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# **A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting**



# A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting

## 1. Introduction

This Working Paper provides an overview of the relevant the rules of the Antarctic Treaty System (ATS) that relate to biological prospecting and the discussions that have taken place within the various bodies of the ATS, and considers in more detail the issues addressed by the Intersessional Contact Group on Biological Prospecting in 2007-2008. The central question examined in this Working Paper is whether the Antarctic Treaty System already provides an adequate framework for managing biological prospecting activities in the Antarctic Treaty Area, or whether some gaps exist that will need to be addressed.

## 2. Legislative Background

The Antarctic Treaty System (ATS) does not specifically regulate biological prospecting activities. Nevertheless, provisions relevant in considering the issue of biological prospecting are contained in the Antarctic Treaty, its Protocol on Environmental Protection (Madrid Protocol) and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). The Convention on the Conservation of Antarctic Seals (CCAS) and Convention on the Regulation of Antarctic Mineral Resources Activities (CRAMRA) may also provide some guidance for developing measures for regulating biological prospecting activities.

### 2.1 *The Antarctic Treaty*

Article I of the Antarctic Treaty stipulates that “Antarctica shall be used for peaceful purposes only”. Under Article II, Contracting Parties agree to the principle of freedom of scientific investigation in Antarctica and cooperation to that end. Article III.1 outlines the specific measures that Contracting Parties agree to pursue to this end. It provides:

“In order to promote international cooperation in scientific investigation in Antarctica [...] Contracting Parties agree that, to the greatest extent feasible and practicable:

- a. information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy of and efficiency of operations;
- b. scientific personnel shall be exchanged in Antarctica between expeditions and stations;
- c. scientific observations and results from Antarctica shall be exchanged and made freely available”.

Article IV freezes the territorial status of Antarctica by recognizing the three different positions and providing that no new acts or activities “shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica”.

Article VI provides the “provisions of the present Treaty shall apply to the area south of 60° South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area”.

Article VII.5 provides that Contracting Parties shall give advance notice of all expeditions.

### 2.2 *Madrid Protocol*

The Madrid Protocol aims to comprehensively protect the Antarctic environment and dependent and associated ecosystems. Article 2 designates Antarctica “as a natural reserve, devoted to peace and science”. Article 7 prohibits any activities relating to mineral resources, other than scientific research.

Article 3.1 provides that the “protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research [...] shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area”. Article 3.2 sets out a series of environmental principles which, *inter alia*, stipulate that activities in the Antarctic Treaty area are to be planned and conducted so as to limit adverse environmental impacts, avoid detrimental changes in the distribution, abundance or productivity of species or populations of species of fauna and flora. Article 3.3 states that activities “shall be planned and conducted in the Antarctic Treaty area so as to accord priority to scientific research and to preserve the value of Antarctica as an area for the conduct of such research”.

Article 8.1 provides that proposed activities shall be subject to the procedures laid in Annex I. Article 8.2 provides that each Party “shall ensure that the assessment procedures set out in Annex I are applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area pursuant to scientific research programs, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area”. Article 8.3 provides that the assessment procedures shall apply to any change in activity whether that arises from any increase in intensity, from the addition of an activity “or otherwise”.

Article 17 provides that Parties “shall report annually on the steps taken to implement this Protocol”. These reports shall be circulated to all Parties, considered at ATCM and “made publicly available”.

Annex I of the Protocol outlines the specific obligations relating to environmental impact assessment. Activities that will have “less than a minor or transitory impact” do not require an assessment. Activities that will have a minor or transitory impact require an Initial Environmental Evaluation. The Evaluation “(a) shall include a description of the proposed activity, including its purpose, location, duration and intensity; and (b) consideration of alternatives to the proposed activity and any impacts that the activity may have, including consideration of cumulative impacts in the light of existing and known planned activities”. Other activities require a Comprehensive Environmental Evaluation which amongst other things requires consideration of the “the effects of the proposed activity on the conduct of scientific research and on other existing uses and values”.

Annex II of the Protocol sets out provisions aimed at protecting native fauna and flora and prohibiting the introduction of non-native species. The taking of specimens is prohibited except in accordance with a permit. Article 3.1 provides, “[t]aking or harmful interference shall be prohibited, except in accordance with a permit.” It does not specify exactly what taking refers to. Article 3.2 of the Annex states:-

“Such permits shall specify the authorized activity, including when, where and by whom it is to be conducted and shall be issued only in the following circumstances:

- (a) to provide specimens for scientific study or scientific information;
- (b) to provide specimens for museums, herbaria, zoological and botanical gardens, or other educational or cultural institutions or uses; and
- (c) to provide for unavoidable consequences of scientific activities not otherwise authorized under sub-paragraphs (a) or (b) above”.

Annex VI of the Protocol (not yet in force) addresses liability arising from environmental emergencies and establishes a Fund. Article 12.1 provides that the Secretariat of the Antarctic Treaty shall maintain and administer a fund, in accordance with Decisions including terms of reference to be adopted by the Parties, to provide, *inter alia*, for the reimbursement of the reasonable and justified costs incurred by Parties. Article 12.2 provides that Parties may make a proposal to the Antarctic Treaty Consultative Meeting for reimbursement to be paid from the fund. Such a proposal may be approved by the Antarctic Treaty

Consultative Meeting, in which case it shall be approved by way of a Decision. The fund is to be financed by payments under Article 6.2 as well as voluntary contributions by States and other persons under Article 12.4.

### 2.3 *CCAMLR*

The objective of the 1980 Convention on the Conservation of Antarctic Marine Living Resources is, as the title shows, the conservation of Antarctic marine living resources. The Convention applies to “the Antarctic marine living resources of the area south of 60° South latitude and to the Antarctic marine living resources of the area between that latitude and the Antarctic Convergence which form part of the Antarctic marine ecosystem”.

Pursuant to Article II, any harvesting and associated activities shall be regulated to prevent the decrease in size of harvested populations to levels below those which ensure its stable recruitment, the maintenance of the ecological relationships of between harvested, dependent and related populations, and prevention of changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades. To that effect, conservation measures may be adopted on the best scientific evidence available, including catch-limits, area limits and seasonal limits.

Article VII establishes a Commission to give effect to the principles outlined in Article II. The functions of the Commission include the facilitation of research into and comprehensive studies of Antarctic marine living resources and of the Antarctic marine ecosystem.

Article XX requires Members of the Commission “to the greatest extent possible, provide annually to the Commission and to the Scientific Committee such statistical, biological and other data and information as the Commission and Scientific Committee may require in the exercise of their functions”.

### 2.4 *CCAS*

The 1972 Convention for the Conservation of Antarctic Seals (CCAS) was adopted by the Antarctic Treaty Parties in response to concerns about the vulnerability of Antarctic seals to commercial sealing. The Convention was established to manage commercial sealing in the Antarctic, primarily as a precautionary measure over the potential re-initiation of pelagic commercial sealing in the region. Its objective is “to promote and achieve the protection, scientific study and rational use of Antarctic seals, and to maintain a satisfactory balance within the ecological system of the Antarctic”. CCAS covers all six species of seal which breed in the Antarctic, and prohibits the killing of both Ross and Antarctic fur seals and sets catch limits, at deliberately low levels, for others. Commercial sealing has not been re-initiated, and although the Convention remains in force, its provisions have never been put to use.

CCAS (as well as CRAMRA; see Section 2.5) demonstrate how the ATS commences regulation proactively ahead of commercial exploitation. CCAS also includes a permitting system which required countries to regulate the activities of their nationals and of vessels flying their flags. This permitting system is discussed in more detail in Section 4 below.

### 2.5 *CRAMRA*

The 1988 Convention on the Regulation of Antarctic Mineral Resources Activities (CRAMRA), despite it never entering into force, has been referred to by various Contracting Parties as providing some useful guidance or precedence for addressing biological prospecting.

The Convention contained a set of principles, rules and institutions to: assess the possible impact on the environment of Antarctic mineral resource activities; determine whether Antarctic mineral resource activities are acceptable; and govern the conduct of such Antarctic mineral resource activities.

In Article 9, the Convention reaffirms the Antarctic Treaty preserving the legal position relating to the territorial status of Antarctica of the various Consultative Parties using the standard formulae based on Article IV of the Antarctic Treaty.

The Convention established a Mineral Resources Commission, Scientific Advisory Committees, Regulatory Committees, a special meeting of the Parties and a Secretariat as institutions for the implementation of the Convention (Chapter II). The Commission was mandated to act as the plenary body responsible for the overall functioning of the regulatory mechanism. The Convention provided that once the Commission identified an area for exploration and development, it shall establish a Regulatory Committee, which was to comprise of ten members and adopt decisions with a two-thirds majority. The Committee's task was to develop detailed regulations governing the possible exploration and development activities of possible operators.

The Convention also contained detailed financial provisions, as well as detailed rules on prospecting, exploration and the development of mineral resources activities (Chapters III, IV and V). Prospecting does not require authorization of the institutions under the Convention (Article 37.2), but must be notified to the Commission (Article 37.7). Permits from the Regulatory Committee are required for the exploration and the development of mineral resource activities (Articles 44.1 and 53.1). These rules anticipated the charging of levies on operators to cover the costs of administering the Convention, processing the applications, monitoring their implementation and to "promote scientific research in Antarctica, particularly that related to Antarctic environment and Antarctic resources, and a wide spread of participation in such research by all Parties, in particular developing country Parties". The Convention also anticipated Operators paying "taxes, royalties or payments in kind". The establishment of a fund to cover the cost of remedying any environmental damage caused by mining was anticipated by the Convention.

CRAMRA contained a number of definitions of potential interest for the purposes of this Working Paper. These include; "prospecting", "operator", "mineral resources", "exploration", "operator" and "Antarctic mineral resources activity". For example, "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." "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, sea floor and sub-ice samples." "Operator" includes any "juridical person established under the law of a Party".

Article 16 provided that data and information shall be made freely available to the greatest extent feasible, but data and information of commercial value gained through prospecting may be retained by the Operator in accordance with Article 37.

### **3. Activities of ATS bodies**

#### **3.1 *Scientific Committee on Antarctic Research (SCAR)***

SCAR, and in particular SCAR's Working Group on Biology, have been interested in the issue of biological prospecting in Antarctica for some time. In a report on Scientific Research in the Antarctica (Information Paper XXIII ATCM/IP 123 SCAR (1999)), SCAR reported:

"At present there appear to be no provisions in the Antarctic Treaty to deal with exploitation of biological resources in the Antarctic, with the exception of fisheries. There have already been collections of micro-organisms for pharmaceutical purposes and a biological prospecting interest in the Antarctic is developing rapidly. The implications of biological prospecting, and the patenting of biological products, for biological research and conservation is of concern to the Working Group on Biology and the meeting agreed that these issues should be raised with SCAR and with CCAMLR."

The Twenty-seventh Meeting of the Scientific Committee on Antarctic Research (XXVII SCAR), held in Shanghai, China, in July 2002 noted the following under agenda items 6 & 7 on ATCM Scientific Matters and the Group of Specialists on Environmental Affairs and Conservation:

"9. Although bioprospecting had been discussed at the WGB previously, this issue requires further attention. Bioprospecting occurs at two levels, viz. the study of genetic materials and determination of commercially important genetic codes and the harvesting of in situ organisms for

extraction of biochemicals. A patent had been filed for a protein (marinomonin) isolated from a bacterium collected from an Antarctic lake sediment. Such patent efforts might well restrict the use of this knowledge by Antarctic scientists. While no current instance of harvesting for biotechnology is known, there are obvious environmental ramifications of the taking of animals and plants as a commercial venture. No action is recommended at present, but it was noted by GOSEAC that developments related to bioprospecting should be closely monitored as they might develop into important pressures on Antarctic resources. The Working Group noted that the Antarctic Treaty System (ATS) might need to be extended to include regulation of bioprospecting, and indeed all the provisions of the Convention on Biological Diversity. D. Walton noted that SCAR would have to put a paper forward to the ATCM setting out that it is important for the Treaty to adopt the measures of the Convention on Biological Diversity. The Group discussed the likely impacts of this on research in the Treaty Area and concluded that significant negative impacts are unlikely. The Group agreed that a recommendation in this regard should be made to the SCAR XXVII.”

Although not adopted, it is worth referring to Recommendation XXVII – Biol 3 concerning the Convention on Biological Diversity proposed by SCAR’s Working Group on the Convention on Biological Diversity. The Recommendation, *inter alia*, suggests that SCAR draft a Working Paper for the ATCM outlining the importance of adoption of the principles of the Convention on Biological Diversity by the Treaty so as to ensure that Antarctic biological resources are treated on an equal basis to those of the rest of the World.

It is also worth recalling Working Paper WP-024 (withdrawn) prepared by SCAR for ATCM XXV. In this Paper, SCAR notes that ATCPs “consider accepting the application of the appropriate Articles of the Convention for the Conservation of Biodiversity to the Antarctic, through a Measure”.

At XXX SCAR (2008), delegates agreed to provide a paper on biological prospecting for the XXXII ATCM. The deadline for working papers to be submitted to the Antarctic Treaty Secretariat is 20 February 2009. A questionnaire was sent to SCAR National Committee Representatives requesting a reply by 22 November 2008.

### 3.2 *ATCM and the CEP*

#### **XXV ATCM – Warsaw 2002**

Biological prospecting was first officially considered at XXV ATCM in 2002. At this meeting, the UK submitted WP-043 “Biological Prospecting in Antarctica”, for consideration under agenda item 4(d), ‘Matters covered by Annex II (Conservation of Antarctic Fauna and Flora)’ of the fifth session of the CEP.

The report of the CEP stated:-

“(59) Several delegates pointed out that the subject of biological prospecting is complex, and includes legal and political issues. Comments from members covered items such as commercial confidentiality, cross-convention aspects, the legal basis for biological prospecting, intellectual property and patents etc., as well as consistency with Article III of the Antarctic Treaty.

(60) ASOC stated that biological prospecting would represent a further penetration of commercial and economic interest into Antarctica, and argued against accepting biological prospecting as a fait accompli.

(61) The CEP concluded that the complexities and rapid developments in this field were strong reasons for the Antarctic community to be pre-emptive on this issue and that biological prospecting needed to be discussed during the next CEP meeting. The CEP, however, is not in a position to address all the problems. It was suggested that many issues require consideration by the ATCM. Members were encouraged to submit papers on biological prospecting for consideration at CEP VI.”

The ATCM noted the following in paragraph 68 of its report:-

“Referring to paragraphs 58-61 of the Report, the ATCM agreed with the CEP that biological prospecting was a very important matter. The Meeting agreed that biological prospecting also raised legal and political issues, as well as environmental issues. In this respect the Meeting urged Parties to be prepared to consider these matters at XXVI ATCM.”

The ATCM also noted in its “Message from the XXV Consultative Meeting to Stations in the Antarctic” that “[p]reliminary discussions were held on issues arising from biological prospecting in Antarctica. The ATCM agreed to continue discussion of these important issues at its next meeting in Madrid in June 2003”.

### **ATCM XXVI – Madrid 2003**

Two Information Papers were submitted to the XXVI ATCM, IP-47, Bioprospecting in Antarctica: An Academic Workshop (New Zealand); and IP-75, The International Regime on Bioprospecting: Existing Policies and Emerging Issues for Antarctica (UK and Norway).

The main points recorded in the report of the CEP about biological prospecting were:-

“(174) Chile stressed the value of the precautionary ecosystem approach to issues raised by bioprospecting in Antarctic marine areas and recalled that CCAMLR encompassed all living organisms in the Southern Ocean.

(175) Several Members considered that the current environmental impact of bioprospecting in Antarctica was small. One Member noted that the EIA procedures in Annex I of the Protocol could be used to assess bioprospecting proposals.

(176) Several Members said that it was important to differentiate between fundamental scientific research and commercial bioprospecting activities. Others noted that a definition of what is meant by bioprospecting might be useful in further considering the issue.

(177) SCAR noted that bioprospecting could raise important issues of freedom of scientific information if confidentiality required by commercial developments limited opportunities for scientific publication. SCAR also noted their concern that in the marine realm there could also be potential for harvesting of slow growing species containing compounds of pharmaceutical interest.

(178) The Committee noted that bioprospecting raises many complex legal and political issues, which may require consideration by the ATCM.

(179) The Committee agreed to refer the legal and political issues associated with bioprospecting to a future ATCM for further consideration.”

The ATCM accepted the CEP recommendation and decided to include the issue on the agenda of its next meeting (item 17 of the preliminary agenda for ATCM XXVII).

### **ATCM XXVII – Cape Town 2004**

The ATCM had before it document ATCM XXVII IP-106, Industry Involvement in Antarctic Bioprospecting (UNEP).

CEP’s consideration of the issue was reported as follows:-

“(199) UNEP introduced ATCM XXVII/IP106 Industry Involvement in Antarctic Bioprospecting, noting the level of commercial use is limited, that no commercial product had been developed so far, but nevertheless that a significant amount of the research is of commercial interest. Germany noted that the issue was important and that the CEP needed to address the issue in a more detailed manner than it has so far.”

ATCM XXVII consideration of the issue was reported as follows:-



“(229) The representative from UNEP gave a short introduction to XXVII ATCM/IP-106 on industrial involvement in Antarctic bio-prospecting. A number of Parties emphasized the increasing importance of this topic for the ATCM and urged interested Delegations to introduce working papers at the next ATCM, so that consideration of this important subject can progress. The need for the ATCM to be informed of developments on this topic in other international fora was stressed.”

### ATCM XXVIII – Stockholm 2005

The ATCM had before it the following documents:-

- WP-013 Biological Prospecting in Antarctica (New Zealand and Sweden);
- IP-008 (Biological Prospecting in Antarctica (Spain); and
- IP-093 Recent Developments in Biological Prospecting Relevant to Antarctica (UNEP).

The CEP reported that:-

“The Committee noted that, while one Information Paper had been submitted under this Agenda Item (ATCM XXVIII/IP093 Recent Developments in Biological Prospecting Relevant to Antarctica (UNEP)), it would undergo substantive discussion under ATCM Agenda Item 18 Biological Prospecting.”

The CEP decided not to include the item in the preliminary agenda for its next meeting.

The ATCM Report under Item 18: Biological Prospecting of its agenda reported the following.

“(233) New Zealand presented WP 13 on Biological Prospecting in Antarctica. Sweden, the co-author of WP 13, underlined the point that the focus on Article III did not mean that other articles of the Treaty or the Protocol were considered any less important in relation to this issue. All regulations need to be considered.

(234) Spain presented IP 8, which was largely scientific, but underscored the eventual negative impacts of biological prospecting in its conclusion. In Spain, pharmaceutical companies are already researching on drugs based on Antarctic material. Spain found it to be logical to first approach the subject on a legal basis and therefore supported WP13 and was ready to co-sponsor the draft resolution attached to it. UNEP presented IP 93 on Recent Developments in Biological Prospecting Relevant to Antarctica. The paper highlights developments in five international fora, including the newly established UN General Assembly Ad Hoc Open-ended Informal Working Group and the Ad Hoc Open-ended Working group on Access and Benefit Sharing of the Convention on Biological Diversity.

(235) There was wide-ranging discussion on the issue of biological prospecting. Many delegations expressed support for the draft Resolution proposed by New Zealand and Sweden, as it provided a good starting point for the ATCM’s discussions of biological prospecting. Some expressed concern about the lack of a definition of biological prospecting, while others felt it was not necessary to have a specific definition at this point. It was underscored that other international groups – including a UN working group – were working on the same theme. Some delegations wanted to wait for the work of these other groups, while others thought it was important for the Antarctic Treaty System to take the lead on the question of biological prospecting in Antarctica.”

The Meeting approved Resolution 7 (2005) Biological Prospecting in Antarctica, which provides:

#### “Resolution 7 (2005)

Biological Prospecting in Antarctica

The Representatives,

Convinced of the benefits of scientific research in the field of biological prospecting for the progress of humankind;

Recalling Article III(1)(c) of the Antarctic Treaty, which provides that scientific observations and results from Antarctica shall be exchanged and made freely available;

Recalling the Protocol on Environmental Protection to the Antarctic Treaty, including Article 2, as well as Article 3, which provides for the regulation of activities in the Antarctic Treaty area to be planned and conducted so as to limit adverse impacts on the Antarctic environment and dependent and associated ecosystems;

Bearing in mind ongoing discussions in other international fora on aspects of biological prospecting, including efforts to develop and clarify the nature and definition of such activities;

Reaffirming the importance of Article III(1) of the Antarctic Treaty with regard to scientific activities relating to biological prospecting, in that, to the greatest extent feasible and practicable:

- (a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;
- (b) scientific personnel shall be exchanged in Antarctica between expeditions and stations;
- (c) scientific observations and results from Antarctica shall be exchanged and made freely available;

Recommend that:

- 1) their governments draw to the attention of their national Antarctic programs and other research institutes engaged in Antarctic biological prospecting activities the provisions of Article III(1) of the Antarctic Treaty;
- 2) their governments continue to keep under review the question of biological prospecting in the Antarctic Treaty Area, and exchange on an annual basis information and views relating to that question as appropriate.”

#### **ATCM XXIX – Edinburgh 2006**

The Meeting had before it the following documents on the topic:-

- IP 13 In search of a legal regime for bioprospecting in Antarctica (France);
- IP 112 Argentine activities of bioprospecting and bioremediation in Antarctica (Argentina); and
- IP 116 Recent Trends in the Biological Prospecting (UNEP).

Under Item 18: Biological Prospecting in Antarctica the report of the Meeting stated:

“(224) The Meeting thanked France, Argentina and UNEP for their respective Papers: IP 13 In search of a legal regime for bioprospecting in Antarctica; IP 112 Argentine activities of bioprospecting and bioremediation in Antarctica and IP116 Recent Trends in the Biological Prospecting. Some delegations noted that these were in keeping with the spirit of Resolution 7 (2005). They further noted with appreciation that IP 13 raised important legal issues, including a possible regime within the Antarctic Treaty system framework; that IP 112 responded to the wish expressed by the ATCM that Member States report their bioprospecting activities by incorporating valuable information, including the application of bioremediation; and IP 116 reflected in a

comprehensive overview the growing interest in bioprospecting in Antarctica and the changing nature and dynamics of research in the industry that may affect the use of Antarctic compounds. The Meeting confirmed that bioprospecting would be discussed at ATCM XXX and urged Parties to continue to provide updates on their activities in this field.”

### **ATCM XXX – New Delhi 2007**

The Meeting had before it two papers on the issue:

- WP 36 “Biological Prospecting in the Antarctic Treaty Area – Scoping for a Regulatory Framework” (the Netherlands)
- IP 67 “Biological Prospecting in Antarctica: Review, Update and Proposed Tool to Support a Way Forward” (UNEP).

The report of the Meeting summarized the discussions as follows:-

“(258) The Netherlands presented WP 36 Biological Prospecting in the Antarctic Treaty Area – Scoping for a Regulatory Framework. The Netherlands noted that work was ongoing in other bodies, and that it was important that biological prospecting be addressed by the ATCM.

(259) UNEP introduced IP 67 Biological Prospecting in Antarctica: Review, Update and Proposed Tool to Support a Way Forward, providing an update of activities since the adoption of Resolution 7 (2005). Some delegations welcomed the proposal to develop a web-based database on biological prospecting, as proposed in IP 67, and looked forward to considering it.

(260) Parties welcomed and applauded the work that went into the two papers. The Meeting confirmed its readiness to push forward with work on this topic.

(261) Several delegations agreed with The Netherlands that the ATCM should not wait for the results of the work in other international forums but should take the lead on the question of biological prospecting in Antarctica. It was further noted that besides the international ongoing process on biological prospecting, the ATCM could deal with this topic itself.

(262) After a lengthy discussion on how to proceed and terms of reference, the Meeting agreed to establish an informal open-ended web-based Intersessional Contact Group (ICG) working until ATCM XXXI to examine the issue of biological prospecting in the Antarctic Treaty Area with the following terms of reference:

- a) the ICG will identify issues and current activities related to biological prospecting in the Antarctic Treaty Area with a view to assisting the ATCM considering the matter, including, if appropriate, working modalities; and
- b) Observers and Experts participating in ATCM XXX will be invited to send information to the ICG.

(263) The Meeting welcomed the offer of The Netherlands to act as the convenor of the ICG and report at ATCM XXXI on the work of the ICG. It was agreed that the Secretariat would develop an interactive discussion forum and provide assistance to the ICG.”

### **ATCM XXXI – Kiev 2008**

The Meeting had before it two papers on the issue:

- WP4 Report of the ATCM Intersessional Contact Group to examine the issue of Biological Prospecting in the Antarctic Treaty Area (The Netherlands) and

- WP 11 An update on biological prospecting in Antarctica, including the development of the Antarctic Biological Prospecting Database (Belgium).

The report of the Meeting summarized the discussions as follows:-

“(298) The Netherlands introduced WP4 Report of the ATCM Intersessional Contact Group to examine the issue of Biological Prospecting in the Antarctic Treaty Area, and Belgium introduced WP 11 An update on biological prospecting in Antarctica, including the development of the Antarctic Biological Prospecting Database. UNEP informed the meeting of discussions on related issues that had taken place in the UN, CBD, FAO, WTO and WIPO.

(299) Parties thanked the Netherlands and Belgium for the work they had done, and UNEP for its update. Some Parties expressed interest in seeing the database expanded under Belgian guidance.

(300) The Meeting agreed that the ICG and its informal nature had been useful and provided valuable input to the discussions at this ATCM. It supported the need for the ATCM to continue to monitor the issue.

(301) Parties noted that it was important to have information on any biological prospecting activities being carried out in the Antarctic Treaty areas. Without that information, several Parties noted that it was difficult to consider and address the issue.

(302) Argentina noted that prior to any legal considerations Parties should also have information on the environmental impact of activities which had been undertaken, the association between official scientific entities and the industry regarding commercial developments that may have occurred. On this matter, Argentina and Chile recalled their position that all maritime spaces of the law of the sea applied.

(303) It was noted that there were already instruments and institutions in place which could be relevant to the issue of biological prospecting. These included Articles II and III of the Treaty, the Committee for Environmental Protection (CEP) and CCAMLR regarding marine species. Some Parties expressed the view that some biological prospecting activities may be potentially inconsistent with these Articles. Other Parties expressed the view that biological prospecting was a legitimate activity under the Antarctic Treaty and related instruments. Many Parties highlighted the value of an analysis of any gaps in the existing instruments which needed to be supplemented, while other Parties suggested that it was premature to undertake that analysis.

(304) In addition, many Parties highlighted the value of a review of the Antarctic biological prospecting database and the development of working definitions relating to biological prospecting in the Antarctic Treaty area. Other Parties preferred that SCAR's views be sought prior to further work.

(305) It was noted that only Argentina, by submitting information, had responded to Resolution 7 (2005) on biological prospecting and that it would be useful to gather information on difficulties in implementing the Resolution. Chile recalled that Parties reported all activities undertaken by the national scientific programs under the exchange of information and that Chile subsequently provided an overview of the work done on Antarctic biological resources by Chilean scientists.

(306) Belgium suggested that, in order to facilitate the provision of information on biological prospecting activities, the Parties share such information through the Electronic Information Exchange System developed by the Secretariat.

(307) While several Parties noted the need to move forward and for more intersessional work, others questioned whether significant additional work was desirable prior to the receipt of additional information. It was noted that if an ICG, either electronically or by means of a meeting, were to take place, then it needed to have clear terms of reference. After informal consultations, it was agreed not to proceed with an ICG as there was no agreement on terms of reference.

(308) The Meeting invited SCAR to prepare a paper for ATCM XXXII, at which time the biological prospecting issue would be discussed further.

(309) After consultations, SCAR agreed to provide a paper at ATCM XXXII in response to the following questions:-

a) review the most recent published research that may involve biological prospecting in the Antarctic Treaty region and provide an assessment of these efforts from discovery to development to commercialization to product use, based on fundamental scientific principles.

b) provide a survey of ongoing biological prospecting research being undertaken within the SCAR community.

(310) SCAR noted in this connection, that its review of recent research would involve a review of existing databases.”

The ATCM in Decision 5 (2008) also directed the Secretariat to begin operation of the Electronic Information Exchange System (EIES) on 15 September 2008. The EIES enables Parties are able to comply with their various reporting requirements pursuant to Articles III.1 and VII.5 of the Treaty, Article 17 of the Madrid Protocol and other articles of its Annexes. The EIES requires Parties to provide “Scientific Information” annually that includes a brief description of planned and ongoing research projects as well as a contact person for these projects.

### **3.3 CCAMLR-XXVII**

Biological prospecting was first considered officially at the Commission meeting in 2008. At this meeting the matter was raised under Item 15 “Cooperation with ATS”. IUCN submitted a document entitled “Paper on Biological prospecting in the Southern Ocean, a role for CCAMLR”. The document built on the WP 11 submitted by Belgium at ATCM XXX. A number of Parties called for the CCAMLR to take up the issue of biological prospecting more actively.

## **4. The issues raised in the report of the ICG**

### **4.1 Definitions**

SCAR, CEP, the reports of XXVI, XXVIII and XXXI ATCMs, and the report of the ICG noted the value of defining some of the terms associated with this issue, particularly a working definition of “biological prospecting”. Other terms noted by participants in the ICG process that could benefit from a definition included: “biological resources”, “biological material”, “genetic resources”, and “genetic material”. It was also noted in the ICG report that “use could be made of the work carried out in other forums, such as the CBD”.

There are no specific relevant definitions in the ATS for terms, such as “biological prospecting”, including what distinguishes “biological prospecting” from “harvesting activities”, “biological resources”, “biological material”, “genetic resources”, “genetic material”, “commercially confident information”, and “benefit sharing”. CRAMRA, though, contained a number of definitions that may provide some assistance in developing some of the above definitions.

The difficulty of defining the terms associated with biological prospecting should not be underestimated and their elaboration at the international level has remained elusive. For example, the CBD has not developed a definition of biological prospecting, not has UNCLOS developed a definition of ‘marine scientific research’. In many cases, for example in the context of the ecosystem approach used by CCAMLR, it is possible to move forward with implementation and practical work before official definitions have been agreed upon, and that definitions that are practical and useful may be developed only after a certain degree of experience has been acquired.

Issues related to definitions and use of terms are further explored in a separate working paper (See Working Paper by Sweden on “Concepts, including a Comparative Analysis”). In accordance with suggestions made by the ICG, use has been made of work carried out in other forums, including the Conference of the Parties of the Convention on Biological Diversity.

#### **4.2 Scope**

The fact that organisms have been collected from land and marine areas raises a number of issues regarding the jurisdictional competence of various legal instruments that have been raised in the ATCM and the ICG report.

One aspect of this issue is the relevance of related developments in other processes to the ATS. There are a number of other conventions whose scope covers biological prospecting activities in the Antarctic Treaty area and the CCAMLR area. UNCLOS, for example, has jurisdictional competence and has a number of relevant provisions. The CBD is also relevant. Various international legal instruments addressing intellectual property rights are also relevant.

UNCLOS, CBD, FAO, WTO, and WIPO are developing new policies and regulations relevant to biological prospecting (See further Information Paper on “An Update on recent Policy Developments at the International Level”).

Parties have expressed divergent views regarding the appropriate response to the relevance and work of these other processes. The co-sponsors of this paper believe that it is important that the ATS responds proactively.

The reports of the XXVIII and XXX ATCM noted that some delegations felt that ATCM should not wait for the results of the work in other international fora but should take the lead on the question of biological prospecting in Antarctica. This is indeed what the co-sponsors of this paper believe, namely that the ATS is a unique regime with a wide mandate to conserve, manage and protect the Antarctic environment and its ecosystems, and that it will be essential for the Consultative Parties to find, within the Antarctic Treaty System, a solution to any gaps or problems that might be identified, taking into account the unique circumstances of Antarctica. Nevertheless, such solutions could take into account certain elements of the work of other fora, such as UNCLOS, CBD and/or FAO, as appropriate. The ATS has a tradition of addressing matters in a proactive manner, anticipating issues and developing responses to them before they arise, such as in the case of mining.

An aspect of jurisdictional scope not raised officially in any of the ATS discussions is the consequence of the fact that much of the research and development associated with biological prospecting takes place in countries and not in the Antarctica Treaty area. Another point is addressing the consequences of the fact that biological prospecting is taking place in the Antarctic Treaty area and, hence, is the responsibility of both the ATCM and CCAMLR. In this regard, the co-sponsors of this paper call for a close collaboration among the various components of the ATS.

#### **4.3 Status**

The status or legal title of the organisms used for biological prospecting is based on Article IV of the Antarctic Treaty.

Parties in the ATCM and within the ICG process have pointed out that complicated issues could arise with respect to matters dealt with by Article IV of the Antarctic Treaty and the established practice of States with respect to those matters.

The impact of fishing and mining on claimed sectors were raised during the negotiations of CCAMLR and CRAMRA. In these contexts, they were resolved by reconfirming Article IV of the Antarctic Treaty.

Biological Prospecting is largely an exercise in developing new knowledge or an intellectually based activity and as a result it is largely a non-extractive industry. The co-sponsors of this paper believe that it is possible to design mechanisms that avoid raising this issue. For example, a simple extension of the current permitting

mechanism that included an additional requirement that the collector promises to share benefits should they arise, would have no additional impact on the current territorial status of Antarctica.

#### 4.4 Access

Biological material from Antarctica can be accessed either by collecting specimens from Antarctica or from *ex situ* collections of Antarctic material held in various institutions around the World.

Collecting biological specimens from the Antarctic Treaty area for biological prospecting involves activities that require prior notification through the Electronic Information Exchange System (EIES). It may also require a permit to collect the specimens pursuant to Annex II and/or Annex V to the Madrid Protocol. Furthermore, collecting biological specimens from the Antarctic Treaty area is subject to environmental impact assessment pursuant to Article 3 and Annex I of the Madrid Protocol (See Section 4.5).

If it involves the harvesting or associated activities of marine specimens then the provisions of CCAMLR may require notification to the Commission. If it involves work with seals then the permitting system established by the CCAS is relevant.

There are, however, some important limitations in respect of these regulations. For instance, access to micro organisms for the purpose of biological prospecting does not require a permit under Annex II of the Madrid Protocol, while micro organisms are of major interest for those involved in biological prospecting. In addition, marine living resources are outside the scope of Annex II. Consequently, the co-sponsors of this paper note that sampling for biological prospecting purposes in the Antarctic Treaty area may not always be subject to prior governmental authorization, although this depends on the scope and content of the applicable domestic implementing legislation.

It should further be noted that specimens accessed outside the Antarctica Treaty area and the CCAMLR area, from the various existing *ex situ* collections that hold specimens from previous expeditions to Antarctica, are not covered by the existing rules. This also has important consequences for benefit sharing (See Section 4.7).

#### 4.5 Environmental impact

Currently, the risk of environmental impacts by sampling activities for biological prospecting is considered low. As far as environmental impact assessment is concerned, many of such activities may only need to be subject to a preliminary assessment under Annex I to the Madrid Protocol. However, if biological prospecting activities would increase, concerns may arise in respect of cumulative impacts for certain sites or values.

In view of the relatively low impacts of individual sampling activities and the limited scope of the permit systems of Annex II and Annex V to the Protocol (See Section 4.4), biological prospecting activities in the Antarctic appear to receive little attention in reports (e.g. reporting under Article 17 of the Protocol and the listing of environmental impact assessments under Annex I). This further complicates the assessment of potential cumulative impacts and the access to information on biological prospecting in Antarctica. This underlines the importance of an improved implementation of Resolution 7(2005).

#### 4.6 Commercialization, intellectual property rights and the availability of scientific data and information

Article I of the Treaty provides that “Antarctica shall be used for peaceful purposes only”. Commercial activities, as a peaceful purpose, are therefore allowed, with tourism being the largest such activity at the moment. Biological prospecting that is for peaceful purposes is as a result also allowed. Biological prospecting for military purposes, such as developing new biological weapons, is not permitted by the Treaty.

The current level of biological prospecting and the effect of increasingly commercial orientated science or applied science on the freedom of science in Antarctic has raised concerns. A specific concern of SCAR and some ATCPs is whether commercialization, including the acquisition of intellectual property rights (IPRs), is

consistent with Articles II and III of the Treaty. In particular, a) whether the rights conferred by an IPR are likely to interfere with the freedom of scientific investigation in Antarctica and b) whether the degree of confidentiality required prior to the filing for patents and other IPRs in order to safeguard the novel character of an invention is compatible with the requirement that scientific observations and results be exchanged and made freely available.

As far as a) is concerned, a patent is aimed at providing for the exclusive use and exploitation of the patented invention. Since the mere isolation and characterization of a gene may often be considered an invention if sufficient inventive ingenuity has been required to isolate and characterize them, a patent can be granted over the exclusive use and exploitation of the genetic resource. The patent may result in excluding others from freely using that organism for further investigation and from exploiting it without a licence from the patent holder. Such an exclusion would seem to be contrary to the freedom of science.

Some patent systems contain some limitations on the ‘exclusivity’ of the use that some have argued avoids a similar conflict within the marine context and UNCLOS. For example, in some States, there is an ‘experimental use exemption’, which allows scientists to use a patented micro-organism or gene sequence, provided that the research is for non-commercial purposes. This exemption is not universal. It is also worth noting that such an exemption only addresses uses for non-commercial purposes and does not include other uses.

Regarding b) there are two concerns. The first is that scientists working with private partners will often be required to seek the approval of the private partner before releasing results and in some cases they may even be prohibited from publishing. Experience has shown that scientists have formal partnerships with industry tend to have higher publication rates than those from non-industry-aligned institutes. The second is that the patenting process delays publication, as scientific data for a patent must be kept secret until the patent is filed in order to preserve the novel character of the invention. This delay may be contrary to the obligation of Article III.1(c) that results need to be “made freely available”.

There are no known instances where either of these concerns has occurred with respects to biological prospecting in Antarctica. Indeed, there is very little information or research on these issues in any area and it is not known whether IPRs have a positive or negative effect on scientific cooperation and the free exchange of information. One of the few studies to look at this issues is an OECD survey of the use of patented knowledge which concluded that more research is needed to ascertain whether the IPRs are having a negative effect on scientific inquiry (*Research Use of Patented Knowledge: A Review* (OECD Directorate for Science, Technology and Industry Working Paper 2006/2)).

The impact of IPRs on science generally and the free exchange of information is a concern in many other fora, such as UNCLOS, OECD, WIPO, and WTO.

For example, the granting of IPRs over marine genetic resources raises a number of very similar questions to those within the ATS, due to the broadly similar provisions of UNCLOS related to marine scientific research. In particular, whether filing a patent application is considered as a claim to part of the marine environment or its resources; whether the rights conferred by a patent are likely to interfere with the right to carry out marine scientific research; and whether the degree of confidentiality required prior to the filing for patents in order to safeguard the novel character of an invention is compatible with the requirement for dissemination and publication of data and research results. The General Assembly, in Resolution 59/24 of 17 November 2004, established an Ad Hoc Open-Ended Informal Working Group (Working Group) to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction. The Working Group, which met in February 2006, recommended that an ongoing process of discussions on these issues be established under the auspices of the General Assembly, and identified the relationship between UNCLOS and intellectual property rights regimes as one of the areas requiring further studies. In Resolution 63/111 of 5 December 2008, the General Assembly decided to reconvene the Working Group in 2010.

#### **4.7 Benefit-sharing**



Antarctic Treaty Consultative Parties have always been acutely conscious of the special legal and political status of Antarctica, and the special responsibility of Parties to ensure that all activities in Antarctica are consistent with the purposes and principles of the Antarctic Treaty. These principles have been emphasized in the preamble language of CCAMLR, CRAMRA and the Madrid Protocol.

Sharing the benefits of Antarctica is an important aim of the Treaty and responsibility of ATCPs. Three main benefits arising from the Treaty are that it is “the interest of all mankind that Antarctica continue for ever to be used exclusively for peaceful purposes”; the “substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica”, and the conservation of Antarctica’s unique environment. The co-sponsors of this paper feel that benefit-sharing should contribute to the science and conservation objectives of the Treaty and the Protocol.

Mechanisms for sharing some of the benefits of biological prospecting exist within the ATS. Article III and the various reporting requirements of the ATS foresee that the scientific knowledge generated from biological prospecting is shared. The *ad hoc* inclusion of developing country scientists within ATCP expeditions and supporting the involvement of new developing country Parties to the ATS is another mechanism.

Commercialization may limit the free exchange of information (See Section 4.6) and so adversely affect the exchange of and access to scientific knowledge under the ATS. The gap in implementing the reporting requirements discussed in Section 4.8 further undermines the extent to which benefits are properly shared under the ATS. There is currently no rule regarding the sharing of monetary benefits as well as gaps in the rules regarding non-monetary benefits (such as training, access to equipment or specimens, or research outputs) from biological prospecting. This limits the sharing of benefits and may have implications for the ability of the ATS to implement its special responsibility to promote fully the contribution of scientific investigation in Antarctica to scientific knowledge.

CRAMRA provides an example where the ATS has developed rules for more comprehensive distribution of benefits from commercial activities. These rules anticipated the charging of levies on operators to cover the costs of administering the Convention, processing the applications, monitoring their implementation, and the promotion of “scientific research in Antarctica, particularly that related to Antarctic environment and Antarctic resources, and a wide spread of participation in such research by all Parties, in particular developing country Parties”. The Convention also anticipated Operators paying “taxes, royalties or payments in kind”. The establishment of a fund to cover the cost of remedying any environmental damage caused by mining was anticipated by the Convention.

Annex VI of the Madrid Protocol also provides rules governing the distribution of resources to respond to environmental emergencies.

It is worth noting that most companies no longer consider genetic resources freely available. Companies now see benefit-sharing as a necessary business practice associated with accessing genetic resources. The package of benefits companies are now willing to provide to maintain access to these resources, typically includes a mix of monetary benefits like fees per sample, milestone payments, royalties on net sales, and licensing agreements, as well as non-monetary benefits like training, capacity-building, research exchanges, supply of equipment, technology transfer and joint publications. The results of an industry survey for the ATCM on this point were provided to the ATCM in document ATCM XXIX IP-116, Recent Trends in the Biological Prospecting (UNEP).

These trends are evident in other international fora dealing with biological prospecting. Thus, the International Treaty on Plant Genetic Resources (ITPGRFA) provides an example of international benefit-sharing arrangements arising from the use of plant genetic resources that is of direct relevance to benefit sharing from the use of Antarctic genetic resources. Ongoing discussions in the General Assembly’s Ad Hoc Open-Ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (See also Section 4.6) may also be directly relevant to the ATS. The CBD provides another example.

## 4.8 Reporting

The ATS contains numerous obligations for Parties and other entities to provide information on a wide range of matters. In an effort to streamline these requirements and increase the transparency of the ATS, an Electronic Information Exchange System (EIES) has been established. The EIES enables Parties to comply with their various reporting requirements pursuant to Articles III.1 and VII.5 of the Treaty, as well as Article 17 of the Madrid Protocol and other articles of its Annexes. The EIES requires Parties to provide ‘Scientific Information’ and environmental information annually that includes a brief description of planned and ongoing research projects as well as a contact person for these projects.

XXVII ATCM also adopted Resolution 7 that recommends that “governments [...] keep under review the question of biological prospecting in the Antarctic Treaty Area, and exchange on an annual basis information and views relating to that question as appropriate.”

There appears to be several important gaps in the reporting requirements of the ATS.

Resolution 7 does not extend to the use of biological specimens outside of the Antarctic Treaty area. As a significant proportion of the use of these specimens in terms of biological prospecting takes place in the laboratories, this represents an important gap in the ATS.

Another gap is the level of information provided through the EIES. Less than 25 of the 187 examples of biological prospecting contained in the Antarctic Biological Prospecting Database are to be found in the Parties’ annual reports. This difference arises mainly as a result from the fact that the national reports only list brief details about research projects, and not research outcomes. For example, the project on Chemical Ecology of Antarctic Marine Organisms has probably resulted in at least 30 publications, of which 3 became records in the Database.

Another gap in the reporting requirements of the ATS on this matter is the extent to which the existing requirements have been implemented. Since the adoption of Resolution 7 (2005), only one Consultative Party (Argentina) has provided information on biological prospecting in the Antarctic Treaty Area on the basis of that Resolution.

The report of the XXXI ATCM stated that “Parties noted that it was important to have information on any biological prospecting activities being carried out in the Antarctic Treaty area.” The XXXI ATCM and the ICG noted a need for a review of Resolution 7 (2005), to gather information on difficulties in implementing the Resolution.

The need was stressed, in order to elaborate legal text, that more information should be gathered regarding: a) the kind of biological prospecting activities, b) the environmental impact of those activities, c) the kind of association between governmental research organizations and industry, and d) the commercial developments which have taken place.

The XXXI ATCM invited SCAR to prepare a paper for ATCM XXXII in response to the following questions:-

- “1. review the most recent published research that may involve biological prospecting in the Antarctic Treaty region and provide an assessment of these efforts from discovery to development to commercialization to product use, based on fundamental scientific principles.
2. provide a survey of ongoing biological prospecting research being undertaken within the SCAR community”.

In addition to these formal requirements, Belgium with UNEP and United Nations University Institute of Advanced Studies (UNU-IAS) have developed a prototype database on biological prospecting, the Antarctic Biological Prospecting Database (See further Working Paper by Belgium on “The Antarctic Biological

Prospecting Database”). The Database was presented to the last ATCM. It has been further developed since then. The purpose of this database is to make available comprehensive information about the level and outcomes of biological prospecting in Antarctica (See <http://www.bioprospector.org/bioprospector/antarctica/home.action>). The Database contains 187 records and provides an account of the current activities related to biological prospecting in the Antarctic Treaty area. The Database has been gathered from public records, such as patent databases, scientific journals, the internet, and published company literature. Wherever possible the relevant companies and researchers have been consulted to verify the accuracy of the record.

## 5. *Conclusions*

This gap analysis of the ATS has shown that there exist gaps concerning, definitions, access to specimens, commercialization, benefit sharing and reporting.

The co-sponsors of this paper invite the ATCM to discuss these gaps and to consider whether specific gaps need to be addressed and in such case how they could be addressed.

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