To this end, the Commission shall adopt as soon as possible a method of equitable sharing of contributions to the budget. The budget shall, in the meantime, to the extent of any shortfall, be financed by equal contributions from each member of the Commission.
6. In adopting the method of contributions referred to in paragraph 5 above the Commission shall consider the extent to which members of and observers at institutions of this Convention may be called upon to contribute to the costs of those institutions.
7. The Commission, in determining the disposition of revenues accruing to it, which are surplus to the requirements for financing the budget pursuant to this Article, shall:

a) promote scientific research in Antarctica, particularly that related to the Antarctic environment and Antarctic resources, and a wide spread of participation in such research by all Parties, in particular developing country Parties;
b) ensure that the interests of the members of Regulatory Committees having the most direct interest in the matter in relation to the areas in question are respected in any disposition of that surplus.

8. The finances of the Commission, Regulatory Committees, the Advisory Committee, the Special Meeting of Parties, any subsidiary bodies established and the Secretariat shall accord with the financial regulations adopted by the Commission and shall be subject to an annual audit by external auditors selected by the Commission.

9. Each member of the Commission, Regulatory Committees, the Advisory Committee, the Special Meeting of Parties and any subsidiary bodies established, as well as any observer at a meeting of any of the institutions of this Convention, shall meet its own expenses arising from attendance at meetings.

10. A member of the Commission that fails to pay its contribution for two consecutive years shall not, during the period of its continuing subsequent default, have the right to participate in the taking of decisions in any of the institutions of this Convention. If it continues to be in default for a further two consecutive years, the Commission shall decide what further action should be taken, which may include loss by that member of the right to participate in meetings of the institutions of this Convention. Such member shall resume the full enjoyment of its rights upon payment of the outstanding contributions.

11. Nothing in this Article shall be construed as prejudicing the position of any member of a Regulatory Committee on the outcome of consideration by the Regulatory Committee of terms and conditions in a Management Scheme pursuant to Article 47(k)(ii).

Article 36. Official and Working Languages

The official and working languages of the Commission, Regulatory Committees, the Advisory Committee, the Special Meeting of Parties and any meeting convened under Article 64 shall be English, French, Russian and Spanish.

Chapter III. Prospecting

Article 37. Prospecting

1. Prospecting shall not confer upon any Operator any right to Antarctic mineral resources.

2. Prospecting shall at all times be conducted in compliance with this Convention and with measures in effect pursuant to this Convention, but shall not require authorisation by the institutions of this Convention.

3.

a) The Sponsoring State shall ensure that its Operators undertaking prospecting maintain the necessary financial and technical means to comply with Article 8(1),

8(1), and, to the extent that any such Operator fails to take response action as required in Article 8(1), shall ensure that this is undertaken.

b) The Sponsoring State shall also ensure that its Operators undertaking prospecting maintain financial capacity, commensurate with the nature and level of the activity undertaken and the risks involved, to comply with Article 8(2).

4. In cases where more than one Operator is engaged in prospecting in the same general area, the Sponsoring State or States shall ensure that those Operators conduct their activities with due regard to each others' rights.

5. Where an Operator wishes to conduct prospecting in an area identified under Article 41 in which another Operator has been authorised to undertake exploration or development, the Sponsoring State shall ensure that such prospecting is carried out subject to the rights of any authorised Operator and any requirements to protect its rights specified by the relevant Regulatory Committee.

6. Each Operator shall ensure upon cessation of prospecting the removal of all installations and equipment and site rehabilitation. On the request of the Sponsoring State, the Commission may waive the obligation to remove installations and equipment.

7. The Sponsoring State shall notify the Commission at least nine months in advance of the commencement of planned prospecting. The notification shall be accompanied by such fees as may be established by the Commission in accordance with Article 21(1)(p) and shall:

    a) identify, by reference to coordinates of latitude and longitude or identifiable geographic features, the general area in which the prospecting is to take place;
    b) broadly identify the mineral resource or resources which are to be the subject of the prospecting;
    c) describe the prospecting, including the methods to be used, and the general programme of work to be undertaken and its expected duration;
    d) provide an assessment of the possible environmental and other impacts of the prospecting, taking into account possible cumulative impacts as referred to in Article 4(5).
    e) describe the measures, including monitoring programmes, to be adopted to avoid harmful environmental consequences or undue interference with other established uses of Antarctica, and outline the measures to be put into effect in the event of any accident and contingency plans for evacuation in an emergency;
    f) provide details on the Operator and certify that it:
        i) has a substantial and genuine link with the Sponsoring State as defined in Article 1(12); and
        ii) is financially and technically qualified to carry out the proposed prospecting in accordance with this Convention; and
    g) provide such further information as may be required by measures adopted by the Commission.

8. The Sponsoring State shall subsequently provide to the Commission:
    a) notification of any changes to the information referred to in paragraph 7 above;
    b) notification of the cessation of prospecting, including removal of any installations and equipment as well as site rehabilitation; and
    c) a general annual report on the prospecting undertaken by the Operator.
9. Notifications and reports submitted pursuant to this Article shall be circulated by the Executive Secretary without delay to all Parties and observers attending Commission meetings.
10. Paragraphs 7, 8 and 9 above shall not be interpreted as requiring the disclosure of data and information of commercial value.
11. The Sponsoring State shall ensure that basic data and information of commercial value generated by prospecting are maintained in archives and may at any time release part of or all such data and information, on conditions which it shall establish, for scientific or environmental purposes.
12. The Sponsoring State shall ensure that basic data and information, other than interpretative data, generated by prospecting are made readily available when such data and information are not, or are no longer, of commercial value and, in any event, no later than 10 years after the year the data and information were collected, unless it certifies to the Commission that the data and information continue to have commercial value. It shall review at regular intervals whether such data and information may be released and shall report the results of such reviews to the Commission.
13. The Commission may adopt measures consistent with this Article relating to the release of data and information of commercial value including requirements for certifications, the frequency of reviews and maximum time limits for extensions of the protection of such data and information.

Article 38. Consideration of Prospecting by the Commission

1. If a member of the Commission considers that a notification submitted in accordance with Article 37(7) or (8), or ongoing prospecting, causes concern as to consistency with this Convention or measures in effect pursuant thereto, that member may request the Sponsoring State to provide a clarification. If that member considers that an adequate response is not forthcoming from the Sponsoring State within a reasonable time, the member may request that the Commission be convened in accordance with Article 19(2)(b) to consider the question and take appropriate action.
2. If measures applicable to all relevant Operators are adopted by the Commission following a request made in accordance with paragraph 1 above, Sponsoring States that have submitted notifications in accordance with Article 37(7) or (8), and Sponsoring States whose Operators are conducting prospecting, shall ensure that the plans and activities of their Operators are modified to the extent necessary to conform with those measures within such time limit as the Commission may prescribe, and shall notify the Commission accordingly.

Chapter IV: Exploration

Article 39. Requests for Identification of an Area for Possible Exploration and Development

1. Any Party may submit to the Executive Secretary a notification requesting that the Commission identify an area for possible exploration and development of a particular mineral resource or resources.

2. Any such notification shall be accompanied by such fees as may be established by the Commission in accordance with Article 21(1)(p) and shall contain:
    a) a precise delineation, including coordinates, of the area proposed for identification;
    b) specification of the resource or resources for which the area would be identified and any relevant data and information, excluding data and information of commercial value, concerning that resource or those resources, including a geological description of the proposed area;
    c) a detailed description of the physical and environmental characteristics of the proposed area;
    d) a description of the likely scale of exploration and development for the resource or resources involved in the proposed area and of the methods which could be employed in such exploration and development;
    e) a detailed assessment of the environmental and other impacts of possible exploration and development for the resource or resources involved, taking into account Articles 15 and 26(4); and
    f) such other information as may be required pursuant to measures adopted by the Commission.

3. A notification under paragraph 1 above shall be referred promptly by the Executive Secretary to all Parties and shall be circulated to observers attending the meeting of the Commission to be convened pursuant to Article 19(2)(a).

Article 40. Action by the Advisory Committee and Special Meeting of Parties

1. The Advisory Committee shall meet as soon as possible after the meeting of the Commission convened pursuant to Article 19(2)(a) has commenced. The Advisory Committee shall provide advice to the Commission on the notification submitted pursuant to Article 39(1). The Commission may prescribe a time limit for the provision of such advice.

2. A Special Meeting of Parties shall meet as soon as possible after circulation of the report of the Advisory Committee and in any event not later than two months after that report has been circulated.

3. The Special Meeting of Parties shall consider whether identification of an area by the Commission in accordance with the request contained in the notification would be consistent with this Convention, and shall report thereon to the Commission as soon as possible and in any event not later than 21 days from the commencement of the meeting.

4. The report of the Special Meeting of Parties to the Commission shall reflect the conclusions reached and all the views expressed by Parties participating in the meeting.

Article 41. Action by the Commission

1. The Commission shall, as soon as possible after receipt of the report of the Special Meeting of Parties, consider whether or not it will identify an area as requested. Taking full account of the views and giving special weight to the conclusions of the Special Meeting of Parties, and taking full account of the views and the conclusions of the Advisory Committee, the Commission shall determine whether such identification would be consistent with this Convention. For this purpose:
    a) the Commission shall ensure that an area to be identified shall be such that, taking into account all factors relevant to such identification, including the physical, geological, environmental and other characteristics of such area, it forms a coherent unit for the purposes of resource management. The Commission shall thus consider whether an area to be identified should include all or part of that which was requested in the notification and, subject to the necessary assessments having been made, adjacent areas not covered by that notification;
    b) the Commission shall consider whether there are, within an area requested or to be identified, any areas in which exploration and development are or should be prohibited or restricted in accordance with Article 13;
    c) the Commission shall specify the mineral resource or resources for which the area would be identified;
    d) the Commission shall give effect to Article 6, by elaborating opportunities for joint ventures or different forms of participation, up to a defined level, including procedures for offering such participation, in possible exploration and development, within the area, by interested Parties which are Antarctic Treaty Consultative Parties and by other interested Parties, in particular, developing countries in either category;
    e) the Commission shall prescribe any additional associated conditions necessary to ensure that an area to be identified is consistent with other provisions of this Convention and may prescribe general guidelines relating to the operational requirements for exploration and development in an area to be identified including measures establishing maximum block sizes and advice concerning related support activities; and
    f) the Commission shall give effect to the requirement in Article 59 to establish additional procedures for the settlement of disputes.
2. After it has completed its consideration in accordance with paragraph 1 above, the Commission shall identify an area for possible exploration and development if there is a consensus of Commission members that such identification is consistent with this Convention.

Article 42. Revision in the Scope of an Identified Area

1. If, after an area has been identified in accordance with Article 41, a Party requests identification of an area, all or part of which is contained within the boundaries of the area already identified but in respect of a mineral resource or resources different from any resource in respect of which the area has already been identified, the request shall be dealt with in accordance with Articles 39, 40 and 41. Should the Commission identify an area in respect of such different mineral resource or resources, it shall have regard, in addition to the requirements of Article 41(1)(a), to the desirability of specifying the boundaries of the area in such a way that it can be assigned to the Regulatory Committee with competence for the area already identified.
2. In the light of increased knowledge bearing on the effective management of the area, and after seeking the views of the Advisory Committee and the relevant Regulatory Committee, the Commission may amend the boundaries of any area it has identified. In making any such amendment the Commission shall ensure that authorised exploration and development in the area are not adversely affected. Unless there are compelling reasons for doing so, the Commission shall not amend the boundaries of an area it has identified in such a way as to involve a change in the composition of the relevant Regulatory Committee.

Article 43. Preparatory Work by Regulatory Committees

1. As soon as possible after the identification of an area pursuant to Article 41, the relevant Regulatory Committee established in accordance with Article 29 shall be convened.
2. The Regulatory Committee shall:
    a) subject to any measures adopted by the Commission pursuant to Article 21(1)(j) relating to maximum block sizes, divide its area of competence into blocks in respect of which applications for exploration and development may be submitted and make provision for a limit in appropriate circumstances on the number of blocks to be accorded to any Party;
    b) subject to any measures adopted by the Commission pursuant to Article 21(1)(p), establish fees to be paid with any application for an exploration or development permit lodged pursuant to Article 44 or 53;
    c) establish periods within which applications for exploration and development may be lodged, all applications received within each such period being considered as simultaneous;
    d) establish procedures for the handling of applications; and
    e) determine a method of resolving competing applications which are not resolved in accordance with Article 45(4)(a), which method shall, provided that all other requirements of this Convention are satisfied and consistently with measures adopted pursuant to Article 41(1)(d), include priority for the application with the broadest participation among interested Parties which are Antarctic Treaty Consultative Parties, in particular, developing countries in either category.

3. The Regulatory Committee shall adopt guidelines which are consistent with, and which taken together with, the provisions of this Convention and measures of general applicability adopted by the Commission, as well as associated conditions and general guidelines adopted by the Commission when identifying the area, shall, by addressing the relevant items in Article 47, identify the general requirements for exploration and development in its area of competence.
4. Upon adoption of guidelines under paragraph 3 above the Executive Secretary shall, without delay, inform all members of the Commission of the decisions taken by the Regulatory Committee pursuant to paragraphs 2 and 3 above and shall make them publicly available together with relevant measures, associated conditions and general guidelines adopted by the Commission.
5. The Regulatory Committee may from time to time revise guidelines adopted under paragraph 3 above, taking into account any views of the Commission.
6. In performing its functions under paragraphs 3 and 5 above, the Regulatory Committee shall seek and take full account of the views of the Advisory Committee provided in accordance with Article 26.

Article 44. Application for an Exploration Permit

1. Following completion of the work undertaken pursuant to Article 43, any Party, on behalf of an Operator for which it is the Sponsoring State, may lodge with the Regulatory Committee an application for an exploration permit within the periods established by the Regulatory Committee pursuant to Article 43(2)(c).
2. An application shall be accompanied by the fees established by the Regulatory Committee in accordance with Article 43(2)(b) and shall contain:
    a) a detailed description of the Operator, including its managerial structure, financial composition and resources and technical expertise, and, in the case of an Operator being a joint venture, the inclusion of a detailed description of the degree to which Parties are involved in the Operator through, inter alia, juridical persons with which Parties have substantial and genuine links, so that each component of the joint venture can be easily attributed to a Party or Parties for the purposes of identifying the level of Antarctic mineral resource activities thereof, which description of substantial and genuine links shall include a description of equity sharing;
    b) a detailed description of the proposed exploration activities and a description in as much detail as possible of proposed development activities, including:
        i) an identification of the mineral resource or resources and the block to which the application applies;
        ii) a detailed explanation of how the proposed activities conform with the general requirements referred to in Article 43(3);
        iii) a detailed assessment of the environmental and other impacts of the proposed activities, taking into account Articles 15 and 26(4); and
        iv) a description of the capacity to respond effectively to accidents, especially those with potential environmental effects;

c) a certification by the Sponsoring State of the capacity of the Operator to comply with the general requirements referred to in Article 43(3).
d) a certification by the Sponsoring State of the technical competence and financial capacity of the Operator and that the Operator has a substantial and genuine link with it as defined in Article 1(12);
e) a description of the manner in which the application complies with any measures adopted by the Commission pursuant to Article 41(1)(d); and
f) such further information as may be required by the Regulatory Committee or in measures adopted by the Commission.

Article 45. Examination of Applications

1. The Regulatory Committee shall meet as soon as possible after an application has been lodged pursuant to Article 44, for the purpose of elaborating a Management Scheme, In performing this function it shall:
    a) determine whether the application contains sufficient or adequate information pursuant to Article 44(2). To this end, it may at any time seek further information from the Sponsoring State consistent with Article 44(2);
    b) consider the exploration and development activities proposed in the application, and such elaborations, revisions or adaptations as necessary:
        iii) to ensure their consistency with this Convention as well as measures in effect pursuant thereto and the general requirements referred to in Article 43(3); and
        iv) to prescribe the specific terms and conditions of a Management Scheme in accordance with Article 47.
2. At any time during the process of consideration described above, the Regulatory Committee may decline the application if it considers that the activities proposed therein cannot be elaborated, revised or adapted to ensure consistency with this Convention as well as measures in effect pursuant thereto and the general requirements referred to in Article 43(3).
3. In performing its functions under this Article, the Regulatory Committee shall seek and take full account of the views of the Advisory Committee. To that end the Regulatory Committee shall refer to the Advisory Committee all parts of the application which are necessary for it to provide advice pursuant to Article 26, together with any other relevant information.
4. If two or more applications meeting the requirements of Article 44(2) are lodged in respect of the same block:
    a) the competing applicants shall be invited by the Regulatory Committee to resolve the competition amongst themselves, by means of their own choice within a prescribed period;
    b) if the competition is not resolved pursuant to subparagraph (a) above it shall be resolved by the Regulatory Committee in accordance with the method determined by it pursuant to Article 43(2)(e).

Article 46. Management Scheme

In performing its functions under Article 45, including the preparation of a Management Scheme, and under Article 54, the Regulatory Committee shall have recourse to the Sponsoring State and the member or members, if any, referred to in Article 29(2)(a) and, as may be required, one or two additional members of the Regulatory Committee.

Article 47. Scope of the Management Scheme

The Management Scheme shall prescribe the specific terms and conditions for exploration and development of the mineral resource or resources concerned within the relevant block. Such terms and conditions shall be consistent with the general requirements referred to in Article 43(3), and shall cover, *inter alia*:

a) duration of exploration and development permits;
b) measures and procedures for the protection of the Antarctic environment and dependent and associated ecosystems, including methods, activities and undertakings by the Operator to minimise environmental risks and damage;
c) provision for necessary and timely response action, including prevention, containment and clean up and removal measures, for restoration to the status quo ante, and for contingency plans, resources and equipment to enable such action to be taken;
d) procedures for the implementation of different stages of exploration and development;
e) performance requirements;
f) technical and safety specifications, including standards and procedures to ensure safe operations;
g) monitoring and inspection;
h) liability;
i) procedures for the development of mineral deposits which extend outside the area covered by a permit;
j) resource conservation requirements;
k) financial obligations of the Operator including:
    i) levies in accordance with measures adopted pursuant to Article 21(1)(q);
    ii) payments in the nature of and similar to taxes, royalties or payments in kind;
l) financial guarantees and insurance;
m) assignment and relinquishment;
n) suspension and modification of the Management Scheme, or cancellation of the Management Scheme, exploration or development permit, and the imposition of monetary penalties, in accordance with Article 51;
o) procedures for agreed modifications;
p) enforcement of the Management Scheme;
q) applicable law to the extent necessary;
r) effective additional procedures for the settlement of disputes;
s) provisions to avoid and to resolve conflict with other legitimate uses of Antarctica;

t) data and information collection, reporting and notification requirements;
u) confidentiality; and
v) removal of installations and equipment, as well as site rehabilitation.

Article 48. Approval of the Management Scheme

A Management Scheme prepared in accordance with Articles 45, 46 and 47 shall be subject to approval pursuant to Article 32. Such approval shall constitute authorisation for the issue without delay of an exploration permit by the Regulatory Committee. The exploration permit shall accord exclusive rights to the Operator to explore and, subject to Articles 53 and 54, to develop the mineral resource or resources which are the subject of the Management Scheme exclusively in accordance with the terms and conditions of the Management Scheme.

Article 49. Review

1. Any member of the Commission, or any member of a Regulatory Committee, may within one month of a decision by that Regulatory Committee to approve a Management Scheme or issue a development permit, request that the Commission be convened in accordance with Article 19(2)(b) or (c), as the case may be, to review the decision of the Regulatory Committee for consistency with the decision taken by the Commission to identify the area pursuant to Article 41 and any measures in effect relevant to that decision.
2. The Commission shall complete its consideration within three months of a request made pursuant to paragraph 1 above. In performing its functions the Commission shall not assume the functions of the Regulatory Committee, nor shall it substitute its discretion for that of the Regulatory Committee.
3. Should the Commission determine that a decision to approve a Management Scheme or issue a development permit is inconsistent with the decision taken by the Commission to identify the area pursuant to Article 41 and any measures in effect relevant to that decision, it may request that Regulatory Committee to reconsider its decision.

Article 50. Rights of Authorised Operators

1. No Management Scheme shall be suspended or modified and no Management Scheme, exploration or development permit shall be cancelled without the consent of the Sponsoring State except pursuant to Article 51, or Article 54 or the Management Scheme itself.
2. Each Operator authorised to conduct activities pursuant to a Management Scheme shall exercise its rights with due regard to the rights of other Operators undertaking exploration or development in the same identified area.

Article 51. Suspension, Modification or Cancellation of the Management Scheme and Monetary Penalties

1. If a Regulatory Committee determines that exploration or development authorised pursuant to a Management Scheme has resulted or is about to result in impacts on the Antarctic environment or dependent or associated ecosystems beyond those judged acceptable pursuant to this Convention, it shall suspend the relevant activities and as soon as possible modify the Management Scheme so as to avoid such impacts. If such impacts cannot be avoided by the modification of the Management Scheme, the Regulatory Committee shall suspend it, or cancel it and the exploration or development permit.
2. In performing its functions under paragraph 1 above a Regulatory Committee shall, unless emergency action is required, seek and taken into account the views of the Advisory Committee.
3. If a Regulatory Committee determines that an Operator has failed to comply with this Convention or with measures in effect pursuant to it or a Management Scheme applicable to that Operator, the Regulatory Committee may do all or any of the following:
    a) modify the Management Scheme;
    b) suspend the Management Scheme;
    c) cancel the Management Scheme and the exploration or development permit; and
    d) impose a monetary penalty.
4. Sanctions determined pursuant to paragraph 3(a) to (d) above shall be proportionate to the seriousness of the failure to comply.
5. A Regulatory Committee shall cancel a Management Scheme and the exploration or development permit if an Operator ceases to have a substantial and genuine link with the Sponsoring State as defined in Article 1(12).
6. The Commission shall adopt general measures, which may include mitigation, relating to action by Regulatory Committees pursuant to paragraphs 1 and 3 above and, as appropriate, to the consequences of such action. No application pursuant to Article 44 may be lodged until such measures have come into effect.

Article 52. Monitoring in relation to Management Schemes

1. Each Regulatory Committee shall monitor the compliance of Operators with Management Schemes within its area of competence.
2. Each Regulatory Committee, taking into account the advice of the Advisory Committee, shall monitor and assess the effects on the Antarctic environment and on dependent and on associated ecosystems of Antarctic mineral resource activities within its area of competence, particularly by reference to key environmental parameters and ecosystem components.

3. Each Regulatory Committee shall, as appropriate, inform the Commission and the Advisory Committee in a timely fashion of monitoring under this Article.

Chapter 5: Development

Article 53. Application for a Development Permit

1. At any time during the period in which an approved Management Scheme and exploration permit are in force for an Operator, the Sponsoring State may, on behalf of that Operator, lodge with the Regulatory Committee an application for a development permit.
2. An application shall be accompanied by the fees established by the Regulatory Committee in accordance with Article 43(2)(b) and shall contain:
    a) an updated description of the planned development identifying any modifications proposed to the approved Management Scheme and any additional measures to be taken, consequent upon such modifications, to ensure consistency with this Convention, including any measures in effect pursuant thereto and the general requirements referred to in Article 43(3);
    b) a detailed assessment of the environmental and other impacts of the planned development, taking into account Articles 15 and 26(4);
    c) a recertification by the Sponsoring State of the technical competence and financial capacity of the Operator and that the Operator has a substantial and genuine link with it as defined in Article 1(12);
    d) a recertification by the Sponsoring State of the capacity of the Operator to comply with the general requirements referred to in Article 43(3);
    e) updated information in relation to all other matters specified in Article 44(2); and
    f) such further information as may be required by the Regulatory Committee or in measures adopted by the Commission.

Article 54. Examination of Applications and Issue of Development Permits

1. The Regulatory Committee shall meet as soon as possible after an application has been lodged pursuant to Article 53.
2. The Regulatory Committee shall determine whether the application contains sufficient or adequate information pursuant to Article 53(2). In performing this function it may at any time seek further information from the Sponsoring State consistent with Article 53(2).
3. The Regulatory Committee shall consider whether:
    a) the application reveals modifications to the planned development previously envisaged;
    b) the planned development would cause previously unforeseen impacts on the Antarctic environment or dependent or associated ecosystems, either as a result of any modifications referred to in subparagraph (a) above or in the light of increased knowledge.

4. The Regulatory Committee shall consider any modifications to the Management Scheme necessary in the light of paragraph 3 above to ensure that the development activities proposed would be undertaken consistently with this Convention as well as measures in effect pursuant thereto and the general requirements referred to in Article 43(3). However, the financial obligations specified in the approved Management Scheme may not be revised without the consent of the Sponsoring State, unless provided for in the Management Scheme itself.
5. If the Regulatory Committee in accordance with Article 32 approves modifications under paragraph 4 above, or if it does not consider that such modifications are necessary, the Regulatory Committee shall issue without delay a development permit.
6. In performing its functions under this Article, the Regulatory Committee shall seek and take full account of the views of the Advisory Committee. To that end the Regulatory Committee shall refer to the Advisory Committee all parts of the application which are necessary for it to provide advice pursuant to Article 26, together with any other relevant information.

Chapter 6: Disputes Settlement

Article 55. Disputes Between Two or More Parties

Articles 56, 57 and 58 apply to disputes between two or more Parties.

Article 56. Choice of Procedure

1. Each Party, when signing, ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, may choose, by written declaration, one or both of the following means for the settlement of disputes concerning the interpretation or application of this Convention:
    a) the International Court of Justice;
    b) the Arbitral Tribunal.
2. A declaration made under paragraph 1 above shall not affect the operation of Article 57(1), (3), (4) and (5).
3. A Party that has not made a declaration under paragraph 1 above or in respect of which a declaration is no longer in force shall be deemed to have accepted the competence of the Arbitral Tribunal.
4. If the parties to a dispute have accepted the same means for the settlement of a dispute, the dispute may be submitted only to that procedure, unless the parties otherwise agree.
5. If the parties to a dispute have not accepted the same means for the settlement of a dispute, or if they have both accepted both means, the dispute may be submitted only to the Arbitral Tribunal, unless the parties otherwise agree.
6. A declaration made under paragraph 1 above shall remain in force until it expires in accordance with its terms or until 3 months after written notice of revocation has been deposited with the Depositary.

7. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the International Court of Justice or the Arbitral Tribunal, unless the parties to the dispute otherwise agree.

8. Declarations and notices referred to in this Article shall be deposited with the Depositary who shall transmit copies thereof to all Parties.

Article 57. Procedure for Dispute Settlement

1. If a dispute arises concerning the interpretation or application of this Convention, the parties to the dispute shall, at the request of any one of them, consult among themselves as soon as possible with a view to having the dispute resolved by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their choice.

2. If the parties to a dispute concerning the interpretation or application of this Convention have not agreed on a means for resolving it within 12 months of the request for consultation pursuant to paragraph 1 above, the dispute shall be referred, at the request of any party to the dispute, for settlement in accordance with the procedure determined by the operation of Article 56(4) and (5).

3. If a dispute concerning the interpretation or application of this Convention relates to a measure in effect pursuant to this Convention or a Management Scheme and the parties to such a dispute:
    a) have not agreed on a means for resolving the dispute within 6 months of the request for consultation pursuant to paragraph 1 above, the dispute shall be referred, at the request of any party to the dispute, for discussion in the institution which adopted the instrument in question;
    b) have not agreed on a means for resolving the dispute within 12 months of the request for consultation pursuant to paragraph 1 above, the dispute shall be referred for settlement, at the request of any party to the dispute, to the Arbitral Tribunal.

4. The Arbitral Tribunal shall not be competent to decide or otherwise rule upon any matter within the scope of Article 9. In addition, nothing in this Convention shall be interpreted as conferring competence or jurisdiction on the International Court of Justice or any other tribunal established for the purpose of settling disputes between Parties to decide or otherwise rule upon any matter within the scope of Article 9.

5. The Arbitral Tribunal shall not be competent with regard to the exercise by an institution of its discretionary powers in accordance with this Convention; in no case shall the Arbitral Tribunal substitute its discretion for that of an institution. In addition, nothing in this Convention shall be interpreted as conferring competence or jurisdiction on the International Court of Justice or any other tribunal established for the purpose of settling disputes between Parties with regard to the exercise by an institution of its discretionary powers or to substitute its discretion for that of an institution.

Article 58. Exclusion of Categories of Disputes

1. Any Party, when signing, ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, may, by written declaration, exclude the operation of Article 57(2) or (3) without its consent with respect to a category or categories of disputes specified in the declaration. Such declaration may not cover disputes concerning the interpretation or application of:
    a) any provision of this Convention or of any measure in effect pursuant to it relating to the protection of the Antarctic environment or dependent or associated ecosystems;
    b) Article 7(1);
    c) Article 8;
    d) Article 12;
    e) Article 14;
    f) Article 15; or
    g) Article 37.
2. Nothing in paragraph 1 above or in any declaration made under it shall affect the operation of Article 57(1), (4) and (5).
3. A declaration made under paragraph 1 above shall remain in force until it expires in accordance with its terms or until 3 months after written notice of revocation has been deposited with the Depositary.
4. A new declaration, a notice of revocation or the expiry of a declaration shall not in any way affect proceedings pending before the International Court of Justice or the Arbitral Tribunal, unless the parties to the dispute otherwise agree.
5. Declarations and notices referred to in this Article shall be deposited with the Depositary who shall transmit copies thereof to all Parties.
6. A Party which, by declaration made under paragraph 1 above, has excluded a specific category or categories of disputes from the operation of Article 57(2) or (3) without its consent shall not be entitled to submit any dispute falling within that category or those categories for settlement pursuant to Article 57(2) or (3), as the case may be, without the consent of the other party or parties to the dispute.

Article 59. Additional Dispute Settlement Procedures

1. The Commission, in conjunction with its responsibilities pursuant to Article 41(1), shall establish additional procedures for third-party settlement, by the Arbitral Tribunal or through other similar procedures, of disputes which may arise if it is alleged that a violation of this Convention has occurred by virtue of:
    a) a decision to decline a Management Scheme;
    b) a decision to decline the issue of a development permit; or
    c) a decision to suspend, modify or cancel a Management Scheme or to impose monetary penalties.
2. Such procedures shall:

a) permit, as appropriate, Parties and Operators under their sponsorship, but not both in respect of any particular dispute, to initiate proceedings against a Regulatory Committee;
b) require disputes to which they relate to be referred in the first instance to the relevant Regulatory Committee for consideration;
c) incorporate the rules in Article 57(4) and (5).

Chapter VII: Final Clauses

Article 60. Signature

This Convention shall be open for signature at Wellington from 25 November 1988 to 25 November 1989 by States which participated in the final session of the Fourth Special Antarctic Treaty Consultative Meeting.

Article 61. Ratification, Acceptance, Approval or Accession

1. This Convention is subject to ratification, acceptance or approval by Signatory States.
2. After 25 November 1989 this Convention shall be open for accession by any State which is a Contracting Party to the Antarctic Treaty.
3. Instruments of ratification, acceptance, approval or accession shall be deposited with the Government of New Zealand, hereby designated as the Depositary.

Article 62. Entry Into Force

1. This Convention shall enter into force on the thirtieth day following the date of deposit of instruments of ratification, acceptance, approval or accession by 16 Antarctic Treaty Consultative Parties which participated as such in the final session of the Fourth Special Antarctic Treaty Consultative Meeting, provided that number includes all the States necessary in order to establish all of the institutions of the Convention in respect of every area of Antarctica, including 5 developing countries and 11 developed countries.
2. For each State which, subsequent to the date of entry into force of this Convention, deposits an instrument of ratification, acceptance, approval or accession, the Convention shall enter into force on the thirtieth day following such deposit.

Article 63. Reservations, Declarations and Statements

1. Reservations to this Convention shall not be permitted. This does not preclude a State, when signing, ratifying, accepting, approving or acceding to this Convention, from making declarations or statements, however phrased or named, with a view, *inter alia*, to the harmonisation of its laws and regulations with this Convention, provided that such declarations or statements do not purport to exclude or to modify the legal effect of this Convention in its application to that State.
2. The provisions of this Article are without prejudice to the right to make written declarations in accordance with Article 58.

Article 64. Amendment

1. This Convention shall not be subject to amendment until after the expiry of 10 years from the date of its entry into force. Thereafter, any Party may, by written communication addressed to the Depositary, propose a specific amendment to this Convention and request the convening of a meeting to consider such proposed amendment.
2. The Depositary shall circulate such communication to all Parties. If within 12 months of the date of circulation of the communication at least one-third of the Parties reply favourably to the request, the Depositary shall convene the meeting.
3. The adoption of an amendment considered at such a meeting shall require the affirmative votes of two-thirds of the Parties present and voting, including the concurrent votes of the members of the Commission attending the meeting.
4. The adoption of any amendment relating to the Special Meeting of Parties or to the Advisory Committee shall require the affirmative votes of three-quarters of the Parties present and voting, including the concurrent votes of the members of the Commission attending the meeting.
5. An amendment shall enter into force for those Parties having deposited instruments of ratification, acceptance or approval thereof 30 days after the Depositary has received such instruments of ratification, acceptance or approval from all the members of the Commission.
6. Such amendment shall thereafter enter into force for any other Party 30 days after the Depositary has received its instrument of ratification, acceptance or approval thereof.
7. An amendment that has entered into force pursuant to this Article shall be without prejudice to the provisions of any Management Scheme approved before the date on which the amendment entered into force.

Article 65. Withdrawal

1. Any Party may withdraw from this Convention by giving to the Depositary notice in writing of its intention to withdraw. Withdrawal shall take effect two years after the date of receipt of such notice by the Depositary.
2. Any Party which ceases to be a Contracting Party to the Antarctic Treaty shall be deemed to have withdrawn from this Convention on the date that it ceases to be a Contracting Party to the Antarctic Treaty.
3. Where an amendment has entered into force pursuant to Article 64(5), any Party from which no instrument of ratification, acceptance or approval of the amendment has been received by the Depositary within a period of two years from the date of the entry into force of the amendment shall be deemed to have withdrawn from this Convention on the date of the expiration of a further two year period.

4. Subject to paragraphs 5 and 6 below, the rights and obligations of any Operator pursuant to this Convention shall cease at the time its Sponsoring State withdraws or is deemed to have withdrawn from this Convention.
5. Such Sponsoring State shall ensure that the obligations of its Operators have been discharged no later than the date on which its withdrawal takes effect.
6. Withdrawal from this Convention by any Party shall not affect its financial or other obligations under this Convention pending on the date withdrawal takes effect. Any dispute settlement procedure in which that Party is involved and which has been commenced prior to that date shall continue to its conclusion unless agreed otherwise by the parties to the dispute.

Article 66. Notifications by the Depositary

The Depositary shall notify all Contracting Parties to the Antarctic Treaty of the following:

a) signatures of this Convention and the deposit of instruments of ratification, acceptance, approval or accession;
b) the deposit of instruments of ratification, acceptance or approval of any amendment adopted pursuant to Article 64;
c) the date of entry into force of this Convention and of any amendment thereto;
d) the deposit of declarations and notices pursuant to Articles 56 and 58;
e) notifications pursuant to Article 18; and
f) the withdrawal of a Party pursuant to Article 65.

Article 67. Authentic Texts, Certified Copies and Registration with the United Nations

1. This Convention of which the Chinese, English, French, Russian and Spanish texts are equally authentic shall be deposited with the Government of New Zealand which shall transmit duly certified copies thereof to all Signatory and Acceding States.
2. The Depositary shall also transmit duly certified copies to all Signatory and Acceding States of the text of this Convention in any additional language of a Signatory or Acceding State which submits such text to the Depositary.
3. This Convention shall be registered by the Depositary pursuant to Article 102 of the Charter of the United Nations.

Done at Wellington this second day of June 1988.

In witness whereof, the undersigned, duly authorised, have signed this Convention.

Annex for an Arbitral Tribunal

Article 1

The Arbitral Tribunal shall be constituted and shall function in accordance with this Convention, including this Annex.

Article 2

1. Each Party shall be entitled to designate up to three Arbitrators, at least one of whom shall be designated within three months of the entry into force of this Convention for that Party. Each Arbitrator shall be experienced in Antarctic affairs, with knowledge of international law and enjoying the highest reputation for fairness, competence and integrity. The names of the persons so designated shall constitute the list of Arbitrators. Each Party shall at all times maintain the name of at least one Arbitrator on the list.
2. Subject to paragraph 3 below, an Arbitrator designated by a Party shall remain on the list for a period of five years and shall be eligible for redesignation by that Party for additional five year periods.
3. An Arbitrator may by notice given to the Party which designated that person withdraw his name from the list. If an Arbitrator dies or gives notice of withdrawal of his name from the list or if a Party for any reason withdraws from the list the name of an Arbitrator designated by it, the Party which designated the Arbitrator in question shall notify the Executive Secretary promptly. An Arbitrator whose name is withdrawn from the list shall continue to serve on any Arbitral Tribunal to which that Arbitrator has been appointed until the completion of proceedings before that Arbitral Tribunal.
4. The Executive Secretary shall ensure that an up-to-date list is maintained of the Arbitrators designated pursuant to this Article.

Article 3

1. The Arbitral Tribunal shall be composed of three Arbitrators who shall be appointed as follows:
    a) The party to the dispute commencing the proceedings shall appoint one Arbitrator, who may be its national, from the list referred to in Article 2 of this Annex. This appointment shall be included in the notification referred to in Article 4 of this Annex.
    b) Within 40 days of the receipt of that notification, the other party to the dispute shall appoint the second Arbitrator, who may be its national, from the list referred to in Article 2 of this Annex.
    c) Within 60 days of the appointment of the second Arbitrator, the parties to the dispute shall appoint by agreement the third Arbitrator from the list referred to in Article 2 of this Annex. The third Arbitrator shall not be either a national of, or a person designated by, a party to the dispute, or of the same nationality as either of the first two Arbitrators. The third Arbitrator shall be the Chairman of the Arbitral Tribunal.

d) If the second Arbitrator has not been appointed within the prescribed period, or if the parties to the dispute have not reached agreement within the prescribed period on the appointment of the third Arbitrator, the Arbitrator or Arbitrators shall be appointed, at the request of any party to the dispute and within 30 days of the receipt of such request, by the President of the International Court of Justice from the list referred to in Article 2 of this Annex and subject to the conditions prescribed in subparagraphs (b) and (c) above. In performing the functions accorded him in this subparagraph, the President of the Court shall consult the parties to the dispute and the Chairman of the Commission.

e) If the President of the International Court of Justice is unable to perform the functions accorded him in subparagraph (d) above or is a national of a party to the dispute, the functions shall be performed by the Vice-President of the Court, except that if the Vice-President is unable to perform the functions or is a national of a party to the dispute the functions shall be performed by the next most senior member of the Court who is available and is not a national of a party to the dispute.

2. Any vacancy shall be filled in the manner prescribed for the initial appointment.

3. In disputes involving more than two Parties, those Parties having the same interest shall appoint one Arbitrator by agreement within the period specified in paragraph 1(b) above.

Article 4

The party to the dispute commencing proceedings shall so notify the other party or parties to the dispute and the Executive Secretary in writing. Such notification shall include a statement of the claim and the grounds on which it is based. The notification shall be transmitted by the Executive Secretary to all Parties.

Article 5

1. Unless the parties to the dispute agree otherwise, arbitration shall take place at the headquarters of the Commission, where the records of the Arbitral Tribunal shall be kept. The Arbitral Tribunal shall adopt its own rules of procedure. Such rules shall ensure that each party to the dispute has a full opportunity to be heard and to present its case and shall also ensure that the proceedings are conducted expeditiously.

2. The Arbitral Tribunal may hear and decide counterclaims arising out of the dispute.

Article 6

1. The Arbitral Tribunal, where it considers that prima facie it has jurisdiction under this Convention, may:

a) at the request of any party to a dispute, indicate such provisional measures as it considers necessary to preserve the respective rights of the parties to the dispute;

b) prescribe any provisional measures which it considers appropriate under the circumstances to prevent serious harm to the Antarctic environment or dependent or associated ecosystems.

2. The parties to a dispute shall comply promptly with any provisional measures prescribed under paragraph 1(b) above pending an award under Article 9 of this Annex.

3. Notwithstanding Article 57(1), (2) and (3) of this Convention, a party to any dispute that may arise falling within the categories specified in Article 58(1)(a) to (g) of this Convention may at any time, by notification to the other party or parties to the dispute and to the Executive Secretary in accordance with Article 4 of this Annex, request that the Arbitral Tribunal be constituted as a matter of exceptional urgency to indicate or prescribe emergency provisional measures in accordance with this Article. In such case, the Arbitral Tribunal shall be constituted as soon as possible in accordance with Article 3 of this Annex, except that the time periods in Article 3(1)(b), (c) and (d) shall be reduced to 14 days in each case. The Arbitral Tribunal shall decide upon the request for emergency provisional measures within two months of the appointment of its Chairman.

4. Following a decision by the Arbitral Tribunal upon a request for emergency provisional measures in accordance with paragraph 3 above, settlement of the dispute shall proceed in accordance with Articles 56 and 57 of this Convention.

Article 7

Any Party which believes it has a legal interest, whether general or individual, which may be substantially affected by the award of an Arbitral Tribunal, may, unless the Arbitral Tribunal decides otherwise, intervene in the proceedings.

Article 8

The parties to the dispute shall facilitate the work of the Arbitral Tribunal and, in particular, in accordance with their law and using all means at their disposal, shall provide it with all relevant documents and information, and enable it, when necessary, to call witnesses or experts and receive their evidence.

Article 9

If one of the parties to the dispute does not appear before the Arbitral Tribunal or fails to defend its case, any other party to the dispute may request the Arbitral Tribunal to continue the proceedings and make its award.

Article 10

1. The Arbitral Tribunal shall decide, on the basis of this Convention and other rules of law not incompatible with it, such disputes as are submitted to it.

2. The Arbitral Tribunal may decide, *ex aequo et bono*, a dispute submitted to it, if the parties to the dispute so agree.

Article 11

1. Before making its award, the Arbitral Tribunal shall satisfy itself that it has competence in respect of the dispute and that the claim or counterclaim is well founded in fact and law.
2. The award shall be accompanied by a statement of reasons for the decision and shall be communicated to the Executive Secretary who shall transmit it to all Parties.
3. The award shall be final and binding on the parties to the dispute and on any Party which intervened in the proceedings and shall be complied with without delay. The Arbitral Tribunal shall interpret the award at the request of a party to the dispute or of any intervening Party.
4. The award shall have no binding force except in respect of that particular case.
5. Unless the Arbitral Tribunal decides otherwise, the expenses of the Arbitral Tribunal, including the remuneration of the Arbitrators, shall be borne by the parties to the dispute in equal shares.

Article 12

All decisions of the Arbitral Tribunal, including those referred to in Articles 5, 6 and 11 of this Annex, shall be made by a majority of the Arbitrators who may not abstain from voting.

Final Report of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources

1. The Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources was convened in accordance with Recommendation XI-1 adopted by the Antarctic Treaty Consultative Parties at Buenos Aires in July 1981.

2. The Special Consultative Meeting began its work at Wellington from 14 to 25 June 1982 and was attended by Representatives of the 14 Antarctic Treaty Consultative Parties at that time, namely Argentina, Australia, Belgium, Chile, France, Federal Republic of Germany, Japan, New Zealand, Norway, Poland, South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, and United States of America. Mr Christopher Beeby, Representative of New Zealand, was elected as Chairman.

3. Further sessions were held as follows:

- Wellington, 17 to 28 January 1983
- Bonn, 11 to 22 July 1983
- Washington DC, 18 to 27 January 1984
- Tokyo, 23 to 31 May 1984
- Rio de Janeiro, 26 February to 12 March 1985
- Paris, 23 September to 6 October 1985
- Hobart, 14 to 25 April 1986
- Tokyo, 27 October to 12 November 1986
- Montevideo, 11 to 20 May 1987
- Wellington, 18 to 29 January 1988.

4. All sessions were attended by Representatives of the Antarctic Treaty Consultative Parties mentioned in paragraph 2 above. Representatives of Brazil and India (from the session held in Washington in January 1984), China and Uruguay (from the session held in Hobart in April 1986), and the German Democratic Republic and Italy (from the session held in Wellington in January 1988) also participated as Consultative Parties.

5. Following the decision taken at the Twelfth Antarctic Treaty Consultative Meeting held in Canberra in 1983 that delegations of Contracting Parties to the Antarctic Treaty that are not Consultative Parties, may be invited to attend Consultative Party meetings as observers, it was decided at the session in Tokyo in May 1984 to extend this decision to the meetings on Antarctic Minerals. Accordingly, invitations to attend the negotiations were extended to such Contracting Parties from the session held in Rio de Janeiro in February/March 1985. In accordance with such invitations delegations from Austria, Bulgaria, China, Cuba, Czechoslovakia, Denmark, Ecuador, Finland, German Democratic Republic, Greece, Hungary, Italy, Republic of Korea, Netherlands, Papua New Guinea, Peru, Romania, Spain, Sweden and Uruguay attended various sessions of the negotiations.

6. The final session of the Fourth Special Antarctic Treaty Consultative Meeting was held at Wellington from 2 May to 2 June 1988. It was opened by Hon Russell Marshall, Minister of Foreign Affairs and Minister of Disarmament and Arms Control of New Zealand. Mr Christopher Beeby of New Zealand was elected as Chairman.

7. Representatives of all the Consultative Parties, namely Argentina, Australia, Belgium, Brazil, Chile, China, France, German Democratic Republic, Federal Republic of Germany, India, Italy, Japan, New Zealand, Norway, Poland, South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America and Uruguay participated in the session. On the invitation of the Consultative Parties, Representatives of 13 Contracting Parties to the Antarctic Treaty that are not Consultative Parties, namely Bulgaria, Canada, Czechoslovakia, Denmark, Ecuador, Finland, Greece, Republic of Korea, Netherlands, Papua New Guinea, Peru, Romania and Sweden, also participated in the session.

8. Consultations were held under the auspices of the Chairman to advance work on key aspects of the informal negotiating text that had been under negotiation at previous sessions (MR/17 and its subsequent revisions I to V/Corr.1). A Main Committee, open to

participation by all delegations, was established under the Chairmanship of Mr Rolf Trolle Andersen of Norway, to review particular aspects of the text and to consider proposals for amendments.

9. The Drafting Committee, comprising representatives from Argentina, Brazil, Chile, China, France, Federal Republic of Germany, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland and the United States of America and under the Chairmanship of Mr Orlando R. Rebagliati of Argentina, continued the work it had begun at the session in Wellington in January 1988 to review drafting issues in the text and to ensure the concordance of the text in the official languages of the Antarctic Treaty.

10. At the conclusion of the session the Representatives of the Consultative Parties adopted by consensus, in the four official languages of the Antarctic Treaty, the Convention on the Regulation of Antarctic Mineral Resource Activities, and, together with the Representatives of the Non-Consultative Parties participating in the final session, signed the Final Act of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources to which the Convention is annexed.

11. Statements made by Representatives upon the adoption of the Convention are annexed to this report.

12. The Representatives expressed their gratitude to the Government and people of New Zealand for hosting the Meeting and to the Chairman, Mr Christopher Beeby, and the members of the New Zealand delegation and the Secretariat for their assistance in making the Convention possible.

13. The Meeting agreed that the Convention would be opened for signature at Wellington on 25 November 1988.

Final Act of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources

The final session of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources was held at Wellington from 2 May to 2 June 1988. Representatives of the Consultative Parties to the Antarctic Treaty, namely Argentina, Australia, Belgium, Brazil, Chile, China, France, German Democratic Republic, Federal Republic of Germany, India, Italy, Japan, New Zealand, Norway, Poland, South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America and Uruguay, participated in the Meeting. On the invitation of the Consultative Parties, Representatives of 13 Contracting Parties to the Antarctic Treaty that are not Consultative Parties, namely Bulgaria, Canada, Czechoslovakia, Denmark, Ecuador, Finland, Greece, Republic of Korea, Netherlands, Papua New Guinea, Peru, Romania and Sweden, also participated in the Meeting.

As a result of their deliberations, the Consultative Parties adopted in the official languages of the Antarctic Treaty the 'Convention on the Regulation of Antarctic Mineral Resource Activities', the text of which is annexed to this Final Act and agreed that it would be opened for signature at Wellington on 25 November 1988.

Taking into account the decision reflected in Article 67 of the Convention that Chinese would be an authentic language, the Meeting agreed that the Drafting Committee would be reconvened by the Depositary, at a time and place to be agreed, for the purpose of bringing into concordance with the text of the Convention in the four official languages of the Antarctic Treaty, a Chinese text. To this end it was agreed that the Depositary would circulate in advance of such meeting a text of the Convention in the Chinese language.

The Meeting also agreed that the Drafting Committee should consider any questions of linguistic consistency, which might possibly be found to be necessary, in the authentic texts in the official languages of the Antarctic Treaty with a view to their rectification in accordance with the rules and procedures set forth in the Vienna Convention on the Law of Treaties 1969.

With respect to the decision reflected in Article 67(2) of the Convention the Meeting noted that at any time after the opening for signature of the Convention a Signatory or Acceding State could lodge with the Depositary an official translation of the Convention which would then be circulated in accordance with Article 67(2).

The Meeting also considered the question of continuing the restraint of Antarctic mineral resource activities agreed to in Recommendation IX-1 for the interim period before the entry into force of the Convention. Taking into account Recommendation IX-1 and the adoption by the Meeting of the Convention on the Regulation of Antarctic Mineral Resource Activities, the Meeting agreed that all States represented at the Meeting would urge their nationals and other States to refrain from Antarctic mineral resource activities as defined in the Convention pending its timely entry into force.

The Meeting recognized that unfair economic practices including certain forms of subsidies could cause adverse effects to the interests of Parties to the Convention and that such effects should be addressed in the context of the relevant multilateral agreements. To this end, the Meeting agreed that Parties to the Convention which are also Parties to such multilateral agreements will determine conditions of application of these agreements to Antarctic mineral resource activities.

The Meeting noted that mineral resources, as defined in Article 1(6) of the Convention, do not include ice and that if harvesting of ice, including icebergs, were to become a possibility in the future there could be impacts on the Antarctic environment and on dependent and on associated ecosystems. The Meeting also noted that the harvesting of ice from the coastal region of Antarctica, more particularly if land based facilities were required could raise some of the environmental and other issues addressed in the Convention. The Meeting agreed that the question of harvesting Antarctic ice should be

further considered by the Antarctic Treaty Consultative Parties at the next regular meeting.

The Meeting noted the requirement under Article 8 of the Convention for a separate Protocol on liability and agreed that it would be desirable to begin work on its elaboration at an early stage.

With respect to the financial obligations of Operators, the Meeting noted the importance for the operation of the Convention that an indication of the possible extent of the financial obligations of Operators should be available to them in reasonable time before applications for exploration permits are submitted.

The Meeting agreed that the area of regulation of Antarctic mineral resource activities defined in Article 5(2) of the Convention does not extend to any continental shelf appurtenant in accordance with international law to islands situated north of 60° south latitude.

The Meeting also agreed that the geographic extent of the continental shelf as referred to in Article 5(3) of the Convention would be determined by reference to all the criteria and the rules embodied in paragraphs 1 to 7 of Article 76 of the United Nations Convention on the Law of the Sea.

With respect to Articles 6 and 41(1) (d) of the Convention, the Meeting noted that the promotion and encouragement of international participation do not prejudice the right of any applicant to exercise freedom of choice over the partners in a joint venture, including the terms of their partnership, consistently with the Articles referred to above and any measures pursuant to them, in offering international participation in any proposed Antarctic mineral resource activity. The Meeting agreed that Article 8(10) of the Convention was to be interpreted as excluding multiple judgments in respect of the same liability claim. Specifically, if a liability claim has been referred to adjudication in the courts of one Party, such claim would not be subject to additional adjudication while those proceedings are pending or after they have resulted in a final judgment. The Meeting also noted that Article 8(10) would apply in the period prior to entry into force of the Protocol referred to in Article 8(7) and it was understood that paragraph 10 should be interpreted in light of Article 37 of the Convention and that the Operators referred to in that paragraph were those defined in Article 1 of the Convention.

In relation to Article 29 of the Convention the Meeting agreed that the member or members of the Commission mentioned in Article 29(2) (a) are those identified by reference to Article IV(1) (a) of the Antarctic Treaty. The members of the Commission mentioned in Article 29(2) (b) are those identified by reference to Article IV(1) (b) of the Antarctic Treaty.

The Meeting acknowledged that the specific formula in Article 29(3) (b) of the Convention ('at least three developing country members' of the Commission) accurately reflected the balance between developed and developing Consultative Parties as at the date of the adoption of the Convention. It was also recognized that in the event of an

increase of the size of the Commission in the future resulting in a significant alteration of this balance, there would be a case for considering, by way of an amendment in accordance with Article 64 of the Convention, the specific formula in Article 29(3) (b) of the Convention and, by reference to paragraph 2(c) (ii) of that Article, the total membership of the Regulatory Committee.

The Meeting agreed that it was desirable that the decision making process in the Regulatory Committee pursuant to Article 32 of the Convention should reflect all the interests represented in the Regulatory Committee. It was also agreed, in particular, that it was desirable that the two-thirds majority referred to in Article 32 should include at least one developing country.

With respect to Article 62 of the Convention, the Meeting agreed that all of the institutions of the Convention could not be established in respect of every area of Antarctica unless all the States referred to in Article IV(1) (a) and (b) of the Antarctic Treaty and at least four States referred to in paragraph 1(c) of that Article were Parties to the Convention, and that these included at least three developing countries.

The Meeting agreed that the titles of Chapters and Articles in the Convention are indicative only and were included for the sole purpose of facilitating examination of the text and reference to different provisions of the Convention.

The Meeting also agreed that the contents of this Final Act are without prejudice to the legal position under the Antarctic Treaty of any Party.

Done at Wellington, this second day of June 1988, in a single original copy in the four official languages of the Antarctic Treaty to be deposited in the archives of the Government of New Zealand which will transmit a certified copy thereof to all Contracting Parties to the Antarctic Treaty.

Report of the Group of Ecological, Technical and Other Related Experts on Mineral Exploration and Exploitation in Antarctica, Washington 1979

1. The Group of Experts was established in accordance with Recommendation IX-1, operative paragraph 3. The Group met in Washington, D.C., between 25 and 29 June 1979, 'with a view to developing scientific programs aimed at:

i) improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, as in Section IIB of the Report of the Group of Experts, and in Section 5 of the SCAR/EAMREA Group Report;
ii) developing measures for the prevention of damage to the environment or for its rehabilitation, in accordance with Section IIC of the Report of the Group of Experts'.

2. The Group at its first session elected Dr Robert Rutford (United States) as its Chairman.

3. The Group adopted the revised agenda.

I. Outline of scientific programs on environmental impacts

4. It was the understanding of the Group that the unique Antarctic ecosystem is closely related to neighbouring ecosystems and that gross perturbation in one area of the Antarctic may have effects, however attenuated, both in the Antarctic and in other areas. The Group recognized that a better understanding of the Antarctic ecosystem as a whole was an important objective. The Group of Experts considered that the purpose of the scientific programs with which it was concerned was to obtain information critical to decisions concerning the possibility of the exploration for and exploitation of mineral resources in Antarctica, should these activities occur.

5. The Group agreed that scientific, technological, and economic factors indicate little likelihood of the commercial exploitation of Antarctic mineral resources other than offshore hydrocarbons in the foreseeable future. Accordingly, scientific programs to deal with the impacts of mineral activity should be concerned primarily with that resource.

6. The Group considered that the Report of the Group of Experts to the Ninth Consultative Meeting and the SCAR/EAMREA report identified information needs and gaps in knowledge that are little changed since those reports were presented. The Group noted that the question of geological hazards is referred to in the Report by the Group of Experts to the Ninth in other sections but is not specifically cited in Section IIB. No major technological advances were noted that would negate or alter the areas of concern identified in those reports.

7. The Group, noting the three stages of mineral resource activity identified in paragraph 32 of the Report of the Group of Experts of the Ninth Consultative Meeting, considered the kinds of environmental risks and impacts directly associated with each of these stages:

a) Stage one, basic exploration was considered to involve negligible environmental risks except possibly those which might be associated with the operations of ships in Antarctic waters;
b) The second and third stages, exploratory drilling and full scale exploitation, involve greater environmental risks.

It was noted that the impacts from many of these activities might be more drastic in the Antarctic because of the severe environmental conditions, and strict regulation would be necessary were these activities to occur.

8. The Group suggested that basic and baseline information on the Antarctic environment is required in order to predict, mitigate, and monitor possible impacts resulting from mineral resource exploration and exploitation, should such activities occur.

9. It is possible that there is available, as a result of the research activities of the various nations during the past years, considerable information that through compilation and

analysis, might satisfy part of this information requirement as well as more clearly identify those areas where further information is required. The Group acknowledged the admonition of the previous Group of Experts that it would be quite impossible to measure all of the environmental variables or describe all Antarctic ecosystems in detail. The selection of key factors is critical to these studies.

10. Ongoing and planned research activities (*inter alia*, BIOMASS, ISOS, POLEX) that will concentrate on the Antarctic marine and coastal systems should take account of the requirements for information outlined in this report in order to avoid unnecessary duplication of effort.

11. In attempting to fulfill the mandate set forth in the first part of its terms of reference, the Group agreed that more time and expertise than was available at the meeting would be necessary for the preparation of detailed research proposals. In this connection, however, the Group concluded that in relation to the possible exploitation of hydrocarbons (see para. 5) it would be more cost effective to contribute towards an improved understanding of the Antarctic ecosystem by means of sharply focused programs primarily devoted to the marine environment.

12. The Group also concluded that the following four specific areas were particularly deserving of attention:

a) Identification of the structure and dynamics of principal marine, aquatic, and terrestrial ecosystems that might be impacted by activities associated with mineral development.
b) Identification of key components of the ecosystem and components that might be the most sensitive indicators of the effects of mineral resource development and especially of the impact of either catastrophic or gradual pollution of the Antarctic environment.
c) Identification of those areas in Antarctica where mineral exploration and exploitation activities are more likely to occur.
d) Identification of areas of special ecological significance, and areas that might be particularly vulnerable to disturbance, taking account of the areas defined pursuant to the previous subparagraph.

13. In the light of these conclusions, the Group felt that it could take a significant step towards the development of appropriate research programs by concentrating on the subjects needing attention' set out in paragraph 69 of the Report of the Group of Experts in order to distinguish between the various sources from which relevant information might be derived, viz:

a) information that may already exist but which needs to be retrieved and appropriately analyzed;
b) information that is or might be expected to be available without the initiation of new research programs;

Suggested framework for the development of research programs aimed at improving predictions of the possible impact of hydrocarbon exploration and exploitation in the Antarctic.

I	II	III	IV
Information retreivable from analysis of past observations and research programs	Information obtainable from existing or planned research programs	Basic information requiring new or add-itional research that is not obtainable from ongoing programs or analysis of past work	Information requiring new or additional research when prospective regions have been identified
		Marine geological, geophysical and geochemical research on a regional basis	Definition in relevant detail of the physical oceanographic environment:
Physical oceanography			i. Water movements (currents, tides)
			ii. Sea-surface state (waves and over-icing)
			iii. Floating ice regime (pack ice and icebergs)
			iv. Evidence of iceberg scour (including age assessments)
		Methodology of dating iceberg scours	
Antarctic climatology			Regional meteorology
Definition of the struct- ures of those types of marine ecosystems, within the Antarctic ecosystem as a whole, likely to be affected by hydrocarbon explora-tion and exploitation	Further definition of the structure of those types of communities and ecosystems likely to be affected by hydrocarbon exploration and exploitation: improved general un-derstanding of population, community and ecosystem dynamics in pelagic and local in-shore areas	Influnce of pack ice on the structure and dynamics of marine biological communities.	
			Characteristics of regional biota and definition of areas of special biological significance
	Atmosphere and ice cap pollutant levels	Determination of base-line levels of hydrocarbon contamination in repre-sentative components of the marine ecosystem (including birds, mammals)	Determination of baseline levels of hydrocarbons in the water column and bottom sediments
		First and second order effects of var-ious kinds and concentrations of hydrocarbons and other pollutants on key components of the marine ecosystem.	
		The fate of various hydrocarbons under Antarctic environmental conditions (biodegredation, biological uptake and physical dispersal).	
		Design of monitoring programs based on indicator species sensitive to environmental pollution	

c) information that requires the initiation of new research programs or additional work on lines already underway in national programs and programs co-ordinated by SCAR; and
d) information that requires the initiation of new or additional research when prospective regions have been identified with greater precision than has been done at present.

14. The approach adopted was to consider each of the major 'subjects needing attention' and to tabulate them in four columns [see Table above]. The Group did not attempt to differentiate between programs that would be undertaken by governments and programs that could be undertaken in the course of exploration and exploitation, should this occur.

15. While the Group was conscious that a great deal of relevant information could have been listed in columns I and II, it was taken as being self-evident that new or additional research would take account of relevant earlier work and of information that might be expected to become available from national programs and programs co-ordinated under the auspices of SCAR. Absence of an entry into columns I and II was not to be interpreted to imply irrelevance. It was to be taken, rather, that an entry implies either that a special contribution towards an improved understanding in that field could be made by analysis of past observations and research programs or that a special effort should be made to bear in mind the relevance of results derived from existing programs.

16. In drawing up the table the Group had in mind additional purposes which might not be immediately apparent. These were:

a) to help in arriving at an appreciation of the sequential component in research that would need to be incorporated in any integrated research plan (e.g. broad-scale marine geological and geophysical research would be needed before prospective regions could be identified; knowledge of the biological significance of pack ice would be needed before characterization of regional biota could be of relevance in defining certain areas of special biological significance);
b) to begin to distinguish between those requirements that were oriented towards a better understanding of dynamic processes in the Antarctic and others that were oriented towards a better understanding of particular regions.

17. The Group recognized that this tabulation could be considerably refined by bringing to bear on it additional relevant scientific and technological expertise, including the discipline of systems analysis.

18. Bearing in mind that the tabulation represented only a framework within which appropriate research programs might be developed, the Group believed that the detailed development of research programs might best be remitted to SCAR which would profitably involve its Working Groups, Groups of Specialists and other expert opinion (see Section 5 of the SCAR/EAMREA Group Report). It was also noted that this consideration was in accord with the advice given in para. 68 of the Report to the Group of Experts to the Ninth Consultative meeting.

19. The Group, noting the need for the development of research programs aimed at improving predictions of the possible impact of hydrocarbon exploration and exploitation in Antarctica, *proposed* that the Representatives at the Tenth Consultative Meeting should recommend to their governments that they encourage SCAR, through their National Antarctic Committees, to define programs, taking account of the report of this meeting, with the objectives of:

a) retrieving and analyzing relevant information from past observations and research programs;
b) ensuring in relation to the needs for information identified by the Group that effective use is made of existing programs;
c) identifying and developing new programs that should have priority, taking account of the length of time required for results to become available.

20. The Group was conscious that SCAR had already indicated that costs would be involved in responding to initiatives on this subject, and it was agreed to draw this to the attention of the Consultative Parties prior to the Tenth Consultative Meeting.

II. Outline of scientific programs on prevention and rehabilitation

21. The Group of Experts considered Section IIC of the London Report as an excellent summary of the possible ways that pollutants might be introduced into the Antarctic environment by mineral resource exploration and exploitation. They acknowledged that the prevention of damage to the environment is largely dependent on the establishment of safeguards to prevent the introduction of pollutants and to protect areas of special significance, both terrestrial and marine. The problem of prevention of such damage is not restricted to the Antarctic although the unique environmental conditions found there require the development of special safeguards. The application of results from ongoing scientific and technological research in other areas, combined with research specifically related to the impacts of the Antarctic environment on exploration and exploitation activities, will assist in the development of measures for the prevention of damage to the Antarctic environment.

22. The development of science programs related to the restoration and/or rehabilitation of damage resulting from mineral resource activities will depend on the acquisition of an understanding of the Antarctic ecosystem and an assessment of the possible impacts on that ecosystem. It was deemed premature by the Group to attempt to outline scientific programs dealing with these matters at this time. Further consideration should be given to these subjects at a later time by the Consultative Parties.

III. Oil contamination of the Antarctic marine environment

23. As suggested by Recommendation IX-6, reports were submitted by Japan and by the Union of Soviet Socialist Republics on oil contamination of the Antarctic marine environment. In addition, Argentina submitted a suggestion for the study of pollution in the Antarctic.

24. The Group particularly noted the following pathways of man-made oil contamination identified in the Japanese report:

a) from scientific stations in the Antarctic;
b) from ships supporting scientific stations, conducting fishing operations or engaging in marine scientific research in Antarctic waters;
c) from water masses contaminated elsewhere and carried by natural forces into the Antarctic;
d) from possible future petroleum exploration and exploitation in Antarctica.

25. The Group particularly noted the following from the Soviet Report:

'From 1974 to 1978, as part of the Soviet Polar Experiment Southern Group Program, ships of the Soviet Arctic and Antarctic Scientific Research Institute (AANII) selected samples and examined them for petroleum product content at 161 points in the Southern Ocean, the Drake Straits, the Scotia Sea, along a line from Africa to Antarctica (20° east longitude), and along a line from Antarctica to Australia (132° east longitude). At the end of each trip the samples were delivered to the AANII, where they were examined by infrared spectrophotometry.

'The results showed that the petroleum product level in the samples taken at the indicated points in the Southern Ocean was in most cases less than 0.03 mg/liter. Some of the concentrations fell within the 0.03–0.08 mg/liter range, which approaches the sensitivity limit of the method (0.03 mg/liter).

'Most of the values for petroleum product content which were in excess of 0.03 mg/liter were for the frontal zone of the Scotia Sea, where there is a high level of biological activity. It is possible that the increase in the level of substances identified as petroleum products is due in some degree to hydrocarbons of biogenic origin.

'No oil films or patches were observed visually from aboard ship.

'Thus, the results show that in the areas inspected, the Southern Ocean is virtually free of contamination by petroleum products.'

26. The Group noted with interest the data presented in the Soviet Report concerning the low levels of hydrocarbons detected in the areas where observations were made. The Group urged the Consultative Parties and others operating ships or conducting activities that might introduce oil into the environment to continue their efforts to reduce possible oil contamination.

27. The determination of baseline levels of contamination of the Antarctic marine environment by oil has been included as a part of the suggested scientific programs aimed at improving the prediction of the impacts of possible mineral exploration and exploitation in the Antarctic.

28. The Group noted that up to now the most significant introduction of oil into the Antarctic marine environment appeared to be from the operation of ships. They further

noted that both national and international groups were conducting research on oil contamination of marine areas by ships, and on means for its reduction, and that some of this research would be applicable to the Antarctic environment. They also noted that current research on the effects of oil in the Arctic marine environment resulting from offshore oil development would be useful in appraising effects such activity in the Antarctic, should it occur. The results of these programs should be taken into account before similar programs are drawn up for the Antarctic.

29. There was inadequate time to consider the Argentine and Japanese suggestions for the study of pollution in the Antarctic. The Group suggests that the Tenth Consultative Meeting direct the attention of SCAR to these proposals and to the other documents submitted to the Group.

Report of the Group of Experts on Mineral Exploration and Exploitation, London 1977

1. The Group of Experts[1] was established in accordance with Recommendation VIII-14, operative paragraph 4, and the Report of the Special Preparatory Meeting held in Paris in June 1976. The Group met between 20 and 29 September 1977.

2. The Group conducted its business according to the terms of reference established at the Special Preparatory Meeting and guidelines submitted to the Plenary.

3. At its first session the Group elected Dr M.W. Holdgate (United Kingdom) as its Chairman.

4. The Group adopted the following agenda:

I. To review the present state of technology for exploration and exploitation of minerals in the Antarctic

a) geophysical and other exploratory techniques

[1] Members of the Group of Experts. Under the chairmanship of Dr M.W. Holdgate (UK) were: Dr P. Lesta; Dr H.R.G. Laguinge; Mr N.L. Bienati (Argentina); Mr L.F. Backen; Mr T.B. Curtin (Australia); Dr T. van Autenboer; Mr H. Nolard (Belgium); Dr O. Gonzalez-Ferran; Mr E. Gonzalez (Chile); Mr Jean-Paul Bloch; MrJ. Nauwelaers; Mr C. Cochard; Mr A. Poueyto; Mr B. Renard; Mr P. Deffrenne; Mr M. Dorel; Mr J. Duval (France); Mr M. Wakasa; Dr Y. Yoshida (Japan); Mr R.B. Thomson; Mr T.B. Caughley (New Zealand); Mr E. Bergsaker (Norway); Prof. Dr A. Urbanek; Prof. K. Birkenmajer (Poland); Dr D.C. Neethling (South Africa); Mr F.G. Larminie; Dr R.J. Adie (UK); Dr G. Bertrand; Mr J. Dugger; Dr B. Gerswick; Dr J.C. Behrendt; Lt Cdr J.J. McClelland Jr (USA); Dr V.V. Golitsin; Prof. M.G. Ravich; Mrs T. Ovchinnikova (USSR).

b) construction techniques for onshore or offshore installations
c) drilling and other extraction techniques
d) processing and storage techniques
e) transport techniques.

II. To review the probable impact of such exploration and exploitation on the environment.

III. To review measures for the prevention or restoration of damage to the environment

a) techniques for the prevention of pollution
b) remedial and restorative techniques
c) techniques for monitoring
d) techniques for the assessment (prediction) of environmental impact.

IV. To suggest preliminary guidelines on appropriate methods for exploration and exploitation and on preventive, corrective and restorative measures for the protection of the environment.

5. The attached record of the discussions and conclusions of the Group of Experts is presented in the following order:

I. Guidelines on appropriate methods for mineral exploration and exploitation in the Antarctic, and for the protection of the environment.

II. A record of the Group's discussion, arranged in accordance with Items I–III of its agenda.

6. In presenting their Report to Plenary the Group noted that the implementation of all the guidelines, including the proposals for scientific research, set out in the Report would demand substantial effort before exploratory drilling or the extraction of hydrocarbons or other minerals began (if this in fact were to occur) in the Antarctic.

7. The Group also stressed that these guidelines would need regular review as technology and scientific understanding advanced. The standards, pollution levels, environmental impact and other parameters referred to in the Guidelines and Report would also need careful quantification.

I. Guidelines on appropriate methods for mineral exploration and exploitation in the Antarctic, and for the protection of the environment

Introduction

8. The Group of Experts consider that were it thought possible to commence mineral exploration or exploitation in the Antarctic, guidelines would need to be developed and agreed covering scientific baseline studies, site studies, environmental impact assessment and many technical details of the actual operation of activities related to minerals.

9. Not only should existing international agreements such as those on safety at sea, pollution from shipping, dumping at sea and other marine environmental matters be

upheld, but consideration should be given to the development (in pursuance of Recommendation VIII-11) of special rules related to the exacting climatic conditions of the Antarctic, and the importance of safeguarding its unique environment and ecosystems.

10. Programmes of scientific research, monitoring and information exchange should be set in hand, according to procedures established by Consultative Meetings under the Antarctic Treaty, so as to provide as complete a foundation as possible before exploration or exploitation is likely to be considered.

Geological and Geophysical Investigations Prior to Exploratory Drilling for Hydrocarbons

11. Areas which may contain hydrocarbons are likely to be identified only after extensive, basic geophysical and geological surveys. Before any exploratory drilling was undertaken there would be a need for further detailed geological and geophysical studies and the investigation of environment factors that determine the feasibility of safe drilling operations. This second category of information should include sea-state data; weather trends during different seasons; currents; pack-ice distribution, types and pressures; iceberg size, frequency, drift rate and direction; and location of contemporary iceberg scour. Information is also needed about the composition, stability and strength of sea-bed sediments and strata on which installations might be based.

12. Most established geological and geophysical techniques, including geological and geochemical surveys and magnetic, gravimetric and seismic profiling systems, can be used safely and successfully for exploration for mineral resources in the Antarctic at appropriate seasons. Their initial environmental impact is likely to be no greater than that of present research activities, and can probably be controlled in the way that research is controlled (for example under the Agreed Measures for the Protection of Antarctic Fauna and Flora), but revised standards may be required should there be a marked increase in the scale of these activities.

13. Seismic techniques using high explosives as an energy source are required for geophysical research on deep crustal structures, and may be used occasionally in hydrocarbon exploration at sea, to confirm the findings of other methods. However, the detonation of explosives can have severe local impact on the biota and their use should be kept to a minimum. They should not be used on land (or in fresh waters) of biological or geomorphological interest.

Exploratory drilling for hydrocarbons at sea

14. Before any exploratory drilling is undertaken, there should be foundation investigations using methods such as high-resolution seismic and a range of physical studies of sea-bed conditions at the proposed drill site.

15. Because of the special environmental conditions and environmental sensitivity, any exploratory drilling in the Antarctic should be arranged with particularly thorough attention to safety precautions, both in the design of the equipment and installations and in its operation.

16. Floating structures used for exploratory drilling in the Antarctic should conduct their operations so as to be able to stop drilling rapidly and move away when threatened by icebergs, and subsequently recover their boreholes, without risk of pollution. Because it is most efficient to undertake such disconnection in an orderly way, early warning of approaching icebergs and storms that might also require movement off station is essential.

17. There is a divergence of expert opinion on how far technological developments might permit exploratory drilling from installations on the sea bed within the mid-term (10–25 years). Such developments would allow operations in areas inaccessible at present (although not below ice shelves). It would be essential for such installations (and similar sea-bed installations used in exploitation) to be located in areas not liable to iceberg scour.

18. Platforms and other installations for use for oil exploration or exploitation in the Antarctic should, wherever possible, be constructed outside the region and towed to their location. On-shore bases for the support of exploratory and exploitative activities should be kept as few and as small as possible and sited with great care so that the least possible environmental damage results. Installations for oil exploitation in the Antarctic should be as self-contained as possible.

19. Under the exacting conditions of the Antarctic, and because of its environmental sensitivity, special attention should be given to the thorough training of technical personnel and to the elaboration and enforcement of strict codes of conduct governing drilling operations.

Design of installations for the exploitation of hydrocarbons at sea

20. There is no technology presently suited to year-round oil production in the Antarctic. The concepts behind such potential technology are being developed actively, and may lead in the direction of self-contained, unmanned installations on the sea bed. It is important that guidelines are agreed to ensure that design, installation and maintenance are to the highest standard so as to prevent pollution, waste of energy and other resources, and hazard to human life. These guidelines will need continual review as the technology is developed.

21. Risk analyses should be performed to identify possible modes of failure of installations under the extreme environmental conditions of the Antarctic (which would need careful definition to this end), or through accident, and provision should be made for redundant paths or systems to insure against serious failure.

22. High standards should be set for the processing of hydrocarbons exploited in the Antarctic. As a general rule, gas should not be flared but used to provide energy for local needs, re-injected, or exported from the Antarctic. Water emerging with the oil should be re-injected.

23. Storage systems should be designed so as to ensure that hydrocarbons are separated from displaced seawater in accordance with agreed standards.

24. Further studies are needed in order to develop suitable vessels for use in the transportation of hydrocarbons from the Antarctic. These vessels should conform to advanced design standards and include systems for the prevention of the discharge of oily ballast water or polluted seawater south of 60° South.

Mineral Exploration and Exploitation on Land

25. Exploratory drilling is unlikely to be undertaken widely on land in the Antarctic, but should be carefully localised and controlled so as to minimise the disturbance of vulnerable Antarctic soils and the importation of chemical and microbial contamination.

26. Although the mining of minerals on land in the Antarctic is not likely in the foreseeable future, were it to occur severe local impact could be caused. This could also result from quarrying of aggregate and rocks for use in construction. Processing of ores would demand substantial energy and water, and generate large volumes of wastes. Sites and associated transport routes for any such mining or quarrying need a thorough environmental evaluation, and its operation would need careful monitoring to minimise damage.

Environmental Impact Assessment and Environmental Protection or Rehabilitation

27. Methods for environmental impact assessment in the Antarctic should be developed in accordance with recent developments in the concept. Such assessments should involve the close association of environmental scientists, specialists in the technology of mineral exploration and exploitation, and others concerned with the regulation of such activities. Impact assessment should be so conducted as to aid the adjustment of proposed developments so as to reduce their environmental effects, and should lead on to continuing monitoring.

28. Methods for the containment, recovery or safe dispersion of oil spilled at sea in the Antarctic in all but ideal conditions do not exist at present, and need urgent development. Research on this topic (or on that described in the following paragraph) should not, however, involve the deliberate release of oil into the sea in the Antarctic.

29. Knowledge is insufficient at present to allow reliable estimation of the impact of possible oil spills on Antarctic ecosystems, and it is vital that research on this subject be expanded.

30. There are no effective methods for the full restoration of sites on land, on ice, or at sea in the Antarctic disturbed by mineral exploration or exploitation. Artificial re-vegetation of land areas, as practised in the Arctic, does not appear appropriate in the Antarctic because of differing habitat conditions and a lack of suitable indigenous plant species. The most that can be done is to grade land surfaces and remove all possible extraneous material.

II. Record of the discussion of the Group of Experts.

A . Review of the present state of technology for exploration and exploitation of minerals in the Antarctic

i. General considerations

31. In discussing mineral exploration and exploitation techniques it is desirable to discriminate between the position on land (and there between ice-free and ice-covered terrain) and at sea. Marine situations should be examined in three categories: areas of sea bed situated beneath floating ice shelves several hundred metres thick, areas beneath pack ice that persists for nine or more months in the year, and areas beneath seas open for at least three summer months.

32. It is useful to distinguish three successive stages in the process commencing with exploration and ending in the exploitation of minerals.. These stages are:

i) basic exploration, which involves many activities inseparable from those in normal scientific geological and geophysical research and seeks to define the structures of the strata most promising for detailed examination;
ii) exploratory drilling in restricted areas chosen as a result of such preliminary investigations;
iii) full-scale exploitation.

33. Although there is a wide range of opinions concerning the likely location and extent of hydrocarbon and other mineral deposits in the Antarctic, at present there is no proof that significant deposits exist south of latitude 60° South. However, the Group agrees with a number of previous national and international evaluations, including those by SCAR, that exploration for hydrocarbons on the continental margins around Antarctica is foreseeable, and commercial exploitation is a possibility in the longer term. The exploitation of metallic minerals and fossil fuels on land appears much less probable in the foreseeable future, while there are more accessible deposits in other regions, but it would be unwise to exclude it completely. Should offshore oil or gas reserves be exploited, moreover, there could be onshore mining of rocks and quarrying of aggregates for use in construction. While the technology for exploration for, and exploitation of, hydrocarbons has received most urgent attention therefore, some attention has been given to that employed for other minerals.

34. The Antarctic remains one of the world's least known regions. Much of its land surface is mantled in ice, and its shallow seas obscured by ice shelves and pack. The development and application of geophysical methods, especially those employing remote sensing, are vital to its exploration for science, irrespective of possible mineral exploitation. Only approximately 1 per cent of other geologically comparable areas contain hydrocarbon resources, so that most of this exploration is unlikely to lead to possible commercial development.

35. Exploration or exploitation of hydrocarbons seems likely to be technically feasible at some time, but estimates of the likely time scale vary and there was a wide divergence of

views in the Group. No delegation believed that exploratory drilling in the Antarctic would begin in less than five years, and most of the experts considered that it was unlikely in less than ten years. The time scale for possible exploitation is even more uncertain, but in the much less exacting conditions of the North Sea, ten years elapsed between exploratory drilling and the commencement of exploitation.

36. It is important that a sufficient environmental data base to allow wise decisions about the conduct of exploratory drilling is obtained. Information is needed about sea states and depths; the persistence of storms and of spells of good weather; currents; pack ice (including pressures in pack); iceberg size, depths, frequency and rate of movement; and the depths of iceberg scour in areas that might be explored for hydrocarbons. In such areas information is also needed on the composition and stability of sea-bed sediments and rocks to which structures might be moored or on which they could be based. Areas of faulting and slumping, which could threaten the integrity of structures, need to be defined. Techniques to determine all these features are available (including side scan sonar and high-resolution seismic studies of the sea bed) but this programme of data gathering could well take ten years.

37. The design of structures for drilling, production, oil collection, processing, storage and transportation of the final products from the Antarctic must be based on recommended practices. Guidelines will need to be laid down to ensure that structures are designed, installed and maintained in a manner that provides safeguards against pollution, the waste of resources, or risks to life.

ii. Geophysical and other exploratory techniques

38. Geophysical exploration needs to be combined with other techniques. On land the continued mapping of ice thickness and sub-ice relief and the extension of geological investigations are needed as well as gravimetric, magnetic or seismic investigations if crustal structures are to be defined. At sea bathymetric surveys and geological sampling of the sea bed are important, alongside more specialised geophysical techniques.

39. Aeromagnetic techniques using a fairly widely spaced network of traverse lines are particularly appropriate to the search for basins containing substantial thicknesses of sediment. At sea, methods involving the sampling of water just above the sea bed in the search for traces of hydrocarbon seepage is another possible environmentally safe technology, as a supplement to the seismic studies that are likely to be instituted on an increasing scale.

40. Seismic surveys undertaken at sea involve two kinds of technique. Reflection methods, now widely used by the petroleum industry, involve long multi-channel arrays and energy sources which include non-explosive systems (such as ‘air guns’). Despite the problems posed by sea ice, these systems can be used in many parts of the Antarctic at certain seasons. They can give penetration of the sea bed for up to 10–15 km, which is sufficient for exploration for hydrocarbon minerals and they have no damaging impact on the marine flora and fauna. However, additional velocity information may be required, and therefore many commercial operations also use refraction methods to a limited

degree. These methods involve 'air guns', or occasionally high explosives. Use of explosives is not considered essential in exploring for hydrocarbons, and it has been prohibited in some regions (such as the Norwegian continental shelf) because of the severe local damage it can cause to the marine biota.

41. Refraction seismic studies using explosives, on the other hand, are unavoidable at present in certain fundamental fields of crustal geophysics where the aim is to study deep structure (to 30–40 km) as when examining the relationship between the Antarctic and other continents.

42. While satisfactory geophysical methods appear to be available for scientific exploration and the search for minerals in Antarctica, there are dangers in over-generalisation. One thing is, however, clear. The present ignorance of the structure of much of the Antarctic land and continental margin[2], coupled with the hostile environment and the extent of ice cover, means that the exploratory phase is likely to be prolonged in most areas, before exploratory drilling could be considered.

iii. Drilling and other extraction techniques

43. Considerable experience of drilling has been gained on land in the joint Japanese-New Zealand-United States Dry Valley Drilling Project. Technology developed in the Arctic could be used under certain conditions to explore for and exploit hydrocarbons on land in the Antarctic. Conversely no technology exists for drilling through moving ice-sheets on land and it is unlikely that there will be much incentive to develop it.

44. In considering off-shore drilling technology it is useful to discriminate between strictly technological aspects (for example relating to platforms, drilling systems or prevention of blow-outs) and environmental factors determining the period for which drilling is feasible and the special hazards to be guarded against.

45. It is important to discriminate between drilling to only shallow depths to obtain geological samples of sea-bed strata for scientific purposes and exploratory drilling for hydrocarbons. The latter requires blow-out preventers and other safety devices while the former may not. Generally shallow drilling to confirm sea-bed geology should precede deep drilling for hydrocarbons.

46. Technology already exists for drilling from dynamically positioned mobile structures in depths below 1,000 m. It appears theoretically possible in the Antarctic in areas free of ice and where massive icebergs are infrequent for at least three months in summer. Such areas are rare and of very limited extent. Thorough studies of environmental conditions in such areas would be required before operations could be conducted without risk.

47. The Group was informed by several delegations of the development of technology (such as large floating caisson structures) in their countries that would allow drilling in

[2] In this report the term 'continental margin' is used to include the continental shelf, continental slope and continental rise.

deeper waters and in areas covered with Arctic pack ice throughout the year. Such technology would need very careful evaluation before its use was considered in the Antarctic, but it might allow the exploration of larger areas on the Antarctic margin (but not the regions below thick ice shelves).

48. Experience off Labrador has come from the use of a Pelican-type dynamically positioned ship. Such a vessel may not be ideal for exploratory drilling in the Antarctic and a floating dynamically positioned structure may be preferable.

49. Ice conditions in the Antarctic, which differ in many ways from those in the Arctic, pose certain special problems. There is an annual discharge to the oceans around Antarctica of about 4,000 km^3 of icebergs, many of which persist for several years. Antarctic icebergs are much larger, and many could not readily be towed away from a drilling platform. A platform would therefore need to be able to cease work and move away if threatened. Experience off Labrador confirms that towing can change the direction of drift of the smaller icebergs sufficiently to approximately halve the number of times the drilling vessel needs to disconnect from the borehole, but in the Antarctic the benefit might be considerably less. Towing is at present impracticable with icebergs exceeding two million tonnes weight, and when the sea is rough, or the berg inconveniently shaped or unstable.

50. Technology exists for shutting down and disconnecting from wells, and re-entering them afterwards without risk of pollution, but it is desirable to conduct the shut-down process in an orderly fashion because this facilitates re-entry, and hence an effective 'early warning' system of approaching icebergs would be needed. Forecasts of the frequency of such encounters are also required since drilling would be unacceptably protracted if it had to stop very often. Such operations would also demand reliable meteorological information in advance of developing storms. Environmental studies designed to ensure the safety of exploratory drilling activities appear to need urgent development.

51. Exploratory drilling is not an end in itself. It costs large sums, and is undertaken in the hope that it will lead on to exploitation. Hence the technology for exploration and exploitation needs to be considered together, but there is the important difference that while the former can be done satisfactorily in areas of sea open for three months in summer, the latter demands operations for a much longer period, for which there is no technology appropriate to the Antarctic at present.

52. It is important to discriminate between the process of drilling (whether for exploration or production wells) and the control of production. Drilling is always done at present from ships or platforms at the sea surface, but there are several systems allowing control of production wells by structures on the sea bed. At present all of these are in shallow water and many are controlled from a surface vessel to which oil is piped.

53. Existing technology does not appear suitable for exploratory drilling in those parts of the Antarctic seas covered almost throughout the year by pack and fast ice of many years' accumulation or by floating ice shelves and glaciers. For these reasons most of the seas

on the Antarctic margin are inaccessible for exploratory drilling at present, and fixed or floating platforms of the kind used in oil exploitation today seem equally unsuited to these areas. Technology permitting drilling from installations on the sea bed in other regions is being developed and may help to overcome this obstacle except in those areas where icebergs ground on the sea bed. Advances are also being made in the design of systems both for drilling and operating production wells on or below the sea bed in deep waters. The water depth presents no inherent problem because such systems would be unmanned and their maintenance would be likely to be undertaken by submarines rather than divers. Such systems have not yet been developed for the conditions prevailing in the Antarctic.

iv. Construction techniques for on-shore and off-shore installations

54. At present several kinds of platform are used in oil exploitation at sea. Fixed structures of concrete or steel are being used today in depths of water down to 130 and 300 m respectively, and have been developed for safe operation even in seismic zones. One floating platform, linked by risers to production wells, is in use in the North Sea. About 100 underwater well-head systems are in use, mainly in shallow water and none below 300 m. Despite considerable advances in the design of platforms, risers (the link between ocean floor and surface platform) and safety devices, none of these platform systems is suitable in their present form for installation in the Antarctic. While considerable progress has been made in developing surface platforms to withstand storms, and pack ice, none is proof against icebergs on an Antarctic scale. At the present, the design of equipment for use in oil exploitation in the Antarctic remains in the conceptual stage.

55. The first action in evaluating a newly discovered oil field is to determine its size, and where the technology for exploitation is very expensive, a field needs to be very large if it is to be worth exploiting. In the Antarctic a further constraint would be imposed by limited access. It is difficult to envisage any Antarctic oilfield being exploited if it were only accessible to transport removing the production for three months of the year even though this period would suffice for the actual drilling of wells.

56. In the North Sea, using today's technology (but with year-round access), before an oilfield is exploited the potential recoverable reserves need to be of the order over 100–200 million barrels. In the Antarctic it is likely that only very large fields would be attractive for exploitation. The limit will however depend on world energy costs and on the available technology in the future. Should oilfields be found and technology allow their exploitation, it would be unwise to assume that they might not become

57. Any structures used for oil exploitation in the Antarctic would almost certainly be constructed in a region of warmer waters outside the region and towed to the point of installation. There are no technological problems in this process, but seas in the area of installation would need to be ice-free at least for the period of 1–3 days needed for correct positioning.

58. The logistic support of exploitation activities will also need careful planning. It could involve the construction of supply bases on land in the Antarctic if there were suitable sites nearby, or outside the region (the latter being the more likely). Structures used in the Antarctic are likely to be more self-contained than those used elsewhere, in less exacting climates. These features are likely to reduce the extent of major construction activities on land with their associated environmental impact.

59. Should mineral exploration or exploitation occur on-shore the associated construction of bases for support personnel, processing plant, or other installations would be possible adapting technology already developed in Arctic regions and in the building of the larger Antarctic stations.

v. Processing and storage operations: hydrocarbon minerals at sea

60. All oil emerging from a well is a mixture of liquid hydrocarbons, gas and (especially as the exploitation of a field continues) water. The gas needs to be separated from the oil before the latter can be transported (since transport of oil in tankers takes place at atmospheric pressure). The hydrocarbon gases produced are generally either flared (burned) or re-injected thereby maintaining pressure and helping continued exploitation. The water is separated from the oil and can also be injected back into the oil reservoir or into some other strata.

61. Existing technology for this separation and reinjection could be employed in any fixed or floating surface production platforms used in the Antarctic (it would be more difficult to liquefy the separated gas and remove it for marketing). Some gas could be used as a fuel, for power drilling and other operations: the Group advises that gas should not generally be flared in the Antarctic (Guidelines paragraph 15). Appropriate technology which has also been developed and tested in production wellhead structures on the sea bed, operated by remote control from the surface, could be developed as an integral part of the perfection of such submerged structures for use in the Antarctic.

62. Substantial storage capacity might be required at installations at sea from which separated oil was loaded directly into ships, because of the inevitable interruption of surface shipping operations by storms, and occasionally by heavy pack or icebergs. Even sub-sea installations loading into submarine tankers might require considerable capacity.

vi. Processing and storage operations: minerals on land

63. If minerals were exploited on-shore in the Antarctic, it is likely that they would also (as elsewhere in the world) need to be enriched before transport away from the mining area. This processing would demand substantial installations, although the technology would be likely to be the same as was applied elsewhere, for example in the Arctic. Large amounts of fuel would be required since the processing of such ores is an energy-intensive process. Large volumes of water would also be needed -- again demanding energy, in most parts of the Antarctic, to melt ice. substantial volumes of wastes would be produced.

vii. Transport techniques

64. Transport would be required for two purposes should mineral exploration or exploitation occur in the Antarctic. It would be needed to support personnel and installations and to remove the products of their activities. Present technology, as used to supply Antarctic bases, would be adequate for the support role although the volume of equipment and numbers of people moved might be much greater (in exploratory drilling two or three service ships might be needed to support the 100 or so men on a rig and the tugs employed in iceberg towing). Small storage bases might be needed on shore should this be possible near enough to areas being explored. However, exploitation of hydrocarbons would require a considerable increase in the number of personnel at drilling installations, with the possible resulting need to build land bases with the least possible damage to the environment.

65. It seems likely that separated oil would be loaded directly into ships at installations at sea for removal from the Antarctic. Either specially designed surface vessels or submarines could be used to remove oil. Information obtained during the voyage of the 'Manhattan' may allow the design of tankers that could operate commercially through Arctic pack ice. The attraction of submarines lies in their greater certainty of year-round access. The concepts behind the design of both types of vessel are being explored actively, and it is likely that technology would be available by the time Antarctic oil exploitation became possible on other grounds. Pipelines, however, provide a third option. Their use is unlikely in many parts of the Antarctic, especially because of iceberg scour but also because there is little attraction in removing oil from the open sea to coastal areas which might be no more easily accessible by tankers; modern techniques of tunnelling in the sea floor at depths of up to 300 m could possibly be developed to the point where pipelines could be adequately protected.

B. Environmental impact of mineral exploration and exploitation

66. The Group of Experts could not undertake a thorough study of the impact of mineral exploration and exploitation on the Antarctic environment. However, the discussion of the technical aspects of mineral exploration and exploitation in the Antarctic showed that the question of the impact of these activities on the environment has been studied very inadequately and that there is an urgent need for a further examination of this problem. The Group considers that measures for the protection of the Antarctic environment need to be worked out prior to any commercial exploration for, or exploitation of mineral resources in Antarctica, should such activities occur there.

67. The Group had before it the Report of the SCAR Group of Specialists on the Environmental Impact Assessment of Mineral Exploration/Exploitation in Antarctica (EAMREA) prepared at the request of the Eighth Consultative Meeting and the Special Preparatory Meeting in Paris in June 1976. Attention was also drawn to a number of other papers, including those presented to the Special Preparatory Meeting in Paris by the Soviet Delegation and by the Australian Delegation, and the summary of the Report on Environmental Impact Assessment by Dr D.H. Elliot. The Group of Experts considered

that the EAMREA Report, taken in conjunction with the other papers, provided a useful starting point for the assessment of the likely impact on the Antarctic environment of various possible technological developments and for the development of a programme to provide more precise assessments.

68. The Group advised the Consultative Meeting that technological and ecological experts need to work together in the further evaluation of these questions. Only through a direct interaction of this kind will it be possible to define the ways in which new technological advances may alter physical and chemical properties of the Antarctic as a habitat and apply the most recent advances in scientific understanding of Antarctic environments and ecosystems so as to predict the ecological changes that are likely to result. A series of carefully prepared expert seminars or workshops bringing together appropriate specialists may well provide the most effective forum for this dialogue.

69. More research will unquestionably be required before satisfactory predictions can be made of the nature and scale of the impact of possible alternative mineral exploration and exploitation technologies in the Antarctic. Opinions expressed in the Report (e.g. in paragraphs 12, 13 and 26 of the Guidelines and paragraphs 39, 40 and 50 of the Record of the Group's discussions should be regarded as provisional, pending such research). The Group did not attempt to specify all the subjects needing attention, but did identify the following areas:

i) basic bathymetric, geological, geophysical and geochemical studies leading to a more realistic definition of those areas in the Antarctic where exploration for minerals may be considered, and where surveys consequently need to be undertaken to define environmental and ecological features;
ii) research leading to improved weather forecasting, and data on current directions and velocities and on the distribution and frequency of occurrence of various sea states, ice conditions and icebergs of various dimensions;
iii) definition of the fundamental structure and functioning of those types of Antarctic ecosystem most likely to be affected by mineral exploration and exploitation, including the flow of nutrients and energy through the system and primary and secondary biological production (and the factors influencing them). Simulation modelling of the essential processes within these ecosystems could assist the prediction of how they are likely to respond to various impacts.
iv) surveys to determine baseline levels in the environment (including ice caps) and in plants and animals of hydrocarbons and other substances whose environmental concentrations may be raised as a consequence of mineral exploration and exploitation;
v) research to establish quantitatively the effect on Antarctic organisms which are particularly important ecologically or economically (e.g. krill) of a range of concentrations of hydrocarbons and other possible pollutants;
vi) research on the mechanism and rate of biodegradation of oils of various kinds under Antarctic conditions (it being emphasised that this research should not involve the deliberate liberation of oil in the Antarctic).

Ecologists who were members of the Group stressed the need for selection, based on a critical analysis of existing knowledge, in the development of this research programme. It would be quite impossible to measure all environmental variables, or describe all Antarctic ecosystems in detail. The dialogue between technological and ecological experts described in paragraph 68 should have as a major objective the selection of key factors and organisms for detailed study.

70. The first of these areas of research is equally important if the potential of the Antarctic as a source of minerals is to be evaluated. The Group recorded its view that the estimate[3] published in the *Oil and Gas Journal* for November 1976 and quoted in the Report of the SCAR EAMREA Group that 45 billion barrels of oil and 115 trillion cubic feet of gas 'may' occur on parts of the Antarctic continental margin, even with the qualifications attached to it by the EAMREA Group, was only a speculation and should not be cited unless supported by much firmer evidence.

71. There are other fields of research which the Group noted as essential if exploration for minerals in the Antarctic was to be properly directed, and its impact predicted and controlled. The studies mentioned in paragraph 69(ii) above fall into this category and form part of the data base that the Group considered was essential before exploration for hydrocarbons could safely begin on the Antarctic margin. The following other topics were mentioned:

i) detailed site investigations in areas that might possibly be considered for exploration;
ii) research on methods for the containment, recovery or safe dispersal of spilled oil (the Group emphasised that this was a topic of the highest priority);
iii) studies on the likely physical condition of oil spilled on the cold Antarctic seas, and on mathematical models for the prediction of the movements of oil slicks under Antarctic conditions (there are numerous existing models, developed in other regions, which would provide a starting point);
iv) techniques for the safe disposal of wastes arising from mineral exploration and exploitation in the Antarctic.

72. If mineral exploration or exploitation were to occur in the Antarctic it would be essential to monitor both the operations themselves and consequential changes in the environment. There would need to be a system providing immediate warning of an accident leading to significant pollution and monitoring of the dispersion and effects of the pollutants released, and of the effectiveness of any measures for containment or recovery. This would be particularly difficult under Antarctic conditions.

[3] The Group of Experts was informed that this figure originated from an unpublished, highly provisional calculation, using methodology which has since been revised, in an internal document within the United States Geological Survey.

C. Measures for the prevention or restoration of damage to the environment

i. Prevention of Pollution by Oil

73. Problems of oil pollution can arise during drilling (whether for exploration or production), extraction, processing, storage or transportation under both normal operations and in the event of accident. Some delegations considered that these problems may be especially acute in the very cold Antarctic seas where the natural degradation of oil is likely to be extremely slow.

74. Thorough surveys in advance of drilling are essential for the prevention of pollution. High-resolution seismic studies can detect layers where gas pockets may be encountered near the surface. Pressure measurement is also desirable during drilling. In a permafrost environment frozen hydrates (or hydrates and oil) may sometimes be encountered and present an added hazard.

75. At any time during drilling, fluid under pressure (gas, oil, or water) may be encountered. It is therefore important to maintain at all times all the equipment and materials necessary to control unexpected pressure. This equipment includes blow-out preventers, communications and remote control equipment, reserves of mud, and additives and degasification equipment. It should be noted that these muds may contain special additives to make them suitable for use in the Antarctic and these have a potential to cause some local pollution if released in the environment. When the well has reached a certain depth casing is carried out. Casing of a well is a very important safety factor, and it will be necessary to determine the length of each casing appropriate to the nature of the rock formation and the pressures that may be encountered. Cementing practices must be good enough to ensure that oil cannot escape laterally through the casing into flanking rocks and ultimately to the surface. Over-design is essential in exploration wells in new areas.

76. Additional pollution prevention measures should include proper procedures for well work-over (including the cleaning of operating systems, and replacement of components). These are naturally vulnerable operations because some control equipment is often itself taken out of use, and precautions must be especially strict in extreme environments.

77. Accidents on oil rigs, leading to environmental hazard, commonly involve human error and no technology can eliminate this, but it can reduce its probability and the scale of the consequences. Generally speaking human errors are commonest in routine operations involving less qualified personnel. In opening up a new region, in an exploratory phase, highly skilled staff are likely to be employed and the risk of error reduced. Because the Antarctic is a peculiarly hostile environment, more than normal care is likely to be taken during the early stages. The risks from human error are likely to increase once there is a transition from exploration to exploitation, with a strong element of routine. But there is no reason to predict a higher likelihood of human error in the Antarctic than elsewhere (the reverse is more likely) because operating conditions are never likely to be easy. Therefore, the training of personnel is an essential element in

these safety precautions, and this must include 'refresher' courses bringing staff up to date with new methods.

78. On drilling platforms at sea the prevention of pollution is of the first importance because opportunities for rehabilitation if spillage occurs are few or non-existent under the exacting conditions of the Antarctic. It is essential to undertake exploration cautiously, to prevent blow-outs. It is essential to be able to stop and re-start drilling, and to abandon and re-enter wells without risk of pollution: wherever possible equipment should be recovered before the link with a well is severed but in emergency a platform can move off station in under a minute without risk of pollution. With sound technology, training and vigilance, the risk of blow-outs would be very small.

79. The maintenance and repair of Antarctic installations and anti-corrosion measures (for example, the use of sacrificial anodes) may also have some environmental impact.

80. Where drilling takes place on land it is important that minimal damage is done to permafrost soils (wells being sealed as to avoid this), that reservoirs of fuel used to power drilling are located on an insulated bed, that all fuel tanks are surrounded by bunds to contain spillage, that care is taken to minimise contamination with oil, muds, chemicals and micro-organisms, that all debris is incinerated or removed, and that the land area is afterwards rehabilitated as far as possible It is particularly important to ensure that water does not penetrate and freeze between the casing strings of wells, since the resulting expansion could cause bursting and pollution.

81. The techniques of risk analysis, covering fire as well as the other hazards identified above should be applied in the design of all equipment for use in oil exploration or exploitation in the Antarctic, and a substantial safety margin provided. Fire is equally a hazard on land, where its threat is increased by the generally unavailability of liquid water for fire-fighting except in limited areas near freshwater lakes and the sea.

82. Oil storage below the sea depends on the displacement of sea water from the tanks. The interface is always kept within the tank, and there are reliable ways of preventing hydrocarbons being discharged, but when water is drawn off it is necessary to separate the oil. Special techniques and standards will need to be drawn up for seabed storage systems in the Antarctic.

83. A major risk of oil spillage probably lies in the transfer from production wells to storage and thence to tankers. If seabed pipelines are used, it will be because technology allows their burial below the depth of iceberg scour, in stable areas not liable to substantial movements.

84. Tankers to be used in the Antarctic will almost certainly be specially built. In addition to being ice strengthened and having greater power such tankers will presumably operate within the guidelines of the safety and marine pollution prevention conventions to which the Antarctic Treaty nations are signatory. The ship design, construction and equipment features may include segregated ballast, double hulls or double bottoms, crude washing, inert gas systems, and discharge monitoring and control devices or some

combination of these. The adoption of such features would prevent pollution through the discharge of oily ballast water, which remains a significant source of marine pollution in other areas. It is anticipated that Treaty Countries would operate their ships in an environmentally safe manner with special regard for the fragile nature of the Antarctic environment.

85. There are few suitable sites for tanker terminals on land in the Antarctic. If oil were brought ashore and then exported in tankers, bilge and ballast handling and treatment facilities might be needed (depending on ship design, discussed in paragraph 84), and the scale and nature of these must be geared to local needs. A standard for the permissible maximum oil concentration in process water discharged to the sea should be set, together with standards for volatile hydrocarbons released to air: both must depend on assessments of the environmental quality to be sustained. It is important to note that if tankers arrived in the Antarctic in ballast, from ports elsewhere, the ballast water could contain a range of dissolved industrial effluents, and these could bring low concentrations of new contaminants to the Antarctic even if oil levels in the emissions were satisfactorily controlled.

ii. Prevention of pollution from mining and processing minerals on land

86. Major local pollution could be caused by mining, quarrying and processing of coal or hard rock mineral resources on land in the Antarctic, especially for elements like iron, where large volumes of spoil would be produced. Such mining or the quarrying of construction materials on land could release large amounts of dust, contaminate drainage with metal salts, and produce tailings or waste heaps with high concentrations of toxic metals. Not only could these have a deleterious effect on land, freshwater and inshore marine biota in the vicinity, but they could also be a hazard to human health, especially if water supplies were contaminated.

iii. Rehabilitation

87. Areas of Antarctic land damaged by mineral exploration and exploitation cannot be rehabilitated in the fashion adopted in the Arctic, involving the fertilisation of the soil and the sowing of the seeds of vascular plants. The two vascular plant species native to the region are unlikely to be suited to cultivation in this way, the introduction of alien species would contravene conservation agreements (and be unlikely to succeed) and the bryophyte vegetation of coastal areas in the Maritime Antarctic is equally unsuited to propagation. t seems likely therefore that the most that could be done to restore land sites disturbed by man would be to remove all equipment and imported debris and shape any disturbed land so as to favour the slow process of natural colonisation. The rehabilitation of disturbed ice sites on land, or of areas of sea bed, (other than a clean-up procedure to remove extraneous debris) does not appear feasible except by slow natural processes.

88. Should oil be spilled at sea in the Antarctic, especially in periods of high wind and waves or among ice, its recovery or even containment does not appear possible using present technology. It is essential to take every precaution to prevent the spillage of oil in the Antarctic because of the risk of unacceptable impact on the environment, but in case

such spillages occur, research into means of containment and recovery of oil, and perhaps the further development of non-toxic biodegradable dispersants should be pursued.

Antarctic Treaty Recommendations

Extract from Report of XVIth ATCM, Annex B(viii)

Report to the XVIth Antarctic Treaty Consultative Meeting on the meeting held pursuant to Recommendation XV-2

Recommendation XV-2 on 'Comprehensive measures for the protection of the Antarctic environment and dependent and associated ecosystems' envisaged that a meeting be held in 1990 to 'explore and discuss all proposals relating to Article 8(7) of the Convention on the Regulation of Antarctic Mineral Resource Activities'.

Pursuant to this mandate the meeting was held on Thursday 29 November 1990 in Viña del Mar, Chile, and was attended by representatives of the 26 Antarctic Treaty Consultative Parties and 10 other Contracting Parties to the Antarctic Treaty. Professor Francisco Orrego Vicuña, Representative of Chile, was elected Chairman.

In accordance with the terms of Recommendation XV-2 the meeting heard all the proposals and views on the issue of liability that were expressed in the course of these deliberations. The following delegations made statements on this occasion: Argentina, Australia, Austria, Belgium, Chile, the People's Republic of China, Denmark France, Germany, Greece, India, Italy, The Netherlands, Norway, Sweden, South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

The Meeting agreed that on the basis of all proposals and views expressed on the subject, the Antarctic Treaty Consultative Parties may consider further the issue of liability at the appropriate time.

XV-2: Comprehensive measures for the protection of the Antarctic environment and dependent and associated ecosystems

The Representatives,

Recalling the adoption on 2 June 1988, by the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources of the Convention on the Regulation of Antarctic Mineral Resource Activities and the importance of the issue of liability.

Recommend to their Governments that:

A meeting be held in 1990 to explore and discuss all proposals relating to Article 8 (7) of the Convention on the Regulation of Antarctic Mineral Resource Activities.

XI-1: Antarctic Mineral Resources

The Representatives,

Recalling the provisions of the Antarctic Treaty, which established a regime for international co-operation in Antarctica, with the objective of ensuring that Antarctica should continue forever to be used exclusively for peaceful purposes and should not become the scene or object of international discord;

Convinced that the framework established by the Antarctic Treaty has proved effective in promoting international harmony in furtherance of the purposes and principles of the United Nations Charter, in prohibiting *inter alia* any measures of a military nature, in ensuring the protection of the Antarctic environment, in preventing any nuclear explosions and the disposal of any radioactive waste material in Antarctica, and in promoting freedom of scientific research in Antarctica, to the benefit of all mankind;

Convinced further of the necessity of maintaining the Antarctic Treaty in its entirety and believing that the early conclusion of a regime for Antarctic mineral resources would further strengthen the Antarctic Treaty framework;

Desiring without prejudice to Article IV of the Antarctic Treaty to negotiate with the full participation of all the Consultative parties to the Antarctic Treaty an appropriate set of rules for the exploration and exploitation of Antarctic mineral resources;

Noting the unity between the continent of Antarctic and its adjacent offshore areas;

Mindful of the negotiations that are taking place in the Third United Nations Conference on the Law of the Sea;

Reaffirming their commitment to the early conclusion of a regime for Antarctic mineral resources which would take due account of the respective interest of the Consultative Parties as regards the form and content of the regime, including decision-making procedures, as well as the special characteristics of the Antarctic area;

Recalling Recommendations VII-6, VIII-14, IX-1 and X-1;

Recalling further Recommendations VI-4, VII-1, VIII-11, VIII-13, IX-5, IX-6 and X-7;

Recommend to their Governments that:

1. They take note of the progress made toward the timely adoption of a regime for Antarctic mineral resources at the Eleventh Consultative Meeting and related meetings and the importance of this progress.

2. A regime on Antarctic mineral resources should be concluded as a matter of urgency.

3. A Special Consultative Meeting should be convened in order:
   a) to elaborate a regime;

b) to determine the form of the regime including the question as to whether an international instrument such as a convention is necessary;
c) to establish a schedule for negotiations, using informal meetings and sessions of the Special Consultative Meeting as appropriate; and
d) to take any other steps that may be necessary to facilitate the conclusion of the regime, including a decision as to the procedure for its adoption.

4. The Special Consultative Meeting should base its work on this Recommendation and the relevant Recommendations and Reports of the Eighth, Ninth and Tenth Antarctic Treaty Consultative Meetings.

5. The regime should be based on the following principles:
a) the Consultative Parties should continue to play an active and responsible role in dealing with the question of Antarctic mineral resources;
b) the Antarctic Treaty must be maintained in its entirety;
c) protection of the unique Antarctic environment and of its dependent ecosystems should be a basic consideration;
d) the Consultative Parties, in dealing with the question of mineral resources in Antarctica, should not prejudice the interests of all mankind in Antarctica;
e) the provisions of Article IV of the Antarctic Treaty should not be affected by the regime. It should ensure that the principles embodied in Article IV are safeguarded in application to the area covered by the Antarctic Treaty.

6. Any agreement that may be reached on a regime for mineral exploration and exploitation in Antarctica elaborated by the Consultative Parties should be acceptable and be without prejudice to those States which have previously asserted rights of or claims to territorial sovereignty in Antarctica as well as to those States which neither recognize such rights of or claims to territorial sovereignty in Antarctica nor, under the provisions of the Antarctic Treaty, assert such rights or claims.

7. The regime should *inter alia*:
i) Include means for:
a) assessing the possible impact of mineral resource activities on the Antarctic environment in order to provide for informed decision-making;
b) determining whether mineral resource activities will be acceptable;
c) governing the ecological, technological, political, legal and economic aspects of those activities in cases where they would be determined acceptable, including
- the establishment, as an important part of the regime, of rules relating to the protection of the Antarctic environment; and
- the requirement that mineral resource activities undertaken pursuant to the regime be undertaken in compliance with such rules.

ii) Include procedures for adherence by States other than the Consultative parties, either through the Antarctic Treaty or otherwise, which would:

a) ensure that the adhering State is bound by the basic provisions of the Antarctic Treaty, in particular Articles I, IV, V and VI, and by the relevant Recommendations adopted by the Consultative Parties; and
b) make entities of that State eligible to participate in mineral resource activities under the regime.

iii) Include provisions for co-operative arrangements between the regime and other relevant international organizations.

iv) Apply to all mineral resource activities taking place on the Antarctic Continent and its adjacent offshore areas but without encroachment on the deep seabed. The precise limits of the area of application would be determined in the elaboration of the regime.

v) Include provisions to ensure that the special responsibilities of the Consultative Parties in respect of the environment in the Antarctic Treaty Area are protected, taking into account responsibilities which may be exercised in the area by other international organizations.

vi) Cover commercial exploration (activities related to minerals involving, in general, retention of proprietary data and/or non-scientific exploratory drilling) and exploitation (commercial development and production).

vii) Promote the conduct of research necessary to make environmental and resource management decisions which would be required.

8. They promote and co-operate in scientific investigations which would facilitate the effective operation of the regime taking into account, *inter alia*, the relevant parts of the Report of Ecological, Technological and other Related Experts on Mineral Exploration and Exploitation in Antarctica (Washington, June 1979), attached as an annex to the Report of the Tenth Consultative Meeting.

9. With a view to improving predictions of the environmental impacts of activities, events and technologies associated with mineral resource exploration and exploitation should such occur, they continue with the assistance of the Scientific Committee on Antarctic Research, to define programs with the objectives of:

a) Retrieving and analyzing relevant information from past observations and research programs;
b) Ensuring in relation to the needs for information identified by the Experts Report, that effective use is made of existing programs;
c) Identifying and developing new programs that should have priority, taking account of the length of time required for results to become available.

10. In elaborating the regime, they take account of the provisions of Recommendation IX-1, paragraph 8.

X-1: Antarctic mineral resources

The Representatives,

Convinced of the need to preserve and further strengthen the international regime established in Antarctica by the Antarctic Treaty, which has for nearly two decades guaranteed the use of Antarctica exclusively for peaceful purposes, and in the interest of the development of international co-operation;

Aware of the responsibilities of the Consultative Parties to ensure that any activities in Antarctica, including mineral exploration and exploitation, should they occur, should be consistent with all the principles and purposes of the Antarctic Treaty system, including its objectives that activities in Antarctica should not become the cause of international discord, endanger the unique Antarctic environment, or disrupt scientific investigations;

Concerned that unregulated mineral resource activities could significantly harm the fragile Antarctic ecosystem;

Noting that decisions on possible mineral resource activities must take due account of the unique ecological and scientific value of Antarctica and the importance of Antarctica to the world environment;

Recognizing that available information is insufficient reliably to assess the possible environmental effects of many activities in the area of exploration and exploitation of mineral resources in Antarctica, and conscious of the need for developing research programs aimed at improving predictions of the possible impact of such activities in Antarctica and for promoting the development of monitoring programs aimed at detecting the impact of such activities on the Antarctic environment should such activities occur;

Convinced that informed decision-making on questions of mineral resource activities will usually require the availability of information from such programs;

Aware also of the necessity to obtain additional scientific information with a view to facilitating the development of measures related to the protection of the Antarctic environment from possible harmful impacts of mineral resource exploration and exploitation, should such activities occur;

Noting that a meeting of ecological, technological, and other related experts was held in Washington, DC, 25 June to 29 June, 1979, as part of the Preparatory Meeting to the Tenth Consultative Meeting with a view to developing scientific programs aimed at improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, and developing measures for the prevention of damage to the environment or for its rehabilitation;

Recalling the provisions of Recommendations VIII-14 and IX-1;

Recognizing the necessity for progress towards the timely adoption of an agreed regime concerning Antarctic mineral resources;

Recommend to their Governments that:

1. They take note of the progress made toward the timely adoption of a regime for Antarctic mineral resources at the Tenth Antarctic Treaty Consultative Meeting and related meetings, and of the importance of this progress.

2. They continue consultations proceeding from the provisions of Recommendation IX-1 and from the provisions of the present Recommendation.

To this end, they should:

i) Continue to develop a common understanding of the general purposes of the regime and to identify the specific elements of the regime needed to ensure achievement of those purposes;
ii) Continue to give thorough examination to all of the elements necessary to ensure that the future regime will achieve its general purposes;
iii) Hold a meeting before the Eleventh Consultative Meeting, preferably in the first half of 1980, to consider a regime for Antarctic mineral resources in its ecological, political, technological, legal and other aspects; and
iv) in this regard make the best possible use of the report of the Tenth Consultative Working Group on Antarctic Resources —The Question of Mineral Exploration and Exploitation: Legal and Political Aspects (which is annexed to the Final Report of the Tenth Consultative Meeting) and of the section of this Final Report which refers to the work of the Working Group on Antarctic Resources — The Question of Mineral Exploration and Exploitation: Scientific and Environmental Aspects.

3. The agreed regime for Antarctic mineral resources should be based upon provisions of paragraphs 1, 3, 4, and 5 of Recommendation IX-1 and on such further principles, rules and arrangements as may be subsequently agreed.

4. An agreed regime on Antarctic mineral resources should include *inter alia* means for:

i) assessing the possible impact of mineral resource activities on the Antarctic environment in order to provide for informed decision-making;
ii) determining whether mineral resource activities will be acceptable;
iii) governing the ecological, technological, political, legal, and economic aspects of those activities in cases where they would be determined acceptable; including:
    a) establishing, as an important part of the regime, rules relating to the protection of the Antarctic environment; and
    b) requiring that mineral resource activities undertaken pursuant to the regime be undertaken in compliance with such rules.

5. Taking account of the Report of Ecological, Technological, and Other Related Experts on Mineral Exploration and Exploitation in Antarctica (Washington, June 1979), attached as an Annex to the Report of the Tenth Consultative Meeting, they facilitate their research activities which would contribute to an improved understanding of relevant aspects of the Antarctic and its environment.

6. With a view to improving predictions of the environmental impacts of activities, events, and technologies associated with mineral resource exploration and exploitation in the Antarctic should such occur, they, through their respective National Antarctic Committees, encourage the Scientific Committee on Antarctic Research to define programs, taking account of the Experts Report (Washington, June 1979), with the objectives of:

a) retrieving and analyzing relevant information from past observations and research programs;
b) ensuring in relation to the needs for information identified by the Experts Report, that effective use is made of existing programs;
c) identifying and developing new programs that should have priority, taking account of the length of time required for results to become available.

7. In so far as is feasible they support, as appropriate, their respective National Antarctic Committees and the offices administering their Antarctic research program in developments arising from the previous paragraph.

8. The subject "Antarctic Resources - The Question of Mineral Exploration and Exploitation" be placed in the Agenda of the Eleventh Antarctic Treaty Consultative Meeting.

IX-1: Antarctic mineral resources

The Representatives,

Recalling the provisions of the Antarctic Treaty, which establishes a regime for international co-operation in Antarctica, with the objective of ensuring that Antarctica should continue forever to be used exclusively for peaceful purposes and should not become the scene or object of international discord;

Bearing in mind the provisions of Article IV of the Treaty;

Convinced that the framework established by the Antarctic Treaty has proved effective in promoting international harmony in furtherance of the purposes and principles of the United Nations Charter, in ensuring the protection of the Antarctic environment, and on promoting freedom of scientific research in Antarctica;

Noting with thanks the Report of the Scientific Committee on Antarctic Research (SCAR) Group of Specialists entitled Preliminary Assessment of the Environmental Impact of Mineral Exploration/Exploitation in Antarctica (EAMREA);

Recognizing nevertheless that adequate scientific data concerning the harmful environmental effects of activities related to the exploration and exploitation of Antarctic mineral resources, should they occur, are not yet available;

Concerned that unregulated activities related to exploration and exploitation of mineral resources could adversely affect the unique environment of the Antarctic and other ecosystems dependent on the Antarctic environment;

Conscious that the Consultative Parties to the Antarctic Treaty in carrying out scientific research in the area have accumulated valuable experience and can substantially contribute to the protection of the environment and the rational use of Antarctic mineral resources, should exploration or exploitation thereof occur;

Aware of the special responsibilities of Consultative Parties to ensure that any activities in Antarctica, including commercial exploration and exploitation in the future, should they occur, should not become the cause of international discord, of danger to the unique Antarctic environment, of disruption to scientific investigation, or be otherwise contrary to the principles or purposes of the Antarctic Treaty;

Recommend to their Governments that:

1. They reaffirm the basic principles set forth in Recommendation VIII-14 of the Eighth Antarctic Treaty Consultative Meeting;

2. They take note with appreciation of the Report of the Group of Experts on Mineral Exploration and Exploitation annexed to the Report of the Ninth Consultative Meeting and make the best possible use of its conclusions and guidelines;

3. They continue to study the environmental implications of mineral resource activities in the Antarctic Treaty Area and hold at a time and place to be arranged through diplomatic channels a meeting of ecological, technological and other related experts, in accordance with Recommendation IV-24, with a view to developing scientific programmes aimed at:

   i) improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, as outlined in Section IIB of the Report of the Group of Experts, and in Section 5 of the SCAR/EAMREA Group Report;
   ii) developing measures for the prevention of damage to the environment or for its rehabilitation, in accordance with Section IIC of the Report of the Group of Experts;

4. They endorse the following principles elaborated at the Special Preparatory Meeting held in Paris from 28 June to 10 July 1976:

   i) the Consultative Parties will continue to play an active and responsible role in dealing with the question of the mineral resources of Antarctica;
   ii) the Antarctic Treaty must be maintained in its entirety;
   iii) protection of the unique Antarctic environment and of its dependent ecosystems should be a basic consideration;
   iv) ithe Consultative Parties, in dealing with the question of mineral resources in Antarctica, should not prejudice the interests of all mankind in Antarctica;

5. They note that the provisions of Article IV of the Antarctic Treaty shall not be affected by the regime. It should ensure that the principles embodied in Article IV of the Antarctic Treaty are safeguarded in application to the area covered by the Antarctic Treaty;

6. They study the content of a future regime based on the principles contained in paragraphs 4 and 5 and on such further principles, rules and arrangements as may be agreed, taking full account of all proposals submitted to the IXth Consultative Meeting;

7. The subject "Antarctic Resources - The Question of Mineral Exploration and Exploitation" be the subject of intensified consultation among them and they urge the host Government of the Tenth Consultative Meeting to convene a meeting to consider legal and political aspects of mineral resource issues; this meeting to report to the Tenth Consultative Meeting on the results of its work;

8. They urge their nationals and other States to refrain from all exploration and exploitation of Antarctic mineral resources while making progress towards the timely adoption of an agreed regime concerning Antarctic mineral resource activities. They will thus endeavour to ensure that, pending the timely adoption of agreed solutions pertaining to exploration and exploitation of mineral resources, no activity shall be conducted to explore or exploit such resources. They will keep these matters under continuing examination;

9. The subject "Antarctic Resources — The Question of Mineral Exploration and Exploitation" be placed on the Agenda of the Tenth Antarctic Treaty Consultative Meeting.

VIII-14: Antarctic resources: Effects of mineral exploration

The Representatives,

Recalling Recommendation VII-6;

Bearing in mind the purposes and principles of the Antarctic Treaty;

Reaffirming that it is in the interest of all mankind that the Antarctic Treaty Area shall continue forever to be used exclusively for peaceful purposes and shall not become the scene of object of international discord;

Acknowledging that the Antarctic Treaty places a special responsibility upon the Contracting Parties to exert appropriate efforts, consistent with the Charter of the United Nations, to ensure that no one engages in any activity in the Antarctic Treaty Area contrary to the purposes or principles of the Treaty;

Concerned that mineral resource exploration and exploitation could adversely affect the unique environment of the Antarctic and of other ecosystems dependent on the Antarctic environment;

Noting the technological developments in polar mineral exploration and exploitation;

Convinced that further consultations on the questions concerning Antarctic mineral resources are desirable and, in the meantime, of the need for restraint while seeking timely agreed solutions by the Consultative Parties to problems raised by such questions; and noting the intention of their Governments to keep these matters under review in the light of possible actions by others;

Aware that available scientific information on the environmental effects of mineral exploration and/or exploitation in the Antarctic has been inadequately studied and that the Consultative Parties bear a special responsibility for environmental protection in the Antarctic Treaty Area;

Aware also that Antarctic geological structures have not been sufficiently investigated;

Recognizing the need for further study and consideration of these matters;

Resolved that the Consultative Parties should seek to develop an approach to the problems raised by the possible presence of valuable mineral resources in the Antarctic Treaty Area, bearing in mind the principles and purposes of the Antarctic Treaty;

Recommend to their Governments that:

1. The subject "Antarctic Resources — The Question of Mineral Exploration and Exploitation" be fully studied in all its aspects in relation to the Treaty and be the subject of consultation among them with a view to convening a special preparatory meeting during 1976, the terms of reference of which will be determined precisely through diplomatic channels; the special preparatory meeting to report to the Ninth Consultative Meeting;

2. They undertake to study the environmental implications of mineral resource activities in the Antarctic Treaty Area and other related matters, including joint studies among them, and that they exchange the results of such studies;

3. They invite SCAR through their National Antarctic Committees to:

   i) make an assessment on the basis of available information of the possible impact on the environment of the Treaty Area and other ecosystems dependent on the Antarctic environment if mineral exploration and/or exploitation were to occur there. If possible and appropriate, Governments may wish to assist their National Antarctic Committees in this undertaking by appropriate means;
   ii) continue to coordinate national geological and geophysical research programmes in the Antarctic Treaty Area with the aim of obtaining fundamental scientific data on the geological structure of the Antarctic;
   iii) consider what further scientific programmes are necessary in pursuit of these objectives;

4. The subject "Antarctic Resources — The Question of Mineral Exploration and Exploitation" be placed on the Agenda of the Ninth Antarctic Treaty Consultative Meeting.

VII-6: Antarctic resources: Effects of mineral exploration

The Representatives,

Recalling the provisions and principles of the Antarctic Treaty;

Reaffirming that it is in the interest of all mankind that the Antarctic Treaty Area shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledging that the Antarctic Treaty places a special responsibility upon the Contracting Parties to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in the Antarctic Treaty Area contrary to the principles or purposes of the Treaty;

Noting the technological developments in polar mineral exploration and the increasing interest in the possibility of there being exploitable minerals in the Antarctic Treaty Area;

Noting that there is a need for further study and deliberation amongst the Consultative Parties;

Recognizing that mineral exploration is likely to raise problems of an environmental nature and that the Consultative Parties should assume responsibility for the protection of the environment and the wise use of resources;

Conscious of the special situation in the Antarctic arising from the particular regime of the Antarctic Treaty and the Recommendations adopted under it;

Recommend to their Governments that the subject "Antarctic Resources — Effects of Mineral Exploration" be carefully studied and included on the Agenda of the Eighth Consultative Meeting.