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Syndicate Project

Antarctic Futures:

GOVERNANCE, SCIENTIFIC EXPEDITIONS, COMMERCIAL TOURISM, RESOURCE EXPLOITATION AND CLIMATE CHANGE

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Abstract:

Assessing and managing future effects is an inherent problem in environmental management and law applications. Antarctica is no exception. To assist with this problem, trend analyses are applied to understand the potential future impacts of scientific expeditions, commercial tourism, mineral resource exploitation and climate change on the Antarctic environment in 5-10 years and 30-50 years. Together with an understanding of the Antarctic Treaty System ("ATS"), this information is used to determine that the existing governance regime is expected to withstand the next 50 years; albeit considerable modification of legal instruments under the Antarctic Treaty (1959) ("Treaty") being recommended in light of instability. Such modifications are principally required to address the impacts of scientific expeditions and commercial tourism. Refinement of existing policy is necessary to reduce the risk of a move towards mineral exploitation, which is not expected to occur within the next 50 years owing to stringent policy and decision-making processes already in place. Improved coordination of multilateral international agreements is also required to address the impacts of climate change. Sovereignty issues remain frozen, but unresolved under the ATS. They are likely to come to the forefront of decision-making processes at some stage over the next 50 years.

CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

The existing governance regime for Antarctica is extraordinary. As the only "un-colonized" continent in the world without any indigenous peoples, Antarctica has unresolved claims of territorial sovereignty frozen by the existing governance regime. Antarctica is principally governed by a multilateral international agreement – *the Treaty*, and a system established under the Treaty – *the ATS*. The ATS, together with other multilateral international agreements[1], state law and soft law, comprises the existing governance regime (Hemmings, 2010).

Two fundamental elements of the Treaty, and therefore of the existing governance regime, are: (1) it governs Antarctica for peaceful purposes only (Article I); and (2) it provides for freedom of scientific investigation and cooperation towards that end (Article II)[2]. Although the governance regime is constantly evolving as new laws and amendments are passed under the ATS, these fundamental elements have been in place since its establishment. As the Treaty is at the top of the legislative hierarchy, if the Treaty collapses this would signal collapse of the existing governance regime.

The relative ability or inability of the ATS to continue governing Antarctica over the next 50 years is a matter of contention. Antarctica is subject to increasing numbers of science related expeditions, commercial tourists, associated infrastructure and pressures of globalism. The continent and surrounding Southern Ocean continues to be subject to resource exploitation, and the potential for mineral exploitation in Antarctica is a matter of public interest that may challenge the ATS (Hemmings, 2009; Elzinga, 2011). In addition to facing an increasing human footprint and diversity of activity, West Antarctica is melting under a warming climate and reduced Ozone layer ("Ozone hole") (Hemmings, 2009). There are uncertainties relating to the recovery of the Ozone hole and how human induced climate change will impact the continent. These stresses on the Antarctic environment are commonly considered in isolation, but in order to comprehensively assess whether the existing governance regime will last a conjunctive approach is required.

1.2 PURPOSE AND APPROACH

PURPOSE

The purpose of this report is to create a conjunctive source of reputable information on matters likely to shape the future of Antarctica. The outcomes sought are to: (1) gain a holistic understanding of Antarctica's future; and (2) pave the way for more specific research with regards to the future of the continent.

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1 Refer to **Appendix 1** for a list of the most relevant multilateral international agreements.

2 Refer to **Appendix 2** for the Antarctic Treaty.

In order to achieve these outcomes, this report addresses the following research questions:

1. *What does the future look like for Antarctica in both the short term (5-10 years) and longer term (30-50 years)?*
2. *Will the existing governance regime last? Will a 1959 Treaty remain relevant in the next few decades?*
3. *Will we see a shift in value sets around Antarctica away from science and environmental protection, towards territoriality and resource use (a back-to-the-future scenario)?*

APPROACH TO RESEARCH QUESTIONS

In order to answer the research questions, this report is divided into the following main sections:

- Understanding the Existing Governance Regime
- Methodology
- What does the future look like for Antarctica in both the short term (5-10 years) and longer term (30-50 years)?
  - Tourism 5-10 year and 30-50 year Trend Analysis
  - Resource Exploitation 5-10 year and 30-50 year Trend Analysis
  - Climate 5-10 year and 30-50 year Trend Analysis
- Will the existing governance regime last?
- Will we see a back-to-the-future scenario?
- Moving forwards not backwards
- Conclusions

2. UNDERSTANDING THE EXISTING GOVERNANCE REGIME

In order to determine whether the existing governance regime will last, it needs to be understood. As aforementioned, the ATS, together with other multilateral international agreements[3], state and soft laws, comprises the existing governance regime. This section provides a brief synopsis of the ATS and other international agreements.

It is noted that metropolitan law of individual states plays a role in the governance of Antarctica, being applied at least partially to Antarctica by claimant states and variably by non-claimant states (Hemmings, 2010). However, assessing such laws is beyond the scope of this report.

[3] Refer to **Appendix 1** for a list of the most relevant multilateral international agreements.

2.1 THE ANTARCTIC TREATY SYSTEM

Man is reported to have first set foot in Antarctica in the 1890s' (Baughman, 1994; Hemmings, 2010). Later Antarctica was subject to the great explorers of the Heroic Era (1901-1922) and associated onset of resource exploitation (Baughman, 1994). Huts of the explorers and significant infrastructure associated with the whaling industry were established (Tonnessen & Johnsen, 1982).

Unlike any other continent, Antarctica was not colonized, nor subject to any multilateral governance regime. Territoriality was an increasing concern with sovereign claims having been made by seven nations: Australia, New Zealand, Chile, Argentina, France, Norway and the United Kingdom prior to 1950 (Dodds, 2010; Hemmings, 2010; National Science Foundation, 1996). Sovereignty claims by Chile, Argentina and the United Kingdom in the vicinity of the Antarctic Peninsula were, and still are, overlapping, but part of the continent between 90° and 150° was not, and still is not, subject to any claims of sovereignty (**Figure 1**) (Hemmings, 2010; National Science Foundation, 1996). The foundations for the claims included:

> *"…assertations of prior discovery and exploration and subsequent evidence of 'effective occupation', usually in the form of living resource regulation, mapping and surveying and the construction of bases and camps in the national sectors."*
>
> (Dodds, 2010, pp. 108)

Two major superpowers with a vested interest in Antarctica – the US and USSR, had not yet made claims of sovereignty, but they have reserved the right to make claims in the future (Dodds, 2010). Japan was, and still is, prevented from making any claim of sovereignty by the Peace Treaty (Dodds, 2010).

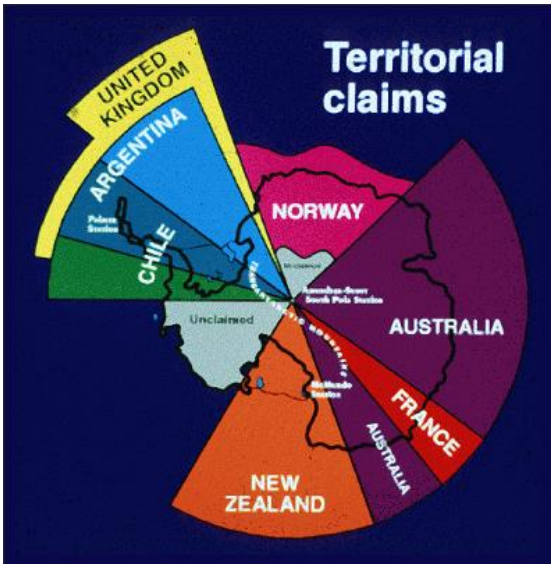

Figure 1: *Antarctic Territorial Claims*
(source: National Science Foundation, 1996).

Under sway from the Cold War environment, in the 1950s' there was a drive for territorial claims to be resolved peacefully and for a new management regime to be established in Antarctica. The significance of scientific investigations in Antarctica was brought to the forefront during the International Geophysical Year (July 1 1957 – December 31 1958). The Scientific Committee for Antarctic Research ("SCAR") was established in 1958 (Elzinga, 2011). However, the significance of the International Geophysical Year to the Treaty outcome is a matter of contention with regards to science or politics as the catalyst for governance, and associated policy change (Elzinga, 2011). It is considered that science was at least a partial driver of change (Dodds, 2010; Elzinga, 2011).

The United States of America, along with 11 other original claimants, set about transforming the scientific and political status of Antarctica (Dodds, 2010). Several secret meetings were held, prior to the formal 'Treaty' conference in October 1959, which was followed by signing of the Treaty on 01 December 1959. Concern over sovereignty rights meant Argentina and Chile had difficulty persuading legislatures to ratify the Treaty, but signing did eventuate (Dodds, 2010). The Treaty entered into force on the 23rd of June 1961, following ratification from the twelve original signatories.[4] It applies to the Antarctic continent, surrounding islands and ocean south of 60° (Article VI, **Appendix 2**).

In the interests of all mankind, the Treaty governs Antarctica for peaceful purposes only (Article I, **Appendix 2**). Freedom on scientific investigations and cooperation towards this end is provided for (Article II, **Appendix 2**). The Treaty effectively demilitarised Antarctica and prohibited nuclear activity, although the use of military personal for scientific research and other peaceful purposes is allowed and exercised today (Articles I and V, **Appendix 2**). Sovereignty claims are "frozen", but un-dispensed and unresolved (Article IV, **Appendix 2**) (Dodds, 2010; Elzinga, 2011; Hemmings, 2010).

The ATS comprises of legislation and participants, as well as associated meetings[5], measures, decisions and resolutions. Measures are legally binding outcomes, whereas decisions and resolutions are soft organisation matters and hortatory agreements. The Treaty is the overarching multilateral international agreement under which other legal instruments (or "measures") have been developed. Measures require approval of all consultative parties (Secretariat of the Antarctic Treaty, 2011a).

The participants under the Treaty include the Secretariat of the Antarctic Treaty – providing administrative support, participating signatory states including consultative parties and non-consultative parties (**Appendix 5**),

[4] Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom and the United States of America.

[5] Antarctic Treaty Consultative Meetings ("ATCMs"), Special Antarctic Treaty Consultative Meetings (SATCMs), diplomatic conferences and meetings of experts.

permanent observers[6] and invited experts[7]. Only consultative parties hold voting rights in decision-making at Antarctic Treaty Consultative Meetings ("ATCMs"), but non-consultative parties can participate in discussions. ATCMs were held once per year from 1961 to 1994, but have been held approximately once per year since this time (Secretariat of the Antarctic Treaty, 2011a).

Legal instruments resolved under the Treaty are listed in **Appendix 1**, along with other multilateral international agreements. All the legal instruments apply to the area south of 60°, with the exception of Convention for the Conservation of Antarctic Marine Living Resources ("CCAMLR") which applies to the area south of the Antarctic Convergence or Polar Front ("ACPF") which is variably 45° – 60° south (Hemmings, 2009; Hemmings, 2010).

Of particular note is the Protocol on Environmental Protection to the Antarctic Treaty ("Protocol"), which introduced a regime for managing the adverse effects of activities in Antarctica on the environment and the associated Committee for Environmental Protection (**Appendix 3**). This regime includes environmental principles which provide for: limiting adverse impacts on the environment and ecosystems; avoidance of significant adverse effects; prior assessments of impacts (EIAs); and environmental monitoring (Articles 3(2) and 8). Monitoring is undertaken by individual states, but provision is made for inspections by appointed independent observers (Article 14) and dispute settlement (Articles 19 and 20). Provision is also made for modification, suspension or cancellation of activities which do not accord with the environmental principles (Article 3(4.2)). The Protocol also provides for cooperation (Article 6), prohibition of activities relating to mineral resources other than for scientific research (Article 7), emergency response (Article 15) and addresses liability by way of annexes to the Protocol (Article 16).

Negotiation and consensus requirement under the ATS has led to, and will most likely continue to lead to, significant delays in both the negation and ratification of legal instruments. The Protocol, for example, entered into force in 1998, and 14 countries are yet to ratify it (Antarctic Treaty Secretariat, 2013). This aspect of the ATS is a significant limiting factor.

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6 Secretariat of the Council of Managers of National Antarctic Programmes (COMNAP), Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and Scientific Committee for the Conservation of Antarctic Research (SCAR).

7 **Non-Governmental:** Antarctic and Southern Ocean Coalition (ASOC), International Council for Science (ICSU), International Hydrographic Organisation (IHO), International Association of Antarctic Tour Operators.
Inter-Governmental: Agreement on the Conservation of Albatrosses and Petrels (ACAP 2004), International Union for the Conservation of Nature (IUCN); United Nations Agencies including United Nations Environment Programme (UNEP), International Maritime Organization (IMO), United Nations World Tourism Organisation (UNWTO), United Nations Intergovernmental Oceanographic Commission (IOC), World Meteorological Organisation (WMO).

2.2 OTHER MULTILATERAL INTERNATIONAL AGREEMENTS

In addition to the Antarctic legislation described in the previous section, other multilateral international agreements are relevant. These include maritime legislation, human environment legislation and climate and Ozone legislation (**Appendix 1**)[8]. It is beyond the scope of this report to summarise all relevant international agreements in **Appendix 1**, and instead they are drawn on throughout this report. Two documents are noteworthy – the Rio Declaration arising from the Earth Summit, and the United Nations Convention on the Law of the Sea.

The Rio Declaration affirmed the human-environment concept of sustainability and introduced the precautionary principle to assist with the inherent problem in environment law applications of evaluating future effects (which can arguably not be tested on the balance of probabilities as factual information can). The precautionary principle (also known as the precautionary approach) provides that:

> *"Principle 15*
>
> *In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation."*

Also of relevance to the themes discussed in this report, Principle 2 of the Rio Declaration provides that states have the sovereign right to exploit their own resources subject to their own policies.

With regards to the United Nations Convention on the Law of the Sea, it is noted here that there is an obvious contact between Article 76 and the ATS (Dodds, 2010; Hemmings, 2010). Article 76 provides for a coastal state to seek an extension of exclusive territory beyond 200 nautical miles and up to 350 nautical miles. The contact exists where states asserting sovereign claims over sub-Antarctic Islands identify themselves as coastal states, which raises issues with interpreting Article IV of the Treaty and of non-recognition by other states (Hemmings, 2010). The extended continental shelf off the Heard, MacDonald and Macquarie sub-Antarctic Islands, subject to claims by Australia, partially overlaps the Treaty area following claims under Article 76 (Dodds, 2010).

[8] Please note that **Appendix 1** does not cover *all* relevant international legislation, only major documents. For example, conventions that apply to individual species, such as the Convention on the Conservation of Southern Bluefin Tuna and Agreement on the Conservation of Albatrosses and Petrels (Hemmings, 2010), have not been included.

3. METHODOLOGY

3.1 SELECTING A METHODOLOGY

All three research questions require forward thinking, which may be described as the *norm,* rather than the *exception*, in environment studies. Indeed, the ability to plan for the future is an inherent problem in environmental management practices, and the ability to assess future effects in an inherent problem in environmental law applications. The methodology for this project is within the context of environmental management. Lessons learned from the legal system will be drawn on to assist with answering the research questions later in this report, but are not covered in this section.

Within the scope of environmental management, one branch is strategic environmental management ("SEM"). SEM provides several tools that can be applied to various management practices. A summary of the tools that can be applied is attached at **Appendix 4** for the reader's information. Whilst it is recognised that these tools exist and may be applied in future research, a softer research approach is preferred given this report is designed as a high level investigation.

The methodology selected is trend analysis. Trend analysis involves researching the past and present to gain an understanding of the future.

3.2 DEFINING RESEARCH AREAS

In order to undertake trend analysis, research areas need to be defined. In this investigation three major research areas have been selected for trend analyses to be undertaken:

1. Scientific expeditions and commercial tourism;
2. Natural resources exploitation; and
3. Climate change.

The first two research areas fall within the scope of "resources":

> *"The notion of "resources" has a broad meaning in the Antarctic context. It includes minerals, meteorites, the intellectual property of Antarctic bioprospecting, locations for scientific bases, marine living resources, and access to the continent for Antarctic tourism" (Brady, 2012).*

Please refer to **Figure 2** for a simplified diagram showing the breakdown of resources into separate titles.

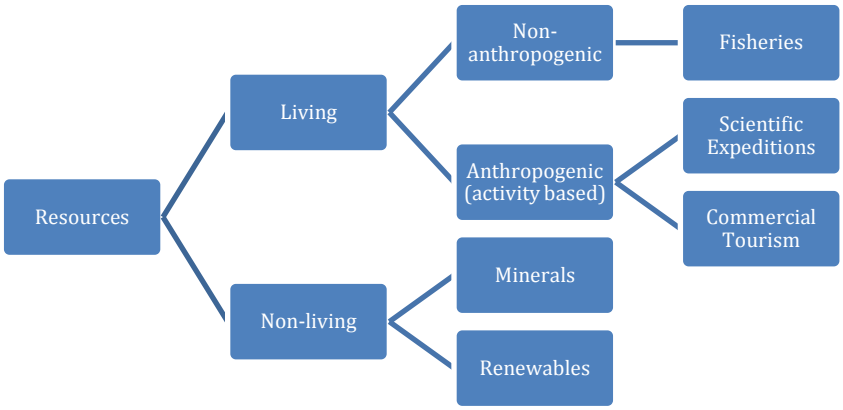

Figure 2: *Hierarchical diagram showing the breakdown of "resources" in Antarctica into separate titles.*

Scientific expeditions and associated bases and infrastructure, and tourism, are activity based resources. They are considered separate to other forms of resource exploitation in this report because the trends and drivers are considerably different. They are considered simultaneously because they are often overlapping in their definition. Together scientific expeditions and tourism give rise to the human footprint on the Antarctic continent today.

Climate change is separate to the notion of resources, instead being an environmental process. It may be defined in an "all-encompassing" or "human induced" sense, depending on the context. It is considered in an all-encompassing sense in this report, encapsulating both natural and human induced change.

The selected research areas are defined and reasons they have been selected set out in **Table 1** below.

Table 1: Definitions of and Reasons for Selecting Research Areas

Research Area	Definition(s)	Reason Selected
Scientific Expeditions	*"In the historical context of the Treaty the term 'expedition' referred to large government-sponsored science programs... journey, voyage, or excursion made for some definite purpose."* *(Murray and Jabour, 2004)*	Relatively rapid changes are currently occurring so these activities are likely to impact on what Antarctica looks like in both the short term (5-10 years) and the long term (30-50 years).
Commercial Tourism	*"The commercial (for profit) transport (including accommodation and catering) of nongovernment travelers to and from Antarctica for the purpose of pleasure."* *(Bauer, 2001)*	

	"All existing human activities other than those directly involved in scientific research and the normal operations of Antarctic bases." *(Commonwealth of Australia, 1989)*	
Mineral Resources	*Article 1(6): "'Mineral resources' means all non-living natural non-renewable resources, including fossil fuels, metallic and non-metallic minerals."* *Article 1(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."* *(CRAMRA, 1988)*	Resource exploitation has a historic legacy in Antarctica, having occurred since the Heroic Era. Mineral resource exploitation is a matter of public interest and of particular significance to whether the existing governance regime will last.
Climate Change	*"Change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.* Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use*."* *(IPCC, 2013)*	Climate change has been selected because it is a key driver of environmental change, especially in polar regions; therefore is significant to what the continent will look like in the future.

3.3 CONSIDERING DRIVERS OF TRENDS: SYSTEMS APPROACH

In applying trend analysis, drivers of trends need to be considered in order to gain a feasible indication of the future. A systems approach is taken to considering drivers of trends. This means that drivers are not considered in isolation. It is recognised that there may be several inputs (drivers) that interact to produce the system's output (the trend(s) observed).

3.4 CONSIDERING ANTARCTICA'S FUTURE: SYSTEMS APPROACH

A systems approach is also taken to considering the future of Antarctica, following the trend analyses. This means that trends, drivers and associated predictions from the three defined research areas are considered together in order to answer the research questions.

With regards to the Antarctic system, it is important to recognise that drivers may be natural or anthropogenic in nature. Natural drivers include tectonics, volcanism and climate change, for example. In an academic context, anthropogenic drivers include any number of factors under the umbrellas of the following subject areas: policy and law, politics, economics and science and technology. If anthropogenic forcing was removed from the Antarctic system, environmental change influenced by natural drivers would still be observed.

4. WHAT DOES THE FUTURE LOOK LIKE FOR ANTARCTICA IN BOTH THE SHORT TERM (5-10 YEARS) AND LONGER TERM (30-50 YEARS)?

4.1 TOURISM 5-10 YEAR AND 30-50 YEAR TREND ANALYSIS

4.1.1 PAST TRENDS IN SCIENTIFIC EXPEDITIONS TO ANTARCTICA

Exploration of Antarctica began in 1895 when the International Geographical Congress in London promoted Antarctic exploration, leading to fifteen major national expeditions (Luedtke*,* 2010). Scientific expeditions closely followed exploration in the Heroic Era. Scientists have had a fascination with Antarctica since its discovery because of the lack of human footprint and the unique environment. Since then, Antarctica has been recognized as a continent for science.

In association with scientific expeditions, comes infrastructure. The number of facilities being built in Antarctica, including research stations, camps and refuges, increased significantly since pre-1900 (**Figure 3**). The first infrastructure established in Antarctica accommodated industrial whaling, such as the shore based whaling station at Grytviken on South Georgia in 1907 (Tonnessen & Johnsen, 1982). Post World War II, and in association with the International Geophysical Year, there was heightened interest in Antarctic science. In association with this, the number of facilities increased rapidly in the Cold War era. In 2012, facilities in Antarctica had a cumulative capacity of almost 6000 people (**Figure 3**).

Currently, 89 stations operated by 29 states exist across the continent, and a number of states have plans to both ramp up their existing Antarctic Programs, and build additional research stations (Brady, 2012). In a recent symposium, Professor Anne-Marie Brady noted:

> *"between 2005 and 2010, the Chinese government doubled what it had previously spent on Antarctic affairs. During this period China set up a new Antarctic base, renovated its two existing bases, modernised its polar icebreaker, and set up a new polar research and logistics centre in Shanghai."* (Brady, 2012, pp. 104)

The British government too has unveiled plans to build a new polar research ship, and Australia has announced plans to replace its existing ice-breaker (Pool, 2014).

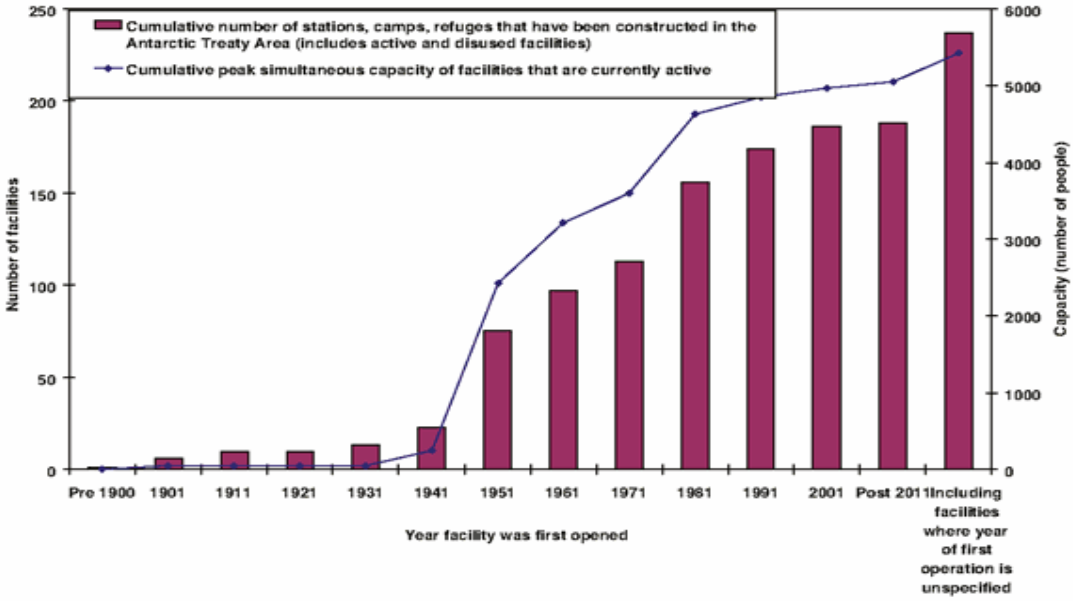

Figure 3: *Number of facilities being built in Antarctica. It includes active and disused infrastructure based on historical and operational data. It also displays the cumulative peak capacity of the currently active stations. Numbers represent a lower-bond estimate as some capacity data was not available (Tin, Liggett, Maher, & Lamers, 2013).*

4.1.2 PAST TRENDS IN COMMERCIAL TOURISM VENTURES TO ANTARCTICA

Commercial tourism is reported to have initiated in Antarctica in the 1950's when an Argentinean vessel transported 100 passengers to the Antarctic Peninsula (Roper-Gee, 2003). Since this time, commercial tourism expeditions have been generally increasing in number and diversity of transport (**Figure 4**).

Overflights were initiated in 1976, but stopped in the aftermath of the Erebus disaster[9]. Overflights were not initiated again until 1994. They reached a peak in 1999 but decreased in popularity, most likely due to high costs and weather risks.

Land based tourism with air support was not initiated until 1957 when a Pan American Airways stratocruiser flew from Christchurch to McMurdo Sound, being the first commercial flight to land in Antarctica (Stonehouse & Snyder, 2010). The number of land based tourism expeditions to Antarctica is associated with the lowest number of expeditions compared to all other forms of tourist travel. This has been attributed to a decline in demand and shortage of aircrafts (Stonehouse & Snyder, 2010).

[9] The Erebus disaster is a term used to coin the advent of Air New Zealand Flight 901 crashing into Mount Erebus on the 28th November 1979, where 257 passengers and crew lost their lives (Cairns et al., 1981).

Expedition cruises, which involve landings on the Antarctic continent, increased relatively rapidly between 1990 and 2007. The increase is due to a number of drivers such as policy, market demand and technology which is discussed later in this report. The number of cruise only vessels visiting Antarctica peaked in 2007/2008 with over 30,000 tourists. The recent financial crisis is associated with the declining number of expedition cruise vessels travelling to Antarctica between 2008 and 2011. Since 2011 the number of expedition cruise vessels travelling to Antarctica has steadily increased, but has not yet surpassed the peak that occurred prior to the financial crisis.

During the peak of the financial crisis, the number of cruise only trips was relatively high, but this dropped off in 2011/2012 when expedition cruises started to recover in number.

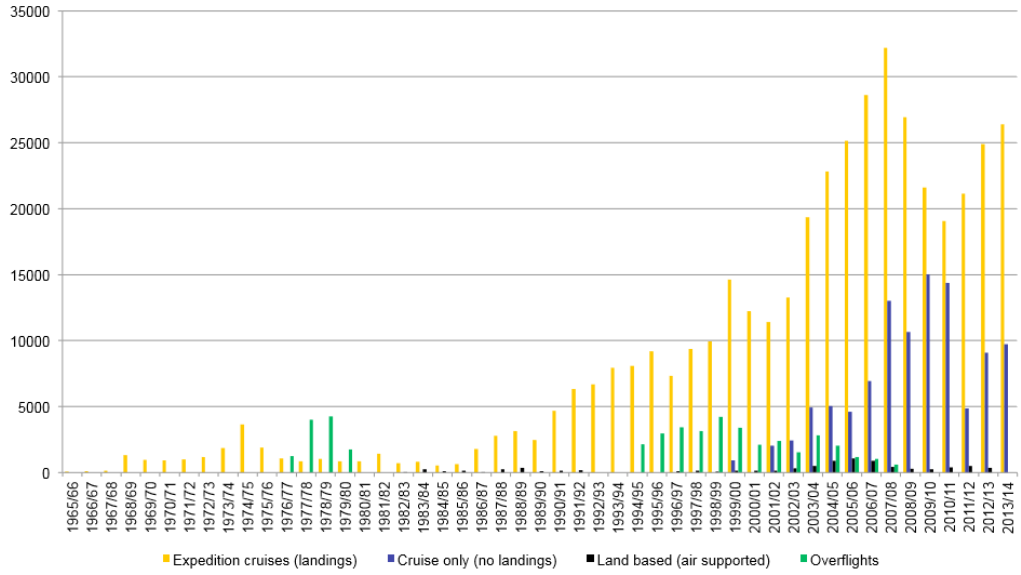

Figure 4: *Estimated number of Antarctic tourists during the tourist summer seasons between 1965 and 2014. Number are based on historical records and incorporating data provided by IAATO (Liggett, 2014).*

The largest numbers of tourists who travelled to Antarctica between 2007 and 2014 are of United States nationality (**Figures 5 and 6**). Changes in the nationalities of tourists have been observed during this time. The United Kingdom and Germany making up a larger proportion at 16% and 11% in 2007-2008, compared to 8.1% and 7.7% in 2013-2014. In contrast, the number of tourists from Australia has noticeably increased from 7.2% in 2007-2008 to 11% in 2013-2014.

The Antarctic Peninsula is one of the more popular destinations for tourist landings. The number of sites used for tourist landings has generally increased since 1989, as has the number of passengers 'landing' (**Figure 7**). A similar trend has been observed at other tourist destinations around Antarctica (Lamers, 2009).

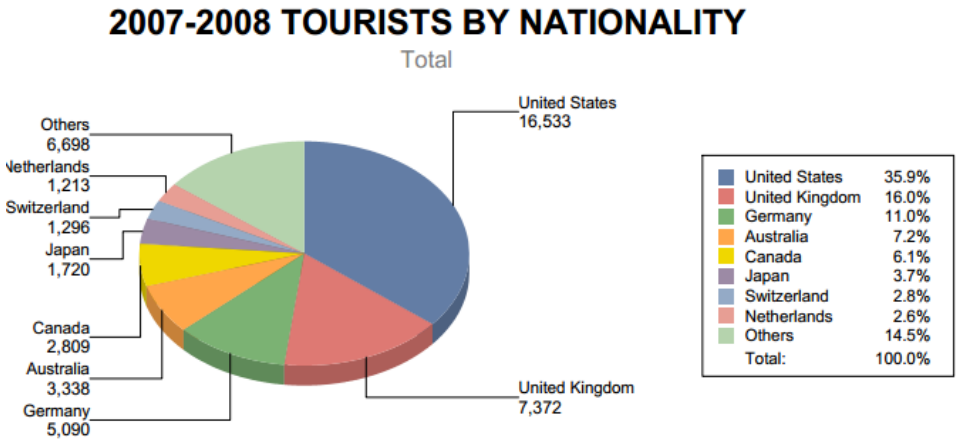

Figure 5: *Nationalities of Antarctic tourists by seaborne, airborne, landed and cruise only tours between the 2007-2008 periods (IAATO, 2008).*

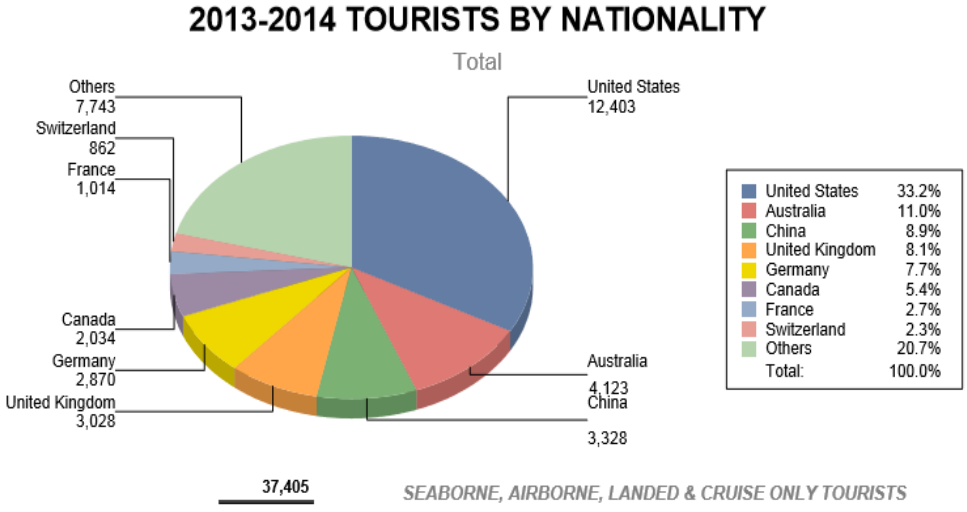

Figure 6: *Nationalities of Antarctic tourists by seaborne, airborne, landed and cruise only tours between the 2013-2014 periods (IAATO, 2014).*

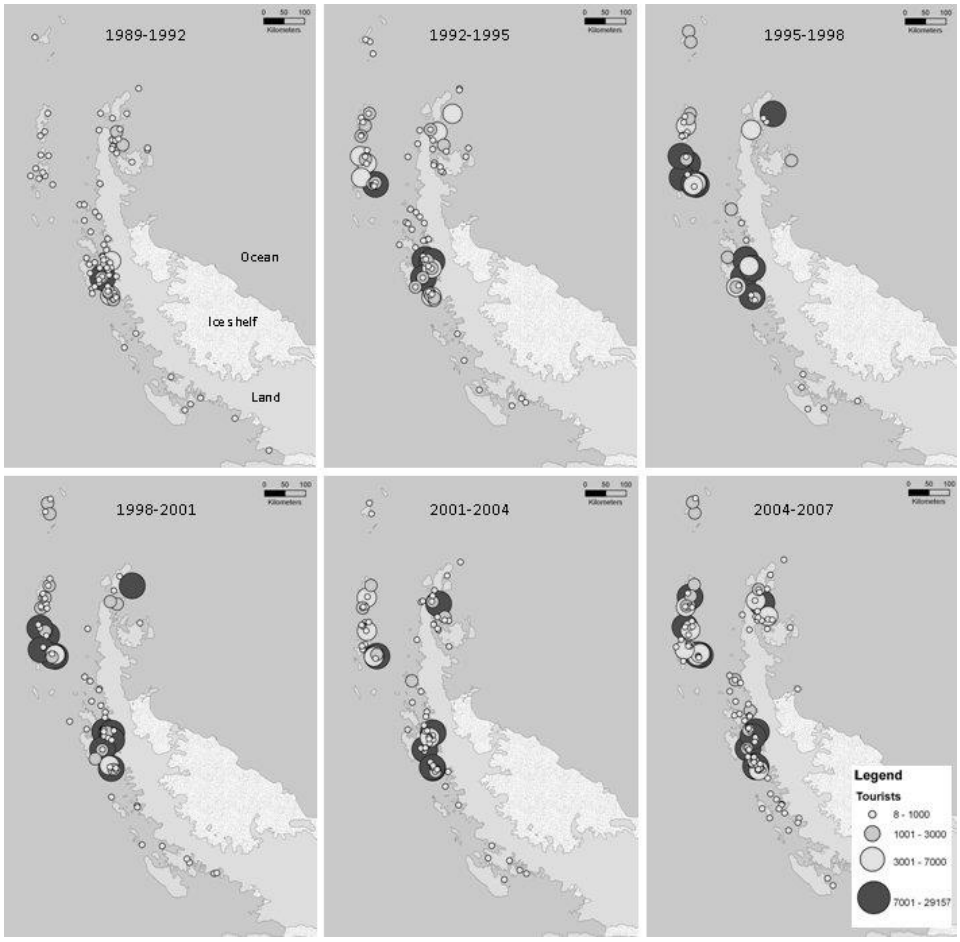

Figure 7: *Trends in site visitation in the Antarctic Peninsula, 1989-2007. Each image represents a three year time period, with larger circles representing more visitors (Lamers, 2009).*

4.1.3 DRIVERS OF FUTURE TRENDS IN SCIENTIFIC EXPEDITIONS AND COMMERCIAL TOURISM

POLICY

One fundamental reason why scientific expeditions and commercial tourism are undertaken, and are likely to increase in Antarctica, is because the policy framework allows for them. Articles II and III of the Antarctic Treaty, and Articles 2 and 3 of the Protocol provide for freedom of scientific investigations (**Appendices 2 and 3**), but neither the Treaty nor Protocol refer directly to tourism.[10]

The Treaty and Protocol do provide an environmental management regime which applies to expeditions and commercial tourism. Article 3 of the Protocol sets out environmental principles required to be adhered to, including avoidance of significant adverse effects (**Appendix 3**). The

[10] ***Article II — Freedom of scientific investigation***
Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

environmental management regime also consists of the following components:

- Environmental Impact Assessments ("EIAs") under Article 8 of the Protocol. The assessment required is relative to the effect, with scientific expeditions commonly requiring an EIA for a "less than a minor or transitory impact" and commercial tourism often requiring an EIA for "a minor or transitory impact". EIA's are commonly assessed by the state, with only Comprehensive Environmental Evaluations (CEEs) for activities with a "more than minor or transitory" impact subject to international scrutiny (Hemmings and Kriwoken, 2010). For example, in New Zealand EIAs are assessed by the Ministry of Foreign Affairs and Trade.
- Advanced notice of expeditions is required under VII (5) (a) of the Treaty;
- Monitoring and enforcement is provided for under Article 3 of the Protocol; and
- Independent inspections by observers are provided for under Article 14 of the Protocol.

MARKET DEMAND FOR TOURISM

The demand for Antarctic tourism has, and is expected to continue driving increasing numbers of trips, tourists, facilities, and a greater diversity of tourist activities in Antarctica. Such demand is driven by an increase of Antarctic media, such as films like March of the Penguins and documentaries (Starmers-Smith, 2011). Other factors that increase market demand are: growing affluence, spare time, urbanization, ageing population, and the growing global interest in ecotourism and adventure tourism (WTO, 2001). The future growth in the economies of Russia, China and India may also contribute to a higher demand in Antarctic tourism from these nationalities, increasing tourist numbers overall (Lamers, Haase, & Amelung, 2008).

TECHNOLOGY

Technology is a strong driver of tourism. Antarctic tourism was limited by the use of small vessels able to make the rough journey, with the ability to only carry between 50 – 120 paying customers in the 1960s' (Stonehouse & Snyder, 2010). The Antarctic tourism boom in the 1990s' is associated with the use of new vessels with the ability to carry 400-500 passengers (Stonehouse & Snyder, 2010). The 21st century brought about vessels with the ability to carry 800-3000 passengers supporting increasing tourism in Antarctica (Stonehouse & Snyder, 2010). Tourism was only shunted over the last decade by the financial crises, but as financial recovery continues so does technology to take visitors down south.

As technology and associated cost-effectiveness of technology continues to improve, new vessels will continue to be built with the ability to carry more

passengers (IAATO, 2004). Large cruise vessels may also become more popular as the cost of compliance with international law increases, but they are hindered by a ban on the use of heavy fuel within the Antarctic area so they may not replace smaller vessels altogether (Tin et al., 2013). The number of smaller vessels is expected to decline and plateau (IAATO, 2004). Greater cruise capacity is likely to drive availability up and prices down, and accordingly Antarctica will become a more financially viable travel destination. The number of small ships has already started to decrease and the numbers of larger ships are on the rise (Lamers et al., 2008).

Technology has also allowed for stations to be built in more remote, previously unobtainable areas, such as the Chinese Kunlun Station on Dome A (Tin et al., 2013).

With increasing numbers of landings expected, technology is also likely to play a role in the development of tourist based infrastructure. This could include accommodation complexes and supporting infrastructure and communications.

4.1.4 PREDICTED 5-10 YEAR TRENDS IN SCIENTIFIC EXPEDITIONS AND COMMERCIAL TOURISM

The number of scientific expeditions to Antarctica is associated with the number and capacity of facilities. Based on the trend from 1940 onwards (**Figure 3**), it is expected that the number of facilities will continue to increase over the next 5-10 years. It is uncertain whether additional facilities are required to keep pace with the quantity and quality of scientific investigations, or whether the increases will be politically driven (ASOC, 2004).

Based on increasing 2010/2011 to 2013/2014 figures (**Figure 4**), the number of tourist ventures is expected to continue increasing at a steady rate. It is probable that the number of ventures will match and possibly exceed the 2007/2008 peak within the next 10 years. Demand for trips to the Peninsula is expected to remain high, and the diversity of places in Antarctica may start to increase to provide more options for tourists.

4.1.5 PREDICTED 30-50 YEAR TRENDS IN SCIENTIFIC EXPEDITIONS AND COMMERCIAL TOURISM

It is difficult to predict so far in the future, but based on the trends we expect to see a continuing increase of bases as scientific exhibitions expand across the continent and global interest in Antarctica grows. A move towards shared facilities rather than the building of new bases is promoted (ASOC, 2004), but perhaps unlikely owing to sovereignty issues discussed elsewhere in this report.

A conservative estimate for the number tourist visitors in 2060 is between 120,000 and 160,000 annually (Tin et al., 2013). This is double the

2006/2007 peak (**Figure 4**). It is also expected that there will be a significant increase in overflights, purpose built tourist infrastructure and a bigger variety of tourist activities, including land based activities, in response to tourist demand (Tin et al., 2013).

With more stations being built on ice-free ground, Antarctica's special values, features and habitats are becoming more exposed to potential impacts (Hughes, Pertierra, & Walton, 2013). With new bases comes new infrastructure, including airstrips, roads, routes, trails, waste disposal, housing for scientists and utility buildings, which are associated with an increasing human footprint in Antarctica (Rootes & Kriwoken, 2000).

Observing penguins is one of the big selling points for Antarctic tourism, but light, noise and visual pollution, along with physical interaction with wildlife can disturb some species leading to death or colony desertion in extreme scenarios (Tin et al., 2008). However, there is uncertainty with regards to the effect tourists actually have on wildlife colonies in Antarctica, and whether they pose more than a minor or transitory impact is yet to be determined (Splettstoesser, 2000; Stewart, Draper, & Johnston, 2005). Quantifed research is required in this area going forward.

CEP (2012) identifies that greater tourist numbers could bring with it pollution in the form of:

- atmospheric emissions from an increasing number of engines, generators and incinerators;
- injury or death of seabirds by striking vessels as a result of the discharge of light from windows and other sources;
- introduction of pathogens from the release or loss of any garbage, sewage, chemicals, noxious substances or pollutants; and
- introduction of alien species through vessel hulls, anchors, clothing, footwear or non-sterile soil.

The increasing impact of the human footprint in Antarctica could drive new policy. It is widely reported that in order for a sustainable future to be achieved in Antarctica, a new environmental management regime is required (IUCN, 1991; Roura & Hemmings, 2003; Stonehouse & Snyder, 2010; Tin et al., 2013). There will need to be a greater involvement of all concerned parties, providing greater constraints or stricter implementation of current programs (Tin et al., 2013).

4.2 RESOURCE EXPLOITATION 5-10 YEAR AND 30-50 YEAR TREND ANALYSIS

4.2.1 PAST AND CURRENT MINERAL RESOURCES TRENDS

During the 1970s', Antarctica's non-living resources were gaining interest. Evidence of exploitable petroleum had been found in the Ross Sea area, and both Britain and New Zealand had been approached by commercial

prospecting companies regarding the Southern Ocean's mineral potential (British Antarctic Survey, 2015; Rothwell 1990). As the Treaty did not specifically address the regulation of mineral activity, it was agreed among the consultative parties that an obligation existed to consider the possible environmental impacts of mineral activities in Antarctica (Anon. 2004). The matter was put to the Scientific Committee for Antarctic Research ("SCAR"), and it was concluded that, although impacts would be significant, the possibility of mineral activity should not be ruled out (Anon. 2004). In light of uncertainty, the consultative parties agreed to undertake a precautionary approach, and "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" (Anon. 2004; Ninth Consultative Meeting IX-1, paragraph 8).

On June 2nd 1988, after six years of negotiations, the Convention on the Regulation of Antarctic Mineral Resources ("CRAMRA" / "the Convention") was concluded (Blay & Tsamenyi 1990). To enter into force, all states with claims to territorial sovereignty in Antarctica were required to sign the Convention (British Antarctic Survey, 2015). Australia and France did not sign, and, after being joined by Belgium, New Zealand & Italy, the Convention was never ratified (British Antarctic Survey, 2015).

Instead, the claimant countries proposed what would later become the Protocol. Upon the enforcement of the Protocol in 1998, a prohibition on any activity relating to mineral resources except for scientific purposes was implemented under Article 7 (**Appendix 3**).

THE CONVENTION ON THE REGULATION OF ANTARCTIC MINERAL RESOURCES (1988)

The purpose of the Convention was to regulate three levels of mineral activity within the Antarctic Treaty area: prospecting, exploration and development (British Antarctic Survey, 2015)[11]. 'Prospecting' was allowed without a permit or the approval of a Management Scheme (Article 1(8); Blay & Tsamenyi 1990). Permits and management schemes associated with 'exploration' and 'development' activities would require issuing and regulation through the institutions established under the Convention[12] prior to any mineral activities on these levels occurring (Article 18 & 28-29; Blay & Tsamenyi 1990).

[11] Prospecting was defined as activities 'aimed at identifying areas of mineral resource potential for possible exploration and development' which did 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.' Exploration was defined 'identifying and evaluating specific mineral resource occurrences or deposits', and development as 'activities…following exploration… aimed at or associated with exploitation of specific mineral resource deposits' (Article 1(9)-(10)).

[12] These included the Commission, which was comprised of all Antarctic Treaty consultative parties, non-consultative sponsoring states, and other non-signatory party's relevant to decision making about Antarctic mineral resource activities, The Special Meeting of Parties and the Regulatory Committees for each area to be mined (Article 18 & 28-29; Blay & Tsamenyi 1990).

The issuing of permits and the approval of Management Schemes under the CRAMRA was based upon an impact assessment, and stipulated mineral activities would only take place if it could be demonstrated that no significant adverse *"effects on air and water quality… significant changes in atmospheric, terrestrial or marine environments, or in the distribution, abundance or productivity of Antarctic fauna or flora, or the degradation of areas of special biological, scientific, historic, aesthetic or wilderness significance"* would occur (Blay & Tsamenyi 1990; Article 4 (2)).

INCREASING INTERNATIONAL INTEREST

Throughout the negotiation of the CRAMRA, mineral activity in Antarctica remained a controversial topic (British Antarctic Survey, 2015). International interest in Antarctica had significantly increased, and the number of Antarctic Treaty Signatories grew substantially, from 25 to 38 (British Antarctic Survey, 2015). The number of existing signatories transitioning to consultative status had also increased, with only 12 signatories having consultative status in 1980, and 11 additional parties receiving consultative status between 1980 and 1989 (Secretariat of the Antarctic Treaty 2015) (**Appendix 5**).[13]

Interest from non-treaty members should also be acknowledged, with countries that (at the time of the negotiation of the Convention) were not party to the Treaty voicing their concerns during the development of the Convention. [14] Malaysia in particular, at the United Nations General Assembly (1982) argued that, like the seas and sea-bed, Antarctica belonged to the international community and claims should be relinquished to enable administration by the United Nations (Mahathir, 1982; Rothwell, 1990).

INCREASING PUBLIC INTEREST

Public interest, particularly from environmental groups, has grown significantly since the Treaty came into force. The view of many of these groups is that no level of mineral activity should ever occur in Antarctica, and it should be declared a 'world park' owing to its pristine wilderness values (Cook, 1990; British Antarctic Survey, 2015).

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[13] In comparison, only 3 signatories transitioned to consultative status from 1990 to 2004, with only 1 signatory (the Czech Republic) receiving consultative status, and 6 signatories joining as non-consultative during the last 10 years (2005 to 2015)("Secretariat of the Antarctic Treaty" 2015) (Appendix 1). This decrease could reflect a lack of substantive developments (with regards to policy development) in the Antarctic Treaty System and subsequently, a lack of international interest since the ratification of The Environment Protocol in 1998.

[14] Third world countries in particular were noted as incapable of conducting scientific research and expeditions that would enable eligibility for consultative status, and therefore even if they were to join the Treaty, would be unable to participate in negotiation and implementation (Rothwell, 1990). Rothwell, 1990 also acknowledged that technological advances in the Arctic and, particularly those made by Islamic and Southeast Asian states could enable the third world countries to commence mineral activities in the Antarctic, as non-treaty parties were not required to recognise, or act in accordance to ATS requirements.

The ‘world park’ concept was first suggested in 1972, at the Second Conference on National Parks[15]. It was subsequently suggested by New Zealand at the Eighth Antarctic Treaty Consultative Meeting in 1975, but was never formally placed on the agenda (Rothwell 1990). Support continued and non-government funded organisations (“NGOs”)[16] launched campaigns (Rothwell, 1990; British Antarctic Survey, 2015). It was argued that this involvement eventually lead to Australia’s refusal to support the Convention and contributed to the subsequent designation of Antarctica as a “natural reserve, devoted to peace and science” under the Protocol (British Antarctic Survey, 2015).

Not all NGOs supported the ‘world park’ view. In particular, the Australian Mining Industry Council took an active role in lobbying the Australian government, promoting CRAMRA (Blay & Tsamenyi 1990).

DIVISION OF TREATY SIGNATORY RESOURCE INTERESTS

Following the adoption of the CRAMRA, and the sudden refusal of both Australia and France to ratify it in 1988, speculation regarding the true interests of these parties increased (Blay & Tsamenyi 1990). It was suggested that Australia’s refusal was largely motivated by economics (Blay & Tsamenyi 1990). Australia was, and remains, a leading minerals producer, and competition from Antarctic mining could have compromised this industry (Blay & Tsamenyi 1990). In addition, both Australia and France had laid claim to significant portions of Antarctica, and there was no provision within the Convention for royalties from states seeking to undertake mineral activities within claimed areas (Blay & Tsamenyi 1990). However, Australia and France argued that significant inadequacies existed with regards to environmental protection; that ‘proper safeguards against damage to this last pristine continent’ were not provided for; and that liability provisions were not sufficient (Blay & Tsamenyi 1990; Ministerial Document Service 1989).

During the subsequent development of the Protocol, Britain, the United States and Japan continued to argue against an indefinite mining prohibition under the Protocol (Blay & Tsamenyi 1990). In recent times, the interests of China and Korea have also been a particular focus:

> *“In Chinese-language debates, social and hard science scholars, government officials, and journalistic commentators all appear to agree that the exploitation of Antarctica is only a matter of time and that China should prepare itself” (Brady, 2012, pp. 105).*

Speculation regarding the true motive of parties establishing infrastructure for scientific ends, particularly China, is also increasing. Brady (2012) notes

[15] Grant Tenton National Park, United States, sponsored by the IUCN (International Union for the Conservation of Nature and Natural Resources).

[16] Australian Conservation Foundation, Greenpeace, and the Southern Ocean Coalition. In the context of mineral activities, these organisations also suggested that the Convention would clear the way for mining operation to start on the Antarctic continent (Willan et al, 1990).

‘China aims to be poised to take advantage of any opportunities to exploit the resources of Antarctica—with trained personnel and infrastructure in place’.

Russia has also stated its intention to prospect for minerals, oil and gas, and carry out ‘complex investigations of the Antarctic mineral, hydrocarbon and other natural resources’ as part of their long term plans (Pool, 2014). Other states have also acknowledged this, with a recent publication for the Australian Strategic Policy Institute stating:

> *“We can’t afford to be complacent, in the future there may be more strategic competition… Resource disputes could emerge. The US, China, Russia and India could decide to step up their activities and withdraw from the Treaty” (Bergin & Haward 2007, pp. 12).*

However, it should be noted that perhaps this division in interests existed all along, but had not yet been highlighted.

In a broader sense, mineral extraction in ‘protected’ or ‘reserved’ areas is also on the rise. Support for protected area designation worldwide is in decline. A number of protected areas have been downsized, downgraded and de-gazetted to allow for mineral activities in both developing and developed countries (Watson et al. 2014). This shift in perceptions could also significantly influence future outcomes for mineral activity in Antarctica.

CONTINUATION OF MINERAL ACTIVITY FOR SCIENTIFIC PURPOSES

Under the Protocol, mineral activity for scientific purposes is not prohibited, but is subject to an environmental management regime which requires EIAs to be prepared and assessed by the state, monitored and enforced (**Appendix 3**). As a consequence, some information regarding the type and quality of mineral deposits both on the Antarctic continent and in its surrounding waters is known (Cook, 1990). Evidence of iron ore, copper, coal, hydrocarbons and a number of other minerals have been found (Cook, 1990). The Ross Sea in particular has been identified as an area where hydrocarbon extraction could occur, and it is expected that scientific research in Antarctica will continue, with the aim of obtaining data on its fundamental geological structure (Cook, 1990).

4.2.2 DRIVERS OF FUTURE TRENDS IN MINERAL RESOURCE EXPLOITATION

In an Antarctic context, a number of factors have the potential to drive both current and future trends in resource use. Policy has been recognised as a major factor influencing the current situation with regards to Antarctic mineral resources in the preceding sections. However, political and economic factors are expected to play a significant part towards influencing policy change, which will in turn drive changes in the mineral resource situation in the future.

In addition to geopolitical factors and associated policy, other factors play a role. Previously, logistical and environmental challenges associated with operating in the isolated and harsh Antarctic environment meant exploration and extraction in many areas would not be viable. However, as an ever-growing population is expected to demand non-renewable, non-living resources well into the future, there has been a strong geopolitical push for the potential of the Antarctic to be realised. States are aware that as demand, and exploration and exploitation technology evolves, particularly as mineral exploitation in the Arctic gathers momentum, resource extraction in the Antarctic could at some stage become economically viable.

Currently, the prospecting, exploration and development associated with mineral activity other than for scientific purposes is prohibited. However, if at some point in the future this were to change, or if the ATS were to dissolve entirely, those states with well-developed infrastructure and presence, could be better placed to both assert sovereign claims and receive any associated resource benefits.

4.2.3 PREDICTED 5-10 YEAR TRENDS IN MINERAL RESOURCE EXPLOITATION

In the 5-10 year future it is considered unlikely that there would be any substantial change with regards to mineral exploitation in Antarctica. Changes that could occur include increasing both direct and indirect political pressure from certain nations, such as China and Korea (Brady, 2012; Rothwell, 1990), to revisit and establish an environmental management regime to provide for mineral exploitation in the future. If this situation were to unfold, it is likely that CRAMRA would be revisited, or at least considered as a starting point for the management regime.

If CRAMRA were revisited, the situation required for it to come into force is of relevance as this is hindered its implementation in the first place. CRAMRA required:

- 16 of the consultative parties that participated in the Fourth Antarctic Treaty Consultative Meeting to sign;
- that those signing included ‘all the states necessary to constitute all the institutions of the convention’;
- that the institutions are established in every area of Antarctica; and
- that the number included 11 developed countries and 5 developing countries (Rothwell 1990).

It was decisions of Australia and France, followed by other countries, not to sign CRAMRA that ultimately led to mineral exploitation other than for scientific purposes being prohibited in Antarctica today. No evidence has been found in literature that their position is likely to change within the next 5-10 years. Lifting of the prohibition would therefore likely require a different

ratification process to CRAMRA, in addition to a change to the voting system under the Treaty which is discussed in section 6.2 of this report.

4.2.4 PREDICTED 30-50 YEAR TRENDS IN MINERAL RESOURCE EXPLOITATION

Within the 30-50 year future, the political and associated policy situation is likely to remain unchanged, for the same reasons identified in the 5-10 year future. However, despite this, other drivers of mineral exploitation are likely to see changes, perhaps increasing the likelihood of mineral exploitation in the more distant future.

It is likely that mineral resource activity for scientific purposes will have revealed significantly more information regarding Antarctica's mineral potential. Demand for resources may also increase significantly, with a growing global population projected to be more than three times what it was when the Treaty was first negotiated (United Nations, 2010). The continuation of mining in the Arctic may have also led to the development of technology that enables not only more cost effective, but less environmentally detrimental mineral exploitation activities to occur. [17] Antarctic infrastructure may also be at a stage where it could viably support prospecting.

Under these conditions, the issue of regulating mineral activity in Antarctica is likely to again become a focus, potentially with pressure to revisit the CRAMRA. As a result, a significant increase in Treaty states and non-consultative parties seeking consultative status could occur, and again, although probably beyond the 50 year timeframe, NGO's may campaign to prevent the degradation of the Antarctic environment. Concerns by non-treaty states whose environment and economy stand to be impacted by mineral activities in Antarctica may also be raised.

Concerns of those consultative parties who initially opposed to the ratification of the Protocol could also require addressing. Issues regarding liability and environmental impact would require resolution, as well as whether claimant states would be entitled to royalties if mineral activity commenced within a claimed territory.

If again, these issues are unable to be resolved, enforcing the framework and varying the Protocol could require a different ratification process to CRAMRA, as well as a change to the voting system under the Treaty as discussed further in section 6.2.

However, it is important to note that the positions of those states initially opposed to the CRAMRA could change in the long term. In recent years, there has been a global shift towards allowing both mineral prospecting and

[17] Given recent developments in Arctic exploration, it is likely that mineral exploration and exploitation technology is already at a stage where mineral activity is possible in some areas of the Antarctic. However the efficiency and environmental impact of this technology in an Antarctic context also requires consideration.

exploitation within areas designated as protected or reserved (Watson et al. 2014). Australia in particular has recently opened up parks to allow for mineral activity (Ritchie et al. 2013). If a change in positions does occur in the long term, a regulatory framework for mineral activity could be initiated.

Another possible outcome beyond the 50 year timeframe could be a call for the ATS to be dissolved and for Antarctica to be regulated as a global commons by the United Nations (similar to the high seas and sea-bed). If this situation unfolded, significant time delays in negotiations would be expected.

4.3 CLIMATE 5-10 YEAR AND 30-50 YEAR TREND ANALYSIS

4.3.1 PAST CLIMATE TRENDS

Throughout the Quaternary period, cycles of glacials (cold periods low atmospheric CO_2) and interglacials (warm periods high atmospheric CO_2), have occurred. These roughly followed a 100,000 year trend, the most recent shown in **Figure 8** (Petit et al., 1999). These cycles are known as Milankovitch cycles and driven by precession, obliquity and eccentricity of the Earth's orbit (Petit et al., 1999).

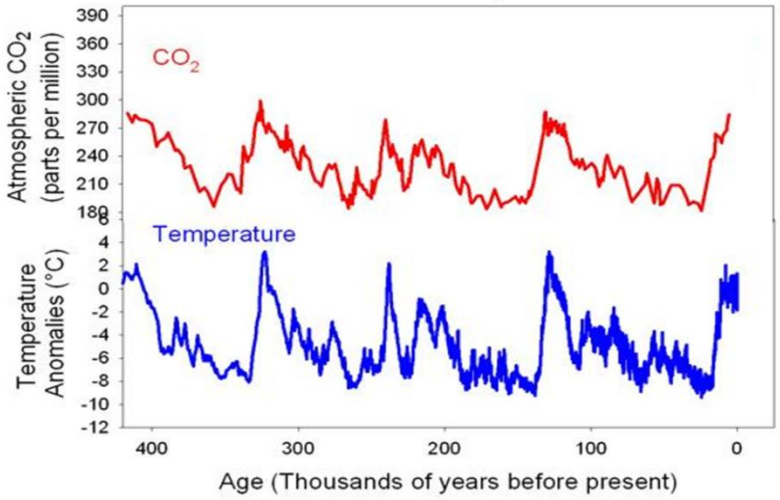

***Figure 8**: Glacial to interglacial cycles from Vostok ice core records over the last 400,000 years (Petit et al., 1999)*

The current interglacial period appears to be diverging from the cycles shown in **Figure 8**. The temperature has remained relatively warm and atmospheric CO_2 levels are continuing to rise, currently over 400 parts per million (IPCC, 2013). High temperatures and CO_2 levels are both an advent of anthropogenic climate change (IPCC, 2013).

The current climate is seasonally affected by the stratospheric Ozone hole over Antarctica (**Figure 9**). The presence of the Ozone hole has strengthened the stratospheric polar vortex (Previdi & Polvani, 2014), which has changed surface temperatures by influencing the katabatic winds which blow warmer air across the ice shelves, warming the Antarctic Peninsula (Previdi & Polvani, 2014). The stronger winds increase upwelling of slightly

warmer, deeper water over the continental shelves, such as Circumpolar Deep Water, which promotes basal melting of the ice shelves (Pritchard et al., 2012).

The influences of anthropogenic climate change and the Ozone hole are driving the current climate trends in Antarctica.

4.3.2 CURRENT CLIMATE IMPACTS

The changing climate, as a result of anthropogenic climate change and the Ozone hole, can be linked to the thinning and collapse of the Larsen A and Larsen B ice shelves on the Antarctic Peninsula between 1995 and 2002 (Previdi & Polvani, 2014). Surface melt promoted propagation of crevasses and calving of the ice (Marshall, Orr, van Lipzig, & King, 2006).

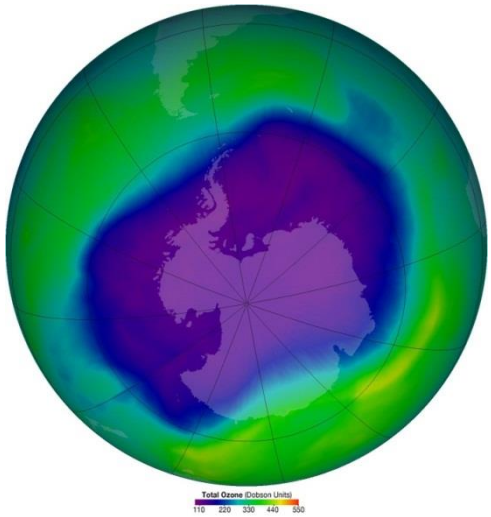

***Figure 9**: The record extent of the Ozone hole over Antarctica in 2006. Source: NASA (2006)*

Another likely climate impact from current trends is the flux of freshwater from increased surface melt on the ice shelves which cools surface water temperatures, enhancing sea ice growth and limiting basal melting (Swingedouw et al., 2008). These factors may have recently increased the extent of sea ice around Antarctica (Reid, Stammerjohn, Massom, Scambos, & Lieser, 2015), reaching record extent in 2014. This implies that more regional atmospheric circulation patterns could also influence Antarctic climate.

4.3.3 DRIVERS OF FUTURE CLIMATE CHANGE

Changes in the dominance of anthropogenic climate change and Ozone levels are going to be drivers of Antarctic climate in the future.

Over the next 5-10 years the Ozone hole is likely to continue with a similar influence. As a result of the Montreal Protocol on Substances that Deplete the Ozone Layer (1989), the impact on 30-50 year timescales will be

different. Depleting substances, including chlorofluorocarbons (CFCs) and Halons, have been phased out and we are now seeing a decline in the size of the Ozone hole (Son, Tandon, Polvani, & Waugh, 2009), which is set to recover within a few decades (Thompson et al., 2011). The reduction in the Ozone hole forcing on the climate will likely reduce the strength of the polar vortex (Thompson et al., 2011).

The anthropogenic influence on global climate warming is likely to override any change in the Ozone and will become the main driver of Antarctic climates into the future (Swingedouw et al., 2008). The Kyoto Protocol (1998) was established to limit greenhouse gas emissions, however, the Protocol has not achieved its aims and greenhouse gases are still being produced. Amended policy or better implementation could reduce the impact of anthropogenic warming.

4.3.4 PREDICTED 5-10 YEAR TRENDS IN CLIMATE CHANGE

This section will exemplify two future predictions based on these climate drivers in the short term.

INSTABILITY OF WEST ANTARCTIC ICE

Some glaciers flowing into the Amundsen Sea are in early stages of collapse (Turner et al., 2014). Increased basal melting by warmer Circumpolar Deep Water is thinning the Pine Island Glacier and Thwaites Glacier (Previdi & Polvani, 2014). The velocity of glacial acceleration is increasing, as shown on **Figure 10** (Mouginot, Rignot, & Scheuchl, 2014).

Hydrofracturing is thought to drive instability. This process involves higher surface temperatures increasing surface melt, which drains into surface crevasses promoting melt within the ice and accelerating calving (Pollard, DeConto, & Alley, 2015). If these glacial outlets continue to calve, reduced buttressing would increase acceleration of the glaciers and further the instability of the West Antarctic Ice Sheet (Pollard et al., 2015).

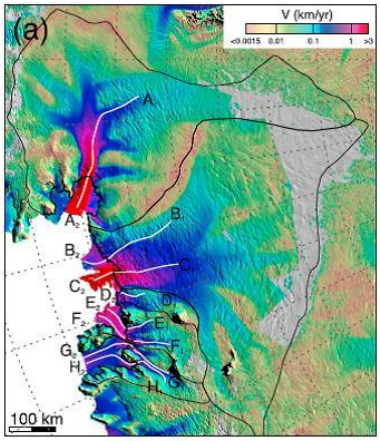

***Figure 10**: Ice flow velocity of Amundsen Sea glacial outlets using data from 1996 to 2013 (Mouginot et al., 2014).*

COLLAPSE OF LARSEN C ICE SHELF, ANTARCTIC PENINSULA

The Larsen C ice shelf is currently stable, but basal crevasses have been mapped within the ice shelf by McGrath et al. (2012). Multiple basal crevasses were mapped. One crevasse has penetrated 217m into the ice shelf, approximately 66% of the ice thickness (**Figure 11**). Strain from the deforming ice shelf generates surface crevasses adjacent to the basal crevasses (**Figure 11**). With increased temperatures, ponding surface meltwater is predicted to propagate through the crevasses and cause calving events (McGrath et al 2012).

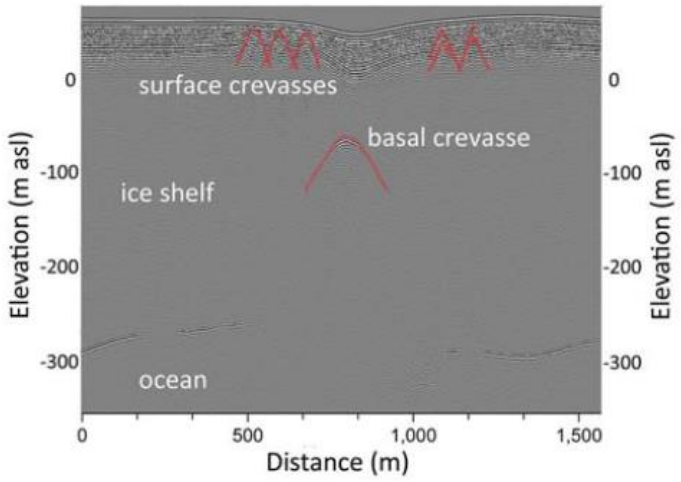

Figure 11: *Ground penetrating radar image of Larsen C (McGrath et al., 2012).*

4.3.5 PREDICTED 30-50 YEAR TRENDS IN CLIMATE CHANGE

This section will exemplify two predictions of climate driven change on a 30-50 year timescale.

INCREASED FRESHWATER FLUX

Due to increased surface melting and runoff, the flux of freshwater into the surface ocean is increasing (Massom & Stammerjohn, 2010). The cooler freshwater inputs drive stratification of the water, lessening the overturning of deeper waters and reducing basal melting (Bintanja, Van Oldenborgh, & Katsman, 2015). Increasing melting off the West Antarctic Ice Sheet is thought to have recently increased sea ice extents in the Ross Sea due to reduction of the vertical heat flux from deeper, warmer layers (Zhang, 2007). This trend will increase in the future; however, it will be difficult to model due to the changing influence of the Ozone hole and the dominance of anthropogenic warming of the climate (Bintanja et al., 2015).

INCREASED OCEAN ACIDIFICATION

The Southern Ocean will continue to be a sink of atmospheric CO_2, as it has been in the last few centuries (Previdi & Polvani, 2014). Increased ocean acidification as a result of increased CO_2 absorbed in the ocean will become a threat to marine life, such as calcifying organisms, as $CaCO_3$ saturation levels are changed (Turner et al., 2014). Uptake of CO_2 could be affected

by warming ocean temperatures which would hinder the uptake of CO_2 in the ocean (Turner et al., 2014). As with freshwater flux, it is hard to model changes as drivers are difficult to forecast and consequently so are water temperatures.

4.3.6 CLIMATE CHANGE AND OTHER FUTURES

The future trends in Antarctic climate are likely to impact on scientific programs, tourism and resource use, discussed in earlier sections of this report.

NATIONAL ANTARCTIC PROGRAMS

With the need to increase Antarctic research in the future, more research stations are expected to be built as explained above. National Antarctic Programs should carefully consider their positions within Antarctica with a thought towards future climate impacts.

One example is the British Antarctic Survey's Halley Research Station which is now on ski-mounted relocatable modules (Anderson, Jones, & Gudmundsson, 2014). This station has previously moved inland five times since 1957 due to the risk of calving (Anderson et al., 2014). It is thought that the risk of calving in the local area, including the Stancomb-Wills Glacier Tongue will increase from 2020 (Anderson et al., 2014).

Monitoring of the environmental impacts of research stations should also increase in the future (Tin et al., 2013). Areas of ice-free ground will increase due to increased warming and the newly exposed land should be protected from the possible impacts of activities around research stations.

TOURISM

Loss of sea ice will increase access around the Antarctic Peninsula, especially for tourist vessels. A change in aesthetic value, from the loss of snow and increased presence of dark mountainous landscapes, could occur, potentially discouraging tourists away from the Peninsula and further inland towards snow covered areas.

A penguin study by Larue, Kooyman, Lynch, and Fretwell (2014) saw six colonies move their breeding area either temporarily or permanently due to sea ice changes. **Figures 12A-12C** show one colony from Ledda Bay, West Antarctica present in 2010 (circled), but absent in 2011 and 2012 as sea ice was lost. The colony has not returned to the Ledda Bay area since 2010 (Larue et al., 2014). This impact on wildlife could influence changes to tourist vessel routes to find the wildlife desired by tourists.

Figure 12: A) *Ledda Bay colony (circled) in 2010,* ***B)*** *migration by 2011, and* ***C)*** *Sea ice in the area lost in 2012 (Larue et al., 2014).*

MINERAL RESOURCES

A feedback loop exists between resource use and climate change. Whilst resource use can accelerate climate change by the release of substances that result in human induced climate warming, climate change may also influence resource exploration, extraction and use. This is exemplified by the current trend in Arctic resource exploration where the sea ice is reducing (Reid et al., 2015), and access to extract resources has increased.

Value sets can also be considered. Increasing pressures on the environment driven by climate change may see economies and societies under strain, potentially more inclined towards resource exploitation. Impacts of warming on Antarctica may also be associated with a reduction of innate natural values and associated inclination away from protection and towards exploitation.

SUMMARY

This section shows that, while we understand current drivers and impacts on Antarctic climate, the change in driving forces in the future are going to change. There is currently uncertainty with regards to the changes to regional atmospheric patterns with Ozone recovery and increased dominance of greenhouse gas emissions (Turner et al., 2014).

Unchartered territory requires a better understanding of anthropogenic forcing on climate to model changes in Antarctica (Holland & Kwok, 2012). Monitoring the impacts of climate change needs to improve and continue to allow changes to be recorded through this transition period and beyond.

5. WILL THE EXISTING GOVERNANCE REGIME LAST?

The trend analyses indicate that relatively rapid environmental change driven by human activities within and external to Antarctica is occurring, in addition to natural change. Policy change is likely to be required in order to address the impacts of these changes. This may occur by way of amendments to the ATS or by collapse of the ATS and potentially

replacement. Two fundamental elements of the existing Treaty are that it governs Antarctica for peaceful purposes and provides for freedom of scientific investigations. No evidence has been found in this investigation that there is a move towards undermining these fundamental elements or imminent collapse. This is also supported by literature (Dodds, 2010; Hemmings, 2009).

Policy changes required to address the changing Antarctic environment will likely occur through modification of the existing governance regime. In particular, amendments to the Protocol, or establishment of a new legal instrument, may ensue to address environmental issues arising from increasing numbers of scientific expeditions and tourists. It is noted that given it can take several years for an international policy agenda to be set, legislation drafted and entry into force, it appears unlikely that the policy will keep up with the pace that these activities are increasing in number, expanse and diversity (Antarctic Treaty Secretariat, 2013).

6. WILL WE SEE A BACK-TO-THE-FUTURE SCENARIO?

This report has demonstrated that drawing conclusions on whether we will see a move back towards territoriality and resource use in Antarctica is exceedingly difficult to determine, as it depends on a number of components in a complex system. A preliminary answer with regards to territoriality and resource use as separate considerations is offered here, based on the synthesis of information and results of the trend analyses undertaken in this report.

6.1 TERRITORIALITY

The issue of sovereignty has effectively been frozen by Article IV of the Treaty, but remains to be resolved (Dodds, 2010; Elzinga, 2011; Hemmings, 2010). It is apprarant that if the ATS were to collapse, this would give rise to elevated contention with regards to sovereignty claims. Conention could also be elevated under the existing governance regime if an external party to the Treaty attempted to veto and/or formally remove (a) clause(s) from the Treaty fundamental to its purpose. For example, veto or removal of Articles I (1), II or V would likey give rise to contention. It is therefore concluded that territoriality is likely to come to the forefront again to sway decision-making.

Whilst complete resolution of sovereign claims may be seen as an ultimate future goal in the governance of Antarctica (Hemmings, 2009), it is recognized that sovereign claims could actually carry weight towards protecting Antarctica from exploitation. This is because no evidence has been found that any of the seven nations with historic claims to Antarctica are seeking to undertake mineral exploitation within the next fifty years. In particular, Australia, France and New Zealand, along with non-claimants Belgium and Italy, opposed CRAMA initially on environmental grounds. Their interests appear to be aligned with scientific investigation which

means the status quo activities may continue if claimant nations governed alone. A more stringent and/or workable environmental management regime may also be established.

In the unlikely situation that a claimant state did seek to pursue mineral exploitation in the future, legal tools with regards to sovereignty will no doubt be applied. In this regard, the aforementioned Principle 2 of the Rio Declaration may carry weight towards achieving a policy outcome that allows resource exploitation other than for scientific purposes.

Given the claimant states consistently argued for recognition of claims and royalties during CRAMRA's negotiation, it is also highly unlikely that other states would be successful in seeking to undertake mineral activity within the Australian Antarctic Territory, the Ross Dependency, or Adelie Land unless these issues had also been resolved (Rothwell, 1990).

6.2 RESOURCE USE

With regards to resource use, this report has demonstrated that there is a historic legacy of this in Antarctica, currently being fulfilled through the exploitation of marine organisms. Whether we will see a change in resources exploited (i.e. towards mineral exploitation) and/or the environmental management regime largely depends on policy which is influenced by politics, including ever lurking sovereignty issues, as well as resource demand and science and technology, as discussed in section 4.2. It may also be influenced by the feedback loop that exists with climate change discussed in section 4.3 of this report.

The Protocol provides a loophole for removing the prohibition on mining mineral resources other than for scientific research purposes in Article 7, as Article 25.5 (a) implies that this can be done if a legally binding environmental management regime is in place. The foresight at the time the Protocol was prepared was post CRAMRA. This loophole suggests that the intention was that CRAMRA, or an alternative management regime for mining mineral resources, may be revisited in the future.

In order to assess the significance of this loophole the voting system needs to be considered. Three potential voting situations have been identified:

1. **Voting under Article 25.1 of the Protocol and Article XII (1) (a) of the Treaty**

   Given that 50 states are now signatories to the Treaty, there are 29 voting consultative parties (Secretariat of the Antarctic Treaty, 2011b), it is not considered feasible for a state to use the loophole by achieving unanimous vote. For example, it is unlikely that Australia, New Zealand and France would agree to resource exploitation.

2. Amending the Voting System First

There is nothing preventing a staged approach. A signatory state could first set out to amend Article 25.1 to majority vote instead of referring to Article XII (1) (a) of the Treaty. Subsequently the majority vote could be used as a means towards achieving removal of the prohibition in Article 7, and ultimately a mining ends. A 50% majority vote could feasibly be introduced. At least half of the consultative parties would need to agree to mineral resource exploitation for the loophole to be used if this voting system were established.

3. ¾ Majority Vote under Article 25.4

Alternatively, at the time the Protocol has been in force for 50 years - post January 14 2048, the review clause (Article 25.2) could be used to influence removal of the prohibition by ¾ majority vote under Article 25.3. This clause means that ¾ of the consultative parties at the time of adoption of the Protocol (the 1991 consultative parties) need to be in support.

It is concluded that although there is a loophole in the Protocol, the voting system would be difficult to overcome unless external drivers influenced a shift in global value sets such that the majority of signatories sought to exploit Antarctica's mineral resources. The second option is considered to be the most feasible way of lifting the mining prohibition, but even still at least 15 of the consultative parties would need to be pro-mining and likely more as the number of consultative parties increases (**Appendix 5**). On this basis, it is concluded that a shift towards mineral exploitation within the next 50 years is not probable.

However, it is arguable that if Australia and France had not stood up in opposition to mineral resources exploitation in the past, it would already be occurring. This signifies that the voices of one or two countries can sway the future, and is one reason why the future of mineral exploitation in Antarctica is uncertain.

7. MOVING FORWARD, NOT BACKWARD

Environmental management and legal methods have a role to play in shaping the future of Antarctica. In terms of environmental management, this report has demonstrated only one method of investigating the future of Antarctica. With numerous methods available, it is evident that the way research is undertaken may influence decision making outcomes. Synthesizing the results of research undertaken by way of different methods would be constructive forward planning.

With regards to legal methods, many lessons may be learned. One method identified in this report is the precautionary approach to scientific uncertainty. Uncertainty is inevitable when looking to the future, and

particularly evident with regards to climate change. Scientific uncertainty with regards to climate change should not be used as a reason for postponing the development and establishment of improved policy, or other methods, to address the impact of climate change on Antarctica.

Science itself also has a role to play, including by producing expert publications and evidence and by the role the scientist takes on. Scientists could implement the *issue advocat* role (Pielke, 2007), promoting the protection of Antarctica from further resource exploitation and and territorial conflict. Even by undertaking more international scientific projects and merging bases, this could mark the onset of a positive future for Antarctica.

Finally, policy is fundamental to the future direction of Antarctica. Drawing on the findings of this report, the following recommendations are made to improve existing policy:

1. Retaining the Treaty.
2. Retaining the Protocol and improving implementation and enforcement. For example, introducing an expert international panel to assess EIAs and undertake environmental monitoring in Antarctica. This would be instead of only applying international scrutiny to EIAs that require comprehensive environmental evaulation due to a more than minor or transitory impact, and additional to, or instead of, the independent observor inspection provision (Article VII) of the Treaty (**Appendix 2**).
3. Establishment of an additional legal instrument under the Treaty to specifically address the environmental impacts of scientific expeditions and commercial tourism.
4. Seeking to amend Article 25.5 (a) of the Protocol to state that the mining prohibition in Article 7 cannot be lifted without unanimous vote (**Appendix 3**).
5. Increasing the speed of entry into force for new or amended legislation. For example, setting timeframes within which states are required to decide whether they will ratify new or amended legislation.
6. Holding a convention to address integration of international multilateral agreements relevant to Antarctica.

8. CONCLUSION

This report has created a conjunctive source of reputable information on matters likely to shape the future of Antarctica. It has found that the Antarctic environment is under increasing pressure from the human footprint resulting from scientific expeditions and commercial tourism, driven by market demand, technology and policy that allow these activities to occur. Policy needs to be revised and updated to address the current and increasing human footprint.

This report has also found that there has historically been significant interest in mineral resource exploitation in Antarctica, including the establishment of an environmental management regime (CRAMRA) that only failed at the last hurdle, never entering into force. This interest may be reignited given the right political conditions, coupled with market demand and allowable technology. However, there is existing policy in place which prohibits mineral resource exploitation other than for scientific purposes. The voting system established under the Treaty and Protocol means that removing the prohibition would require unanimous agreement, ¾ majority agreement come 2048, or amendment to the voting system. Even if the voting system were amended, at least half of the consultative parties would likely need to be pro-mining for any attempt to lift the prohibition under Article 7 of the Protocol to be successful. It is therefore concluded that a return to mineral resource exploitation is unlikely in the next 50 years.

In addition to the human footprint and contention over mining mineral resources, climate change is having an impact on the geography of the continent. There is uncertainty with regards to what Antarctica may look like under the influence of a warming climate and recovering Ozone hole over the next 50 years. The effects of climate change are relevant to how commercial tourism in particular may change. Whilst forecasting is difficult, it is probable that the Antarctic Peninsula will change considerably and the West Antarctic Ice Sheet will become increasing unstable over the next 50 years. Wildlife and tourists may migrate to other locations and likely further inland.

Although planning for the future of Antarctica is difficult because it requires a thorough understanding of relevant research areas and their trends, drivers and impacts, there is opportunity for positive change. This may be influenced by the environmental management techniques, legal instruments and policy that is applied, as well as advocacy roles taken on. It is probable that sovereignty issues, which are only set to one side by the Treaty, will once again come to the forefront at some stage over the next 50 years in (an) attempt(s) to sway decision-making.

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APPENDIX 1

RELEVANT MULTILATERAL INTERNATIONAL AGREEMENTS

TABLE 1: INTERNATIONAL LEGAL INSTRUMENTS OF SIGNIFICANCE TO ANTARCTICA[18]

Conference / Convention	Convention Location & Date	Legal Instrument	Date of Entry into Force
ANTARCTIC LEGISLATION			
Antarctic Conference (diplomatic conference)	15 October 1959 – 01 December 1959, Washington, United States	**The Antarctic Treaty**	23 June 1961
Antarctic Treaty Consultative Meeting III (ATCM III)	02 – 13 June 1964, Brussels, Belgium	**Agreed Measures for the Conservation of Antarctic Flora and Fauna**	Replaced by Annex II of the Protocol on Environmental Protection
Convention for the Conservation of Antarctic Seals (Conference CCAS) (diplomatic conference)	03 - 11 February 1972, London, United Kingdom	**Convention for the Conservation of Antarctic Seals**	11 March 1978
Conference CCAS Review	12 September 1988 – 16 September 1988, London, United Kingdom		
Conference on the Conservation of Antarctic Marine Living Resources (Conf. CCAMLR) (diplomatic conference)	7-20 May 1980, Canberra, Australia	**Convention on the Conservation of Antarctic Marine Living Resources**[19]	7 April 1982
Special Antarctic Treaty Consultative Meeting IV-12 (SATCM IV-12)	02 May – 02 June 1988, Wellington, New Zealand	**Convention on the Regulation of Antarctic Mineral Resource Activities**	Never entered into force

[18] References for listed legal instruments are incorporated into section 8 of this report.

[19] Note the associated organisation is the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

Special Antarctic Treaty Consultative Meeting XI-3 (SATCM XI-3)	03 – 04 October 1991, Madrid, Spain	**Protocol on Environmental Protection to the Antarctic Treaty**[20]	January 14 1998
HUMAN ENVIRONMENT LEGISLATION			
United Nations Conference on the Human Environment	Stockholm, Sweden, 5-16 June 1972	**Stockholm Declaration**	15 December 1972
Stockholm+10	Nairobi, Kenya, 1982	**Nairobi Declaration**	18 May 1982
Brundtland Commission	(written after Stockholm Declaration)	**Report "Our Common Future"**	October 1987
UN Earth Summit (Earth Summit+5 to review and appraise Agenda 21)	Rio de Janeiro, Brazil 3-14 June 1992	**Rio Declaration (associated Agenda 21)**[21]	14 June 1992
UN World Summit on Sustainable Development	Johannesburg 26 August – 4 September 2002	**Johannesburg Plan of Implementation**	4 September 2002
UN Rio+20 Conference	Rio de Janeiro, Brazil 20-22 June 2012	**The Future We Want (outcome document)**	22 June 2012
MARITIME LEGISLATION			
Convention on Fishing and Conservation of the Living Resources of the High Seas	Geneva 29 April 1958	**Convention on Fishing and Conservation of the Living Resources of the High Seas**	20 March 1966
Third United Nations Convention on the Law of the Sea (UNCLOS) (plus an additional agreement to implement part XI of UNCLOS)	Montego Bay 10 December 1982 (additional agreement 1994)	**United Nations Convention on the Law of the Sea (UNCLOS)**[22]	19 December 1994
International Convention for the	International Maritime Organization,	**International Convention for the**	2 October 1983

[20] Note the associated organisation is the Committee for Environmental Protection (CEP).

[21] Note the associated organisation is the Commission on Sustainable Development (CSD).

[22] Note the associated organisations are: The Commission on the Limits of the Continental Shelf (CLCS), The International Seabed Authority, and The International Tribunal for the Law of the Sea (ITLOS).

Prevention of Pollution from Ships (MARPOL)	2 November 1973	**Prevention of Pollution from Ships (MARPOL)**	Note Annex I to VI entered into force between 2 October 1983 and 19 May 2005
CLIMATE AND OZONE LEGISLATION			
Vienna Convention for the Protection of the Ozone Layer	Vienna, France, 18-22 March 1985	**Vienna Convention for the Protection of the Ozone Layer**	22 September 1988
	Montreal, Quebec, 16 December 1987 (amended London 1990, Copenhagen 1992 Vienna 1995, Montreal 1997, Beijing 1999 and Montreal 2007)	**Montreal Protocol on Substances that Deplete the Ozone Layer**	1 January 1989
United Nations Framework Convention on Climate Change	New York 9 May 1992	**Framework Convention on Climate Change**	21 March 1994
United Nations Framework Convention on Climate Change	Kyoto, Japan 11 December 1997	**Kyoto Protocol 1998 (in pursuit of Article 2 of the Convention and guided by Article 3)**	16 February 2005
United Nations Climate Change Conference 07 (COP 07)	Marrakesh, Morocco, 2001	**"Marrakesh Accords" (implementation rules 2008-2012)**	Adopted at COP 7
United Nations Climate Change Conference 18 (COP 18)	Doha, Qatar, 8 December 2012	**Doha Amendment to the Kyoto Protocol**	Adopted at COP 18
United Nations Earth Summit	Rio de Janeiro, Brazil 3-14 June 1992	**The Convention on Biological Diversity**	29 December 1993

APPENDIX 2
ANTARCTIC TREATY (1959)

CONFERENCE ON
ANTARCTICA

CONFERENCIA DE LA
ANTARTIDA

CONFERENCE DE
l'ANTARCTIQUE

КОНФЕРЕНЦИЯ ПО
АНТАРКТИКЕ

WASHINGTON, D.C. - OCTOBER 15, 1959

December 1, 1959

THE ANTARCTIC TREATY

TRAITE SUR L'ANTARCTIQUE

ДОГОВОР ОБ АНТАРКТИКЕ

TRATADO ANTARTICO

THE ANTARCTIC TREATY

The Governments of Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America,

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

Acknowledging the substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

ARTICLE I

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons.

2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

ARTICLE II

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

ARTICLE III

1. In order to promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the 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 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.

2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

ARTICLE IV

1. Nothing contained in the present Treaty shall be interpreted as:

(a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;

(b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise;

(c) prejudicing the position of any Contracting Party as regards its recognition or non-recognition of any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica.

2. No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

ARTICLE V

1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.

2. In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties, the rules established under such agreements shall apply in Antarctica.

ARTICLE VI

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

1. In order to promote the objectives and ensure the observance of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.

2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.

3. All areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this Article.

4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.

5. Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of

(a) all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica organized in or proceeding from its territory;

(b) all stations in Antarctica occupied by its nationals; and

(c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

ARTICLE VIII

1. In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction over all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1(b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect of all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures in pursuance of subparagraph 1(e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

ARTICLE IX

1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the City of Canberra within two months after the date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose

of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty, including measures regarding:

(a) use of Antarctica for peaceful purposes only;

(b) facilitation of scientific research in Antarctica;

(c) facilitation of international scientific cooperation in Antarctica;

(d) facilitation of the exercise of the rights of inspection provided for in Article VII of the Treaty;

(e) questions relating to the exercise of jurisdiction in Antarctica;

(f) preservation and conservation of living resources in Antarctica.

2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.

3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting Parties participating in the meetings referred to in paragraph 1 of the present Article.

4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.

5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

ARTICLE X

Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

ARTICLE XI

1. If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.

2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

ARTICLE XII

1. (a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter into force when the depositary Government has received notice from all such Contracting Parties that they have ratified it.

(b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two years from the date of entry into force of the modification or amendment in accordance with the provisions of subparagraph 1(a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.

2. (a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

(b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination

of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article.

(c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1(a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present Treaty; and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

ARTICLE XIII

1. The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which may be invited to accede to the Treaty with the consent of all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.

2. Ratification of or accession to the present Treaty shall be effected by each State in accordance with its constitutional processes.

3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.

4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.

5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for those States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instrument of accession.

6. The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

ARTICLE XIV

The present Treaty, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to the Governments of the signatory and acceding States.

TRAITE SUR L'ANTARCTIQUE

Les Gouvernements de l'Argentine, de l'Australie, de la Belgique, du Chili, de la République Française, du Japon, de la Nouvelle-Zélande, de la Norvège, de L'Union Sud-Africaine, de l'Union des Républiques Socialistes Soviétiques, du Royaume-Uni de Grande-Bretagne et d'Irlande du Nord, et des Etats-Unis d'Amérique,

Reconnaissant qu'il est de l'intérêt de l'humanité tout entière que l'Antarctique soit à jamais réservée aux seules activités pacifiques et ne devienne ni le théâtre ni l'enjeu de différends internationaux;

Appréciant l'ampleur des progrès réalisés par la science grâce à la coopération internationale en matière de recherche scientifique dans l'Antarctique;

Persuadés qu'il est conforme aux interets de la science et au progrès de l'humanité d'établir une construction solide permettant de poursuivre et de développer cette coopération en la fondant sur la liberté de la recherche scientifique dans l'Antarctique telle qu'elle a été pratiquée pendant l'Année Géophysique Internationale;

Persuadés qu'un Traité réservant l'Antarctique aux seules activités pacifiques et maintenant dans cette région l'harmonie internationale, servira les intentions et les principies de la Charte des Nations Unies;

Sont convenus de ce qui suit:

ARTICLE I

1. Seules les activités pacifiques sont autorisées dans l'Antarctique. Sont interdites, entre autres, toutes mesures de caractère militaire telles que l'établissement de bases, la construction de fortifications, les manoeuvres, ainsi que les essais d'armes de toutes sortes.

2. Le présent Traité ne s'oppose pas à l'emploi de personnel ou de matériel militaires pour la recherche scientifique ou pour toute autre fin pacifique.

ARTICLE II

La liberté de la recherche scientifique dans l'Antarctique et la coopération à cette fin, telles qu'elles ont été pratiquées durant l'Année Géophysique Internationale, se poursuivront conformément aux dispositions du présent Traité.

ARTICLE III

1. En vue de renforcer dans l'Antarctique la coopération internationale en matière de recherche scientifique, comme il est prévu à l'Article II du présent Traité, les Parties Contractantes conviennent de procéder, dans toute la mesure du possible:

(a) à l'échange de renseignements relatifs aux programmes scientifiques dans l'Antarctique, afin d'assurer au maximum l'économie des moyens et le rendement des opérations;

(b) à des échanges de personnel scientifique entre expéditions et stations dans cette région;

(c) à l'échange des observations et des résultats scientifiques obtenus dans l'Antarctique qui seront rendus librement disponibles.

2. Dans l'application de ces dispositions, la coopération dans les relations de travail avec les Institutions Spécialisées des Nations Unies et les autres organisations internationales pour lesquelles l'Antarctique offre un intérêt scientifique ou technique, sera encouragée par tous les moyens.

ARTICLE IV

1. Aucune disposition du présent Traité ne peut être interprétée:

(a) comme constituant, de la part d'aucune des Parties Contractantes, une renonciation à ses droits de souveraineté territoriale, ou aux revendications territoriales, précédemment affirmés par elle dans l'Antarctique;

(b) comme un abandon total ou partiel, de la part d'aucune des Parties Contractantes, d'une base de revendication de souveraineté territoriale dans l'Antarctique, qui pourrait résulter de ses propres activités ou de celles de ses ressortissants dans l'Antarctique, ou de toute autre cause;

(c) comme portant atteinte à la position de chaque Partie Contractante en ce qui concerne la reconnaissance ou la non reconnaissance par cette Partie, du droit de souveraineté, d'une revendication ou d'une base de revendication de souveraineté territoriale de tout autre Etat, dan l'Antarctique.

2. Aucun acte ou activité intervenant pendant la durée du présent Traité ne constituera une base permettant de faire valoir, de soutenir ou de contester une revendication de souveraineté territoriale dans l'Antarctique, ni ne créera des droits de souveraineté dans cette région. Aucune revendication nouvelle, ni

aucune extension d'une revendication de souveraineté territoriale précédemment affirmée, ne devra être présentée pendant la durée du présent Traité.

ARTICLE V

1. Toute explosion nucléaire dans l'Antarctique est interdite, ainsi que l'élimination dans cette région de déchets radioactifs.

2. Au cas où seraient conclus des accords internationaux, auxquels participeraient toutes les Parties Contractantes dont les représentants sont habilités à participer aux réunions prévues à l'Article IX, concernant l'utilisation de l'énergie nucléaire y compris les explosions nucléaires et l'élimination de déchets radioactifs, les règles établies par de tels accords seront appliquées dans l'Antarctique.

ARTICLE VI

Les dispositions du présent Traité s'appliquent à la région située au sud du 60ème degré de latitude Sud, y compris toutes les plates-formes glaciaires; mais rien dans le présent Traité ne pourra porter préjudice ou porter atteinte en aucune façon aux droits ou à l'exercice des droits reconnus à tout Etat par le droit international en ce qui concerne les parties de haute mer se trouvant dans la région ainsi délimitée.

ARTICLE VII

1. En vue d'atteindre les objectifs du présent Traité et d'en faire respecter les dispositions, chacune des Parties Contractantes dont les représentants sont habilités à participer aux réunions mentionnées à l'Article IX de ce Traité, a le droit de désigner des observateurs chargés d'effectuer toute inspection prévue au présent Article. Ces observateurs seront choisis parmi les ressortissants de la Partie Contractante qui les désigne. Leurs noms seront communiqués à chacune des autres Parties Contractantes habilitées à désigner des observateurs; la cessation de leurs fonctions fera l'objet d'une notification analogue.

2. Les observateurs désignés conformément aux dispositions du paragraphe 1 du présent Article auront complète liberté d'accès à tout moment à l'une ou à toutes les régions de l'Antarctique.

3. Toutes les régions de l'Antarctique, toutes les stations et installations, tout le matériel s'y trouvant,ainsi que tous les navires et aéronefs aux points de débarquement et d'embarquement de fret ou de personnel dans l'Antarctique, seront accessibles à tout moment à l'inspection de tous observateurs désignés conformément aux dispositions du paragraphe 1 du présent Article.

4. Chacune des Parties Contractantes habilitées à désigner des observateurs peut effectuer à tout moment l'inspection aérienne de l'une ou de toutes les régions de l'Antarctique.

5. Chacune des Parties Contractantes doit, au moment de l'entrée en vigueur du présent Traité en ce qui la concerne,

informer les autres Parties Contractantes et par la suite leur donner notification préalable:

(a) de toutes les expéditions se dirigeant vers l'Antarctique ou s'y déplaçant, effectuées à l'aide de ses navires ou par ses ressortissants, de toutes celles qui seront organisées sur son territoire ou qui en partiront;

(b) de l'existence de toutes stations occupées dans l'Antarctique par ses ressortissants;

(c) de son intention de faire pénétrer dans l'Antarctique, conformément aux dispositions du paragraphe 2 de l'Article 1 du présent Traité, du personnel ou du matériel militaires quels qu'ils soient.

ARTICLE VIII

1. Afin de faciliter l'exercice des fonctions qui leur sont dévolues par le présent Traité et sans préjudice des positions respectives prises par les Parties Contractantes en ce qui concerne la juridiction sur toutes les autres personnes dans l'Antarctique, les observateurs désignés conformément aux dispositions du paragraphe 1 de l'Article VII et le personnel scientifique faisant l'objet d'un échange aux termes de l'alinéa 1(b) de l'Article III du Traité ainsi que les personnes qui leur sont attachées et qui les accompagnent, n'auront à répondre que devant la juridiction de la Partie Contractante dont ils sont ressortissants, en ce qui concerne tous actes ou omissions durant le séjour qu'ils effectueront dans l'Antarctique pour y remplir leurs fonctions.

2. Sans préjudice des dispositions du paragraphe 1 du présent Article et en attendant l'adoption des mesures prévues à l'alinéa 1(e) de l'Article IX, les Parties Contractantes se trouvant parties à tout différend relatif à l'exercice de la juridiction dans l'Antarctique devront se consulter immédiatement en vue de parvenir à une solution acceptable de part et d'autre.

ARTICLE IX

1. Les représentants des Parties Contractantes qui sont mentionnées au préambule du présent Traité se réuniront à Canberra dans les deux mois suivant son entrée en vigueur et, par la suite, à des intervalles et en des lieux appropriés, en vue d'échanger des informations, de se consulter sur des questions d'intérêt commun concernant l'Antarctique, d'étudier, formuler et recommander à leurs Gouvernements des mesures destinées à assurer le respect des principes et la poursuite des objectifs du présent Traité, et notamment des mesures:

(a) se rapportant à l'utilisation de l'Antarctique à des fins exclusivement pacifiques;

(b) facilitant la recherche scientifique dans l'Antarctique;

(c) facilitant la coopération scientifique internationale dans cette région;

(d) facilitant l'exercice des droits d'inspection prévus à l'Article VII du présent Traité;

(e) relatives à des questions concernant l'exercice de la juridiction dans l'Antarctique;

(f) relatives à la protection et à la conservation de la faune et de la flore dans l'Antarctique.

2. Toute Partie Contractante ayant adhéré au présent Traité conformément aux dispositions de l'Article XIII a le droit de nommer des représentants qui participeront aux réunions mentionnées au paragraphe 1 du présent Article, aussi longtemps qu'elle démontre l'intérêt qu'elle porte à l'Antarctique en y menant des activités substantielles de recherche scientifique telles que l'établissement d'une station ou l'envoi d'une expédition.

3. Les rapports des observateurs mentionnés à l'Article VII du présent Traité seront transmis aux représentants des Parties Contractantes qui participent aux réunions mentionnées au paragraphe 1 du présent Article.

4. Les mesures prévues au paragraphe 1 du présent Article prendront effet dès leur approbation par toutes les Parties Contractantes dont les représentants étaient habilités à participer aux réunions tenues pour l'examen desdites mesures.

5. L'un quelconque ou tous les droits établis par le présent Traité peuvent être exercés dès son entrée en vigueur, qu'il y ait eu ou non, comme il est prévu au présent Article, examen, proposition ou approbation de mesures facilitant l'exercice de ces droits.

ARTICLE X

Chacune des Parties Contractantes s'engage à prendre des mesures appropriées, compatibles avec la Charte des Nations Unies, en vue d'empêcher que personne n'entreprenne dans l'Antarctique aucune activité contraire aux principes ou aux intentions du présent Traité.

ARTICLE XI

1. En cas de différend entre deux ou plusieurs des Parties Contractantes en ce qui concerne l'interprétation ou l'application du présent Traité, ces Parties Contractantes se consulteront en vue de régler ce différend par voie de négociation, enquête, médiation, conciliation, arbitrage, règlement judiciaire ou par tout autre moyen pacifique de leur choix.

2. Tout différend de cette nature qui n'aura pu être ainsi réglé, devra être porté, avec l'assentiment dans chaque cas de toutes les parties en cause, devant la Cour Internationale de Justice en vue de règlement; cependant l'impossibilité de parvenir à un accord sur un tel recours ne dispensera aucunement les parties en cause de l'obligation de continuer à rechercher la solution du différend par tous les modes de règlement pacifique mentionnés au paragraphe 1 du présent Article.

ARTICLE XII

1. (a) Le présent Traité peut être modifié ou amendé à tout moment par accord unanime entre les Parties Contractantes dont les représentants sont habilités à participer aux réunions prévues à l'Article IX. Une telle modification ou un tel amendement entrera en vigueur lorsque le Gouvernement dépositaire aura reçu de toutes ces Parties Contractantes avis de leur ratification.

(b) Par la suite une telle modification ou un tel amendement entrera en vigueur à l'égard de toute autre Partie Contractante lorsqu'un avis de ratification émanant de celle-ci aura été reçu par le Gouvernement dépositaire. Chacune de ces Parties Contractantes dont l'avis de ratification n'aura pas été reçu dans les deux ans suivant l'entrée en vigueur de la modification ou de l'amendement

conformément aux dispositions de l'alinéa 1(a) du présent Article, sera considérée comme ayant cessé d'être partie au présent Traité à l'expiration de ce délai.

2. (a) Si à l'expiration d'une période de trente ans à dater de l'entrée en vigueur du présent Traité, une des Parties Contractantes dont les représentants sont habilités à participer aux réunions prévues à l'Article IX, en fait la demande par une communication adressée au Gouvernement dépositaire, une Conférence de toutes les Parties Contractantes sera réunie aussitôt que possible, en vue de revoir le fonctionnement du Traité.

(b) Toute modification ou tout amendement au présent Traité, approuvé à l'occasion d'une telle Conférence par la majorité des Parties Contractantes qui y seront représentées, y compris la majorité des Parties Contractantes dont les représentants sont habilités à participer aux réunions prévues à l'Article IX, sera communiqué à toutes les Parties Contractantes par le Gouvernement dépositaire, dès la fin de la Conférence, et entrera en vigueur conformément aux dispositions du paragraphe 1 du présent Article.

(c) Si une telle modification ou un tel amendement n'est pas entré en vigueur, conformément aux dispositions de l'alinéa 1(a) du présent Article, dans un délai de deux ans à compter de la date à laquelle toutes les Parties Contractantes en auront reçu communication, toute Partie Contractante peut, à tout moment après l'expiration de ce délai, notifier au Gouvernement dépositaire qu'elle cesse d'être partie au présent Traité; ce retrait prendra effet deux ans après la réception de cette notification par le Gouvernement dépositaire.

ARTICLE XIII

1. Le présent Traité sera soumis à la ratification des Etats signataires. Il restera ouvert à l'adhésion de tout Etat membre des Nations Unies, ou de tout autre Etat qui pourrait être invité à adhérer au Traité avec le consentement de toutes les Parties Contractantes dont les représentants sont habilités à participer aux réunions mentionnées à l'Article IX du Traité.

2. La ratification du présent Traité ou l'adhésion à celui-ci sera effectuée par chaque Etat conformément à sa procédure constitutionelle.

3. Les instruments de ratification et les instruments d'adhésion seront déposés près le Gouvernement des Etats-Unis d'Amérique, qui sera le Gouvernement dépositaire.

4. Le Gouvernement dépositaire avisera tous les Etats signataires et adhérents de la date de dépôt de chaque instrument de ratification ou d'adhésion ainsi que de la date d'entrée en vigueur du Traité et de toute modification ou de tout amendement qui y serait apporté.

5. Lorsque tous les Etats signataires auront déposé leurs instruments de ratification, le présent Traité entrera en vigueur pour ces Etats et pour ceux des Etats qui auront déposé leurs instruments d'adhésion. Par la suite, le Traité entrera en vigueur, pour tout Etat adhérent, à la date du dépôt de son instrument d'adhésion.

6. Le présent Traité sera enregistré par le Gouvernement depositaire conformement aux dispositions de l'Article 102 de la Charte des Nations Unies.

ARTICLE XIV

Le présent Traité, rédigé dans les langues anglaise, française, russe et espagnole, chaque version faisant également foi, sera déposé aux archives du Gouvernement des Etats-Unis d'Amérique qui en transmettra des copies certifiées conformes aux Gouvernements des Etats signataires ou adhérents.

ДОГОВОР ОБ АНТАРКТИКЕ

Правительства Аргентины, Австралии, Бельгии, Чили, Французской Республики, Японии, Новой Зеландии, Норвегии, Южно-Африканского Союза, Союза Советских Социалистических Республик, Соединенного Королевства Великобритании и Северной Ирландии и Соединенных Штатов Америки,

Сознавая, что в интересах всего человечества Антарктика должна и впредь всегда использоваться исключительно в мирных целях и не должна стать ареной или предметом международных разногласий;

Признавая существенный вклад, внесенный в научные познания благодаря международному сотрудничеству в научных исследованиях в Антарктике;

Убежденные в том, что установление прочного фундамента для продолжения и развития такого сотрудничества на основе свободы научных исследований в Антарктике, как оно осуществлялось в течение Международного геофизического года, отвечает интересам науки и прогресса всего человечества;

Убежденные также в том, что договор, обеспечивающий использование Антарктики только в мирных целях и продолжение международного согласия в Антарктике, будет содействовать осуществлению целей и принципов Устава Организации Объединенных Наций;

Согласились о нижеследующем:

СТАТЬЯ I

I. Антарктика используется только в мирных целях. Запрещаются, в частности, любые мероприятия военного характера, такие как создание военных баз и укреплений, проведение военных маневров, а также испытания любых видов оружия.

2. Настоящий Договор не препятствует использованию военного персонала или оснащения для научных исследований или для любых других мирных целей.

СТАТЬЯ II

Свобода научных исследований в Антарктике и сотрудничество в этих целях, как они применялись в течение Международного геофизического года, будут продолжаться в соответствии с положениями настоящего Договора.

СТАТЬЯ III

I. Для содействия международному сотрудничеству в научных исследованиях в Антарктике, как это предусмотрено в Статье II настоящего Договора, Договаривающиеся Стороны соглашаются, что в максимально возможной и практически осуществимой степени:

a) производится обмен информацией относительно планов научных работ в Антарктике с тем, чтобы обеспечить максимальную экономию средств и эффективность работ;

b) производится обмен научным персоналом в Антарктике между экспедициями и станциями;

c) производится обмен данными и результатами научных наблюдений в Антарктике и обеспечивается свободный доступ к ним.

2. При выполнении настоящей Статьи всячески поощряется установление отношений делового сотрудничества с теми специализированными учреждениями Организации Объединенных Наций и другими международными организациями, для которых Антарктика представляет интерес в научном или техническом отношении.

СТАТЬЯ IV

I. Ничто содержащееся в настоящем Договоре не должно толковаться как:

a) отказ любой из Договаривающихся Сторон от ранее заявленных прав или претензий на территориальный суверенитет в Антарктике;

b) отказ любой из Договаривающихся Сторон от любой основы для претензии на территориальный суверенитет в Антарктике или сокращение этой основы, которую она может иметь в результате ее деятельности или деятельности ее граждан в Антарктике или по другим причинам;

c) наносящее ущерб позиции любой из Договаривающихся Сторон в отношении признания или непризнания ею права или претензии, или основы для претензии любого другого государства на территориальный суверенитет в Антарктике.

2. Никакие действия или деятельность, имеющие место пока настоящий Договор находится в силе, не образуют основы для заявления, поддержания или отрицания какой-либо претензии на территориальный суверенитет в Антарктике и не создают никаких прав суверенитета в Антарктике. Никакая новая претензия или расширение существующей претензии на территориальный суверенитет в Антарктике не заявляются пока настоящий Договор находится в силе.

СТАТЬЯ V

I. Любые ядерные взрывы в Антарктике и удаление в этом районе радиоактивных материалов запрещаются.

2. В случае заключения международных соглашений, в которых будут участвовать все Договаривающиеся Стороны, представители которых имеют право участвовать в совещаниях, предусмотренных Статьей IX, относительно использования ядерной энергии, включая ядерные взрывы и удаление радиоактивных отходов, в Антарктике будут применяться правила, установленные такими соглашениями.

СТАТЬЯ VI

Положения настоящего Договора применяются к району южнее 60 параллели южной широты, включая все шельфовые ледники, но ничто в настоящем Договоре не ущемляет и никоим образом не затрагивает прав любого государства или осуществления этих прав, признанных международным правом в отношении открытого моря, в пределах этого района.

СТАТЬЯ VII

I. Для содействия достижению целей и для обеспечения соблюдения положений настоящего Договора каждая Договаривающаяся Сторона, представители которой имеют право участвовать в совещаниях, предусмотренных в Статье IX настоящего Договора, имеет право назначать наблюдателей для проведения любой инспекции, предусмотренной настоящей Статьей. Наблюдатели должны быть гражданами тех Договаривающихся Сторон, которые их назначают. Фамилии наблюдателей сообщаются каждой из Договаривающихся Сторон, имеющей право назначать наблюдателей; подобное сообщение делается и об окончании срока их назначения.

2. Каждый наблюдатель, назначенный в соответствии с положениями пункта I настоящей Статьи, имеет полную свободу доступа в любое время в любой или все районы Антарктики.

3. Все районы Антарктики, включая все станции, установки и оборудование в этих районах, а также все морские и воздушные суда в пунктах разгрузки и погрузки груза или персонала в Антарктике всегда открыты для инспекции любыми наблюдателями, назначенными в соответствии с положениями пункта I настоящей Статьи.

4. Наблюдение с воздуха может производиться в любое время над любым или всеми районами Антарктики каждой Договаривающейся Стороной, имеющей право назначать наблюдателей.

5. Каждая из Договаривающихся Сторон по вступлении для нее в силу настоящего Договора информирует другие Договаривающиеся Стороны и в дальнейшем уведомляет их заблаговременно:

а) о всех экспедициях в Антарктику или в пределах Антарктики, совершаемых ее судами или гражданами, и всех

экспедициях в Антарктику, организуемых на ее территории или направляющихся с ее территории;

b) о всех станциях в Антарктике, занимаемых ее гражданами;

c) о любом военном персонале или оснащении, предназначенном для направления ею в Антарктику с соблюдением условий, предусмотренных в пункте 2 Статьи I настоящего Договора.

СТАТЬЯ VIII

I. Для содействия осуществлению ими своих функций на основании настоящего Договора и без ущерба для соответствующей позиции каждой Договаривающейся Стороны относительно юрисдикции над всеми другими лицами в Антарктике, наблюдатели, назначенные в соответствии с положениями пункта I Статьи VII, и научный персонал, которым обмениваются согласно подпункту I (b) Статьи III Договора, а также персонал, сопровождающий любых таких лиц, находятся под юрисдикцией только той Договаривающейся Стороны, гражданами которой они являются, в отношении всех действий или упущений, имеющих место во время их пребывания в Антарктике для выполнения своих функций.

2. Без ущерба для положений пункта I настоящей Статьи и до принятия мер в соответствии с положениями подпункта I (e) Статьи IX заинтересованные Договаривающиеся Стороны в любом случае спора относительно осуществления юрисдикции в Антарктике немедленно консультируются между собой с целью достижения взаимоприемлемого решения.

СТАТЬЯ IX

1. Представители Договаривающихся Сторон, упомянутых в преамбуле настоящего Договора, соберутся в городе Канберре не позднее, чем через два месяца по вступлении в силу настоящего Договора, и будут собираться впоследствии через промежутки времени и в местах, которые будут ими определены, с целью обмена информацией, взаимных консультаций по вопросам Антарктики, представляющим общий интерес, а также разработки, рассмотрения и рекомендации своим правительствам мер, содействующих осуществлению принципов и целей настоящего Договора, включая меры относительно:

a) использования Антарктики только в мирных целях;

b) содействия научным исследованиям в Антарктике;

c) содействия международному научному сотрудничеству в Антарктике;

d) содействия осуществлению прав инспекции, предусмотренных в Статье VII настоящего Договора;

e) вопросов, касающихся осуществления юрисдикции в Антарктике;

f) охраны и сохранения живых ресурсов в Антарктике.

2. Каждая Договаривающаяся Сторона, которая стала участником настоящего Договора путем присоединения в соответствии с положениями Статьи XIII, имеет право назначать представителей для участия в совещаниях, упомянутых в пункте I настоящей Статьи, в течение того времени, пока эта Договаривающаяся Сторона проявляет свою заинтересованность в Антарктике проведением там существенной научно-исследовательской деятельности, такой как создание научной станции или посылка научной экспедиции.

3. Доклады наблюдателей, упомянутых в Статье VII настоящего Договора, направляются представителям Договаривающихся Сторон, участвующим в совещаниях, упомянутых в пункте I настоящей Статьи.

4. Меры, упомянутые в пункте I настоящей Статьи, вступают в силу по утверждении их всеми Договаривающимися Сторонами, представители которых имели право участвовать в совещаниях, созванных для рассмотрения этих мер.

5. Любое или все права, установленные в настоящем Договоре, могут осуществляться со дня вступления в силу Договора независимо от того, были или не были какие-либо меры, содействующие осуществлению таких прав, предложены, рассмотрены или одобрены, как это предусмотрено в настоящей Статье.

СТАТЬЯ X

Каждая из Договаривающихся Сторон обязуется прилагать соответствующие усилия, совместимые с Уставом Организации Объединенных Наций, с тем, чтобы в Антарктике не проводилось какой-либо деятельности, противоречащей принципам или целям настоящего Договора.

СТАТЬЯ XI

I. В случае возникновения какого-либо спора между двумя или несколькими Договаривающимися Сторонами относительно толкования или применения настоящего Договора, эти Договаривающиеся Стороны консультируются между собой с целью разрешения спора путем переговоров, расследования, посредничества, примирения, арбитража, судебного разбирательства или другими мирными средствами по их собственному выбору.

2. Любой спор такого рода, который не будет разрешен указанным путем, передается, с согласия в каждом случае всех сторон, участвующих в споре, на разрешение в Международный Суд; однако, если не будет достигнута договоренность о передаче спора в Международный Суд, стороны, участвующие в споре, не освобождаются от обязанности продолжать поиски его разрешения любым из различных мирных средств, указанных в пункте I настоящей Статьи.

СТАТЬЯ XII

I. a) Настоящий Договор может быть изменен или в него может быть внесена поправка в любое время по согласию всех Договаривающихся Сторон, представители которых имеют право участвовать в совещаниях, предусмотренных Статьей IX. Любое такое изменение или любая такая поправка вступает в силу по получении правительством-депозитарием от всех таких Договаривающихся Сторон уведомления о ратификации.

b) Такое изменение или такая поправка затем вступает в силу в отношении любой другой Договаривающейся Стороны по получении от нее правительством-депозитарием уведомления о ратификации. Любая такая Договаривающаяся Сторона, от которой не получено уведомление о ратификации в течение двух лет со дня вступления в силу изменения или поправки в соответствии с положениями подпункта I (a) настоящей Статьи, рассматривается как вышедшая из Договора в день истечения этого срока.

2. a) Если по истечении тридцати лет со дня вступления в силу настоящего Договора любая из Договаривающихся Сторон, представители которой имеют право участвовать в совещаниях, преду-

смотренных Статьей IX, того потребует путем обращения, направленного правительству-депозитарию, то будет созвана так скоро, как это практически осуществимо, конференция всех Договаривающихся Сторон для рассмотрения вопроса о том, как действует Договор.

b) Любое изменение настоящего Договора или любая поправка к нему, которые одобрены на указанной конференции большинством представленных на ней Договаривающихся Сторон, включая большинство тех Сторон, представители которых имеют право участвовать в совещаниях, предусмотренных Статьей IX, доводятся правительством-депозитарием до сведения всех Договаривающихся Сторон немедленно по окончании конференции и вступают в силу в соответствии с положениями пункта I настоящей Статьи.

c) Если любое такое изменение или любая такая поправка не вступит в силу в соответствии с положениями подпункта I (a) настоящей Статьи в течение двух лет со дня уведомления всех Договаривающихся Сторон, любая Договаривающаяся Сторона может в любое время по истечении этого срока уведомить правительство-депозитария о своем выходе из настоящего Договора; такой выход из Договора приобретает силу по истечении двух лет со дня получения правительством-депозитарием этого уведомления.

СТАТЬЯ XIII

I. Настоящий Договор подлежит ратификации подписавшими его государствами. Договор открыт для присоединения к нему любого государства, являющегося членом Организации Объединенных Наций, или любого другого государства, которое может быть приглашено присоединиться к Договору с согласия всех Договаривающихся Сторон, представители которых имеют право участвовать в совещаниях, предусмотренных Статьей IX настоящего Договора.

2. Ратификация настоящего Договора или присоединение к нему осуществляется каждым государством в соответствии с его конституционной процедурой.

3. Ратификационные грамоты и акты о присоединении сдаются на хранение Правительству Соединенных Штатов Америки, которое является правительством-депозитарием.

4. Правительство-депозитарий уведомляет все государства, подписавшие Договор и присоединившиеся к нему, о дате сдачи на хранение каждой ратификационной грамоты или каждого акта о присоединении, а также о дате вступления в силу Договора и любого его изменения или любой поправки к нему.

5. По сдаче на хранение ратификационных грамот всеми подписавшими Договор государствами настоящий Договор вступит в силу для этих государств и для государств, которые сдали на хранение акты о присоединении. В дальнейшем Договор вступает в силу для любого присоединившегося государства по сдаче им на хранение акта о присоединении.

6. Настоящий Договор будет зарегистрирован правительством-депозитарием в соответствии с положениями Статьи 102 Устава Организации Объединенных Наций.

СТАТЬЯ XIV

Настоящий Договор, составленный на английском, французском, русском и испанском языках, причем каждый из текстов является равно аутентичным, будет сдан на хранение в архив Правительства Соединенных Штатов Америки, которое препровождает должным образом заверенные копии Договора Правительствам подписавших его или присоединившихся к нему государств.

TRATADO ANTARTICO

Los Gobiernos de Argentina, Australia, Bélgica, Chile, la República Francesa, Japón, Nueva Zelandia, Noruega, la Unión del Africa del Sur, la Unión de Repúblicas Socialistas Soviéticas, el Reino Unido de Gran Bretaña e Irlanda del Norte y los Estados Unidos de América,

Reconociendo que es en interés de toda la humanidad que la Antártida continúe utilizándose siempre exclusivamente para fines pacíficos y que no llegue a ser escenario u objeto de discordia internacional;

Reconociendo la importancia de las contribuciones aportadas al conocimiento científico como resultado de la cooperación internacional en la investigación científica en la Antártida;

Convencidos de que el establecimiento de una base sólida para la continuación y el desarrollo de dicha cooperación, fundada en la libertad de investigación científica en la Antártida, como fuera aplicada durante el Año Geofísico Internacional, concuerda con los intereses de la ciencia y el progreso de toda la humanidad;

Convencidos, también, de que un Tratado que asegure el uso de la Antártida exclusivamente para fines pacíficos y la continuación de la armonía internacional en la Antártida promoverá los propósitos y principios enunciados en la Carta de las Naciones Unidas,

Han acordado lo siguiente:

ARTICULO I

1. La Antártida se utilizará exclusivamente para fines pacíficos. Se prohibe, entre otras, toda medida de carácter militar, tal como el establecimiento de bases y fortificaciones militares, la realización de maniobras militares, así como los ensayos de toda clase de armas.

2. El presente Tratado no impedirá el empleo de personal o equipo militares para investigaciones científicas o para cualquier otro fin pacífico.

ARTICULO II

La libertad de investigación científica en la Antártida y la cooperación hacia ese fin, como fueran aplicadas durante el Año Geofísico Internacional, continuarán, sujetas a las disposiciones del presente Tratado.

ARTICULO III

1. Con el fin de promover la cooperación internacional en la investigación científica en la Antártida, prevista en el Artículo II del presente Tratado, las Partes Contratantes acuerdan proceder, en la medida más amplia posible:

(a) al intercambio de información sobre los proyectos de programas científicos en la Antártida, a fin de permitir el máximo de economía y eficiencia en las operaciones;

(b) al intercambio de personal científico entre las expediciones y estaciones en la Antártida;

(c) al intercambio de observaciones y resultados científicos sobre la Antártida, los cuales estarán disponibles libremente.

2. Al aplicarse este Artículo se dará el mayor estímulo al establecimiento de relaciones cooperativas de trabajo con aquellos Organismos Especializados de las Naciones Unidas y con otras organizaciones internacionales que tengan interés científico o técnico en la Antártida.

ARTICULO IV

1. Ninguna disposición del presente Tratado se interpretará:

(a) como una renuncia, por cualquiera de las Partes Contratantes, a sus derechos de soberanía territorial o a las reclamaciones territoriales en la Antártida, que hubiere hecho valer precedentemente;

(b) como una renuncia o menoscabo, por cualquiera de las Partes Contratantes, a cualquier fundamento de reclamación de soberanía territorial en la Antártida que pudiera tener, ya sea como resultado de sus actividades o de las de sus nacionales en la Antártida, o por cualquier otro motivo;

(c) como perjudicial a la posición de cualquiera de las Partes Contratantes, en lo concerniente a su reconocimiento o no reconocimiento del derecho de soberanía territorial, de una reclamación o de un fundamento de reclamación de soberanía territorial de cualquier otro Estado en la Antártida.

2. Ningún acto o actividad que se lleve a cabo mientras el presente Tratado se halle en vigencia constituirá fundamento para hacer valer, apoyar o negar una reclamación de soberanía territorial en la Antártida, ni para crear derechos de soberanía en esta región. No se harán nuevas reclamaciones de soberanía territorial en la Antártida, ni se ampliarán las reclamaciones anteriormente hechas valer, mientras el presente Tratado se halle en vigencia.

ARTICULO V

1. Toda explosión nuclear en la Antártida y la eliminación de desechos radiactivos en dicha región quedan prohibidas.

2. En caso de que se concluyan acuerdos internacionales relativos al uso de la energía nuclear, comprendidas las explosiones nucleares y la eliminación de desechos radiactivos, en los que sean Partes todas las Partes Contratantes cuyos representantes estén facultados a participar en las reuniones previstas en el Artículo IX, las normas establecidas en tales acuerdos se aplicarán en la Antártida.

ARTICULO VI

Las disposiciones del presente Tratado se aplicarán a la región situada al sur de los 60° de latitud Sur, incluídas todas las barreras de hielo; pero nada en el presente Tratado perjudicará o afectará en modo alguno los derechos o el ejercicio de los derechos de cualquier Estado conforme al Derecho Internacional en lo relativo a la alta mar dentro de esa región.

ARTICULO VII

1. Con el fin de promover los objetivos y asegurar la aplicación de las disposiciones del presente Tratado, cada una de las Partes Contratantes, cuyos representantes estén facultados a participar en las reuniones a que se refiere el Artículo IX de este Tratado, tendrá derecho a designar observadores para llevar a cabo las inspecciones previstas en el presente Artículo. Los observadores serán nacionales de la Parte Contratante que los designa. Sus nombres se comunicarán a cada una de las demás Partes Contratantes que tienen derecho a designar observadores, y se les dará igual aviso cuando cesen en sus funciones.

2. Todos los observadores designados de conformidad con las disposiciones del párrafo 1 de este Artículo gozarán de entera libertad de acceso, en cualquier momento, a cada una y a todas las regiones de la Antártida.

3. Todas las regiones de la Antártida, y todas las estaciones, instalaciones y equipos que allí se encuentren, así como todos los navíos y aeronaves, en los puntos de embarque y desembarque de personal o de carga en la Antártida, estarán abiertos en todo momento a la inspección por parte de cualquier observador designado de conformidad con el párrafo 1 de este Artículo.

4. La observación aérea podrá efectuarse, en cualquier momento, sobre cada una y todas las regiones de la Antártida por cualquiera de las Partes Contratantes que estén facultadas a designar observadores.

5. Cada una de las Partes Contratantes, al entrar en vigencia respecto de ella el presente Tratado, informará a las otras Partes Contratantes y, en lo sucesivo, les informará por adelantado sobre:

(a) toda expedición a la Antártida y dentro de la Antártida en la que participen sus navíos o nacionales, y sobre todas las expediciones a la Antártida que se organicen o partan de su territorio;

(b) todas las estaciones en la Antártida ocupadas por sus nacionales, y

(c) todo personal o equipo militares que se proyecte introducir en la Antártida, con sujeción a las disposiciones del párrafo 2 del Artículo I del presente Tratado.

ARTICULO VIII

1. Con el fin de facilitarles el ejercicio de las funciones que les otorga el presente Tratado, y sin perjuicio de las respectivas posiciones de las Partes Contratantes, en lo que concierne a la jurisdicción sobre todas las demás personas en la Antártida, los observadores designados de acuerdo con el párrafo 1 del Artículo VII y el personal científico intercambiado de acuerdo con el subpárrafo 1(b) del Artículo III del Tratado, así como los miembros del personal acompañante de dichas personas, estarán sometidos sólo a la jurisdicción de la Parte Contratante de la cual sean nacionales, en lo referente a las acciones u omisiones que tengan lugar mientras se encuentren en la Antártida con el fin de ejercer sus funciones.

2. Sin perjuicio de las disposiciones del párrafo 1 de este Artículo, y en espera de la adopción de medidas expresadas en el subpárrafo 1(e) del Artículo IX, las Partes Contratantes, implicadas en cualquier controversia con respecto al ejercicio de la jurisdicción en la Antártida, se consultarán inmediatamente con el ánimo de alcanzar una solución mutuamente aceptable.

ARTICULO IX

1. Los representantes de las Partes Contratantes, nombradas en el preámbulo del presente Tratado, se reunirán en la ciudad de Canberra dentro de los dos meses después de la entrada en vigencia del presente Tratado y, en adelante, a intervalos y en lugares apropiados, con el fin de intercambiar informaciones, consultarse mutuamente sobre asuntos de interés común relacionados con la Antártida, y formular, considerar y recomendar a sus Gobiernos medidas para promover los principios y objetivos del presente Tratado, inclusive medidas relacionadas con:

(a) uso de la Antártida para fines exclusivamente pacíficos;

(b) facilidades para la investigación científica en la Antártida;

(c) facilidades para la cooperación científica internacional en la Antártida;

(d) facilidades para el ejercicio de los derechos de inspección previstos en el Artículo VII del presente Tratado;

(e) cuestiones relacionadas con el ejercicio de la jurisdicción en la Antártida;

(f) protección y conservación de los recursos vivos de la Antártida.

2. Cada una de las Partes Contratantes que haya llegado a ser Parte del presente Tratado por adhesión, conforme al Artículo XIII, tendrá derecho a nombrar representantes que participarán en las reuniones mencionadas en el párrafo 1 del presente Artículo, mientras dicha Parte Contratante demuestre su interés en la Antártida

mediante la realización en ella de investigaciones científicas importantes, como el establecimiento de una estación científica o el envío de una expedición científica.

3. Los informes de los observadores mencionados en el Artículo VII del presente Tratado serán transmitidos a los representantes de las Partes Contratantes que participen en las reuniones a que se refiere el párrafo 1 del presente Artículo.

4. Las medidas contempladas en el párrafo 1 de este Artículo entrarán en vigencia cuando las aprueben todas las Partes Contratantes, cuyos representantes estuvieron facultados a participar en las reuniones que se celebraron para considerar esas medidas.

5. Cualquiera o todos los derechos establecidos en el presente Tratado podrán ser ejercidos desde la fecha de su entrada en vigencia, ya sea que las medidas para facilitar el ejercicio de tales derechos hayan sido o no propuestas, consideradas o aprobadas conforme a las disposiciones de este Artículo.

ARTICULO X

Cada una de las Partes Contratantes se compromete a hacer los esfuerzos apropiados, compatibles con la Carta de las Naciones Unidas, con el fin de que nadie lleve a cabo en la Antártida ninguna actividad contraria a los propósitos y principios del presente Tratado.

ARTICULO XI

1. En caso de surgir una controversia entre dos o más de las Partes Contratantes, concerniente a la interpretación o a la aplicación del presente Tratado, dichas Partes Contratantes se consultarán entre sí con el propósito de resolver la controversia por

negociación, investigación, mediación, conciliación, arbitraje, decisión judicial u otros medios pacíficos, a su elección.

2. Toda controversia de esa naturaleza, no resuelta por tales medios, será referida a la Corte Internacional de Justicia, con el consentimiento, en cada caso, de todas las partes en controversia, para su resolución; pero la falta de acuerdo para referirla a la Corte Internacional de Justicia no dispensará a las partes en controversia de la responsabilidad de seguir buscando una solución por cualquiera de los diversos medios pacíficos contemplados en el párrafo 1 de este Artículo.

ARTICULO XII

1. (a) El presente Tratado podrá ser modificado o enmendado, en cualquier momento, con el consentimiento unánime de las Partes Contratantes, cuyos representantes estén facultados a participar en las reuniones previstas en el Artículo IX. Tal modificación o tal enmienda entrará en vigencia cuando el Gobiernc depositario haya sido notificado por la totalidad de dichas Partes Contratantes de que las han ratificado.

(b) Subsiguientemente, tal modificación o tal enmienda entrará en vigencia, para cualquier otra Parte Contratante, cuando el Gobierno depositario haya recibido aviso de su ratificación. Si no se recibe aviso de ratificación de dicha Parte Contratante dentro del plazo de dos años, contados desde la fecha de entrada en vigencia de la modificación o enmienda, en conformidad con lo dispuesto en el subpárrafo 1(a) de este Artículo, se la considerará como habiendo dejado de ser Parte del presente Tratado en la fecha de vencimiento de tal plazo.

2. (a) Si después de expirados treinta años, contados desde la fecha de entrada en vigencia del presente Tratado, cualquiera de las Partes Contratantes, cuyos representantes estén facultados a participar en las reuniones previstas en el Artículo IX, así lo solicita, mediante una comunicación dirigida al Gobierno depositario, se celebrará. en el menor plazo posible, una Conferencia de todas las Partes Contratantes para revisar el funcionamiento del presente Tratado.

(b) Toda modificación o toda enmienda al presente Tratado, aprobada en tal Conferencia por la mayoría de las Partes Contratantes en ella representadas, incluyendo la mayoría de aquéllas cuyos representantes están facultados a participar en las reuniones previstas en el Artículo IX, se comunicará a todas las Partes Contratantes por el Gobierno depositario, inmediatamente después de finalizar la Conferencia, y entrará en vigencia de conformidad con lo dispuesto en el párrafo 1 del presente Artículo.

(c) Si tal modificación o tal enmienda no hubiere entrado en vigencia, de conformidad con lo dispuesto en el subpárrafo 1(a) de este Artículo, dentro de un período de dos años, contados desde la fecha de su comunicación a todas las Partes Contratantes, cualquiera de las Partes Contratantes podrá, en cualquier momento, después de la expiración de dicho plazo, informar al Gobierno depositario que ha dejado de ser parte del presente Tratado, y dicho retiro tendrá efecto dos años después que el Gobierno depositario haya recibido esta notificación.

ARTICULO XIII

1. El presente Tratado estará sujeto a la ratificación por parte de los Estados signatarios. Quedará abierto a la adhesión de cualquier Estado que sea miembro de las Naciones Unidas, o de cualquier otro Estado que pueda ser invitado a adherirse al Tratado con el consentimiento de todas las Partes Contratantes cuyos representantes estén facultados a participar en las reuniones previstas en el Artículo IX del Tratado.

2. La ratificación del presente Tratado o la adhesión al mismo será efectuada por cada Estado de acuerdo con sus procedimientos constitucionales.

3. Los instrumentos de ratificación y los de adhesión serán depositados ante el Gobierno de los Estados Unidos de América, que será el Gobierno depositario.

4. El Gobierno depositario informará a todos los Estados signatarios y adherentes sobre la fecha de depósito de cada instrumento de ratificación o de adhesión y sobre la fecha de entrada en vigencia del Tratado y de cualquier modificación o enmienda al mismo.

5. Una vez depositados los instrumentos de ratificación por todos los Estados signatarios, el presente Tratado entrará en vigencia para dichos Estados y para los Estados que hayan depositado sus instrumentos de adhesión. En lo sucesivo, el Tratado entrará en vigencia para cualquier Estado adherente una vez que deposite su instrumento de adhesión.

6. El presente Tratado será registrado por el Gobierno depositario conforme al Artículo 102 de la Carta de las Naciones Unidas.

ARTICULO XIV

El presente Tratado, hecho en los idiomas inglés, francés, ruso y español, siendo cada uno de estos textos igualmente auténtico, será depositado en los Archivos del Gobierno de los Estados Unidos de América, el que enviará copias debidamente certificadas del mismo a los Gobiernos de los Estados signatarios y de los adherentes.

IN WITNESS WHEREOF, the undersigned Plenipotentiaries, duly authorized, have signed the present Treaty.

DONE at Washington this first day of December, one thousand nine hundred and fifty-nine.

EN FOI DE QUOI, les Plénipotentiaires soussignés, dûment autorisés, ont apposé leur signature au présent Traité.

FAIT à Washington le premier décembre mille neuf cent cinquante-neuf.

В УДОСТОВЕРЕНИЕ ЧЕГО Полномочные представители, должным образом на то уполномоченные, подписали настоящий Договор.

СОВЕРШЕНО в городе Вашингтоне, декабря первого дня тысяча девятьсот пятьдесят девятого года.

EN TESTIMONIO DE LO CUAL, los infrascritos Plenipotenciarios, debidamente autorizados, suscriben el presente Tratado.

HECHO en Washington, el primer día del mes de diciembre de mil novecientos cincuenta y nueve.

FOR ARGENTINA:
POUR L'ARGENTINE:
ЗА АРГЕНТИНУ:
POR LA ARGENTINA:

FOR AUSTRALIA:
POUR L'AUSTRALIE:
ЗА АВСТРАЛИЮ:
POR AUSTRALIA:

Howard Beale.

FOR BELGIUM:
POUR LA BELGIQUE:
ЗА БЕЛЬГИЮ:
POR BELGICA:

FOR CHILE:
POUR LE CHILI:
ЗА ЧИЛИ:
POR CHILE:

FOR THE FRENCH REPUBLIC:
POUR LA REPUBLIQUE FRANCAISE:
ЗА ФРАНЦУЗСКУЮ РЕСПУБЛИКУ:
POR LA REPUBLICA FRANCESA:

FOR JAPAN:
POUR LE JAPON:
ЗА ЯПОНИЮ:
POR JAPON:

FOR NEW ZEALAND:
POUR LA NOUVELLE-ZELANDE:
ЗА НОВУЮ ЗЕЛАНДИЮ:
POR NUEVA ZELANDIA:

FOR NORWAY
POUR LA NORVEGE:
ЗА НОРВЕГИЮ:
POR NORUEGA:

FOR THE UNION OF SOUTH AFRICA:
POUR L'UNION SUD-AFRICAINE:
ЗА ЮЖНО-АФРИКАНСКИЙ СОЮЗ:
POR LA UNION DEL AFRICA DEL SUR:

FOR THE UNION OF SOVIET SOCIALIST REPUBLICS:
POUR L'UNION DES REPUBLIQUES SOCIALISTES SOVIETIQUES:
ЗА СОЮЗ СОВЕТСКИХ СОЦИАЛИСТИЧЕСКИХ РЕСПУБЛИК:
POR LA UNION DE REPUBLICAS SOCIALISTAS SOVIENTICAS:

В. Кузнецов

FOR THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND:
POUR LE ROYAUME-UNI DE GRANDE-BRETAGNE ET D'IRLANDE DU NORD:
ЗА СОЕДИНЕННОЕ КОРОЛЕСТВО ВЕЛИКОБРИТАНИИ И СЕВЕРНОЙ ИРЛАНДИИ:
POR EL REINO UNIDO DE GRAN BRETANA E IRLANDA DEL NORTE:

Harold Caccia

FOR THE UNITED STATES OF AMERICA:
POUR LES ETATS-UNIS D'AMERIQUE:
ЗА СОЕДИНЕННЫЕ ШТАТЫ АМЕРИКИ:
POR LOS ESTADOS UNIDOS DE AMERICA:

Herman Pfleger,

Paul C. Daniels

I CERTIFY THAT the foregoing is a true copy of the Antarctic Treaty signed at Washington on December 1, 1959 in the English, French, Russian, and Spanish languages, the signed original of which is deposited in the archives of the Government of the United States of America.

IN TESTIMONY WHEREOF, I, CHRISTIAN A. HERTER, Secretary of State of the United States of America, have hereunto caused the seal of the Department of State to be affixed and my name subscribed by the Authentication Officer of the said Department, at the city of Washington, in the District of Columbia, this second day of December, 1959.

_____
Secretary of State

By _____
Authentication Officer
Department of State

GPO 88 5308

APPENDIX 3
PROTOCOL ON ENVIRONMENTAL PROTECTION

PROTOCOL ON ENVIRONMENTAL PROTECTION TO THE ANTARCTIC TREATY.

PREAMBLE

The States Parties to this Protocol to the Antarctic Treaty, hereinafter referred to as the Parties,

Convinced of the need to enhance the protection of the Antarctic environment and dependent and associated ecosystems;

Convinced of the need to strengthen the Antarctic Treaty system so as 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;

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;

Recalling the designation of Antarctica as a Special Conservation Area and other measures adopted under the Antarctic Treaty system to protect the Antarctic environment and dependent and associated ecosystems;

Acknowledging further the unique opportunities Antarctica offers for scientific monitoring of and research on processes of global as well as regional importance;

Reaffirming the conservation principles of the Convention on the Conservation of Antarctic Marine Living Resources;

Convinced that the development of a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole;

Desiring to supplement the Antarctic Treaty to this end;

Have agreed as follows:

ARTICLE 1
DEFINITIONS

For the purposes of this Protocol:

(a) "The Antarctic Treaty" means the Antarctic Treaty done at Washington on 1 December 1959;
(b) "Antarctic Treaty area" means the area to which the provisions of the Antarctic Treaty apply in accordance with Article VI of that Treaty;
(c) "Antarctic Treaty Consultative Meetings" means the meetings referred to in Article IX of the Antarctic Treaty;
(d) "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;
(e) "Antarctic Treaty system" means the Antarctic Treaty, the measures in effect under that Treaty, its associated separate international instruments in force and the measures in effect under those instruments;
(f) "Arbitral Tribunal" means the Arbitral Tribunal established in accordance with the Schedule to this Protocol, which forms an integral part thereof;
(g) "Committee" means the Committee for Environmental Protection established in accordance with Article 11.

ARTICLE 2
OBJECTIVE AND DESIGNATION

The Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science.

ARTICLE 3
ENVIRONMENTAL PRINCIPLES

1. 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, in particular research essential to understanding the global environment, shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area.

2. To this end:

(a) activities in the Antarctic Treaty area shall be planned and conducted so as to limit adverse impacts on the Antarctic environment and dependent and associated ecosystems;
(b) activities in the Antarctic Treaty area shall be planned and conducted so as to avoid:
    (i) adverse effects on climate or weather patterns;
    (ii) significant adverse effects on air or water quality;

(iii) significant changes in the atmospheric, terrestrial (including aquatic), glacial or marine environments;

(iv) detrimental changes in the distribution, abundance or productivity of species or populations of species of fauna and flora;

(v) further jeopardy to endangered or threatened species or populations of such species; or

(vi) degradation of, or substantial risk to, areas of biological, scientific, historic, aesthetic or wilderness significance;

(c) activities in the Antarctic Treaty area shall be planned and conducted on the basis of information sufficient to allow prior assessments of, and informed judgments about, their possible impacts on the Antarctic environment and dependent and associated ecosystems and on the value of Antarctica for the conduct of scientific research; such judgments shall take account of:

(i) the scope of the activity, including its area, duration and intensity;

(ii) the cumulative impacts of the activity, both by itself and in combination with other activities in the Antarctic Treaty area;

(iii) whether the activity will detrimentally affect any other activity in the Antarctic Treaty area;

(iv) whether technology and procedures are available to provide for environmentally safe operations;

(v) whether there exists the capacity to monitor key environmental parameters and ecosystem components so as to identify and provide early warning of any adverse effects of the activity and to provide for such modification of operating procedures as may be necessary in the light of the results of monitoring or increased knowledge of the Antarctic environment and dependent and associated ecosystems; and

(vi) whether there exists the capacity to respond promptly and effectively to accidents, particularly those with potential environmental effects;

(d) regular and effective monitoring shall take place to allow assessment of the impacts of ongoing activities, including the verification of predicted impacts;

(e) regular and effective monitoring shall take place to facilitate early detection of the possible unforeseen effects of activities carried on both within and outside the Antarctic Treaty area on the Antarctic environment and dependent and associated ecosystems.

3. 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, including research essential to understanding the global environment.

4. Activities undertaken in the Antarctic Treaty area pursuant to scientific research programmes, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area for which advance notice is required in accordance with Article VII (5) of the Antarctic Treaty, including associated logistic support activities, shall:

(a) take place in a manner consistent with the principles in this Article; and
(b) be modified, suspended or cancelled if they result in or threaten to result in impacts upon the Antarctic environment or dependent or associated ecosystems inconsistent with those principles.

ARTICLE 4
RELATIONSHIP WITH THE OTHER COMPONENTS OF THE ANTARCTIC TREATY SYSTEM

1. This Protocol shall supplement the Antarctic Treaty and shall neither modify nor amend that Treaty.

2. Nothing in this Protocol shall derogate from the rights and obligations of the Parties to this Protocol under the other international instruments in force within the Antarctic Treaty system.

ARTICLE 5
CONSISTENCY WITH THE OTHER COMPONENTS OF THE ANTARCTIC TREATY SYSTEM

The Parties shall consult and co-operate with the Contracting Parties to the other international instruments in force within the Antarctic Treaty system and their respective institutions with a view to ensuring the achievement of the objectives and principles of this Protocol and avoiding any interference with the achievement of the objectives and principles of those instruments or any inconsistency between the implementation of those instruments and of this Protocol.

ARTICLE 6
CO-OPERATION

1. The Parties shall co-operate in the planning and conduct of activities in the Antarctic Treaty area. To this end, each Party shall endeavour to:

(a) promote co-operative programmes of scientific, technical and educational value, concerning the protection of the Antarctic environment and dependent and associated ecosystems;
(b) provide appropriate assistance to other Parties in the preparation of environmental impact assessments;
(c) provide to other Parties upon request information relevant to any potential environmental risk and assistance to minimize the effects of accidents which may damage the Antarctic environment or dependent and associated ecosystems;
(d) consult with other Parties with regard to the choice of sites for prospective stations and other facilities so as to avoid the cumulative impacts caused by their excessive concentration in any location;
(e) where appropriate, undertake joint expeditions and share the use of stations and other facilities; and
(f) carry out such steps as may be agreed upon at Antarctic Treaty Consultative Meetings.

2. Each Party undertakes, to the extent possible, to share information that may be helpful to other Parties in planning and conducting their activities in the Antarctic Treaty area, with a view to the protection of the Antarctic environment and dependent and associated ecosystems.

3. The Parties shall co-operate with those Parties which may exercise jurisdiction in areas adjacent to the Antarctic Treaty area with a view to ensuring that activities in the Antarctic Treaty area do not have adverse environmental impacts on those areas.

ARTICLE 7
PROHIBITION OF MINERAL RESOURCE ACTIVITIES

Any activity relating to mineral resources, other than scientific research, shall be prohibited.

ARTICLE 8
ENVIRONMENTAL IMPACT ASSESSMENT

1. Proposed activities referred to in paragraph 2 below shall be subject to the procedures set out in Annex I for prior assessment of the impacts of those activities on the Antarctic environment or on dependent or associated ecosystems according to whether those activities are identified as having:

(a) less than a minor or transitory impact;
(b) a minor or transitory impact; or
(c) more than a minor or transitory impact.

2. 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 programmes, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area for which advance notice is required under Article VII (5) of the Antarctic Treaty, including associated logistic support activities.

3. The assessment procedures set out in Annex I shall apply to any change in an activity whether the change arises from an increase or decrease in the intensity of an existing activity, from the addition of an activity, the decommissioning of a facility, or otherwise.

4. Where activities are planned jointly by more than one Party, the Parties involved shall nominate one of their number to coordinate the implementation of the environmental impact assessment procedures set out in Annex I.

ARTICLE 9
ANNEXES

1. The Annexes to this Protocol shall form an integral part thereof.

2. Annexes, additional to Annexes I-IV, may be adopted and become effective in accordance with Article IX of the Antarctic Treaty.

3. Amendments and modifications to Annexes may be adopted and become effective in accordance with Article IX of the Antarctic Treaty, provided that any Annex may itself make provision for amendments and modifications to become effective on an accelerated basis.

4. Annexes and any amendments and modifications thereto which have become effective in accordance with paragraphs 2 and 3 above shall, unless an Annex itself provides otherwise in respect of the entry into effect of any amendment or modification thereto, become effective for a Contracting Party to the Antarctic Treaty which is not an Antarctic Treaty Consultative Party, or which was not an Antarctic Treaty Consultative Party at the time of the adoption, when notice of approval of that Contracting Party has been received by the Depository.

5. Annexes shall, except to the extent that an Annex provides otherwise, be subject to the procedures for dispute settlement set out in Articles 18 to 20.

ARTICLE 10
ANTARCTIC TREATY CONSULTATIVE MEETINGS

1. Antarctic Treaty Consultative Meetings shall, drawing upon the best scientific and technical advice available:
   (a) define, in accordance with the provisions of this Protocol, the general policy for the comprehensive protection of the Antarctic environment and dependent and associated ecosystems; and
   (b) adopt measures under Article IX of the Antarctic Treaty for the implementation of this Protocol.

2. Antarctic Treaty Consultative Meetings shall review the work of the Committee and shall draw fully upon its advice and recommendations in carrying out the tasks referred to in paragraph 1 above, as well as upon the advice of the Scientific Committee on Antarctic Research.

ARTICLE 11
COMMITTEE FOR ENVIRONMENTAL PROTECTION

1. There is hereby established the Committee for Environmental Protection.

2. Each Party shall be entitled to be a member of the Committee and to appoint a

representative who may be accompanied by experts and advisers.

3. Observer status in the Committee shall be open to any Contracting Party to the Antarctic Treaty which is not a Party to this Protocol.

4. The Committee shall invite the President of the Scientific Committee on Antarctic Research and the Chairman of the Scientific Committee for the Conservation of Antarctic Marine Living Resources to participate as observers at its sessions. The Committee may also, with the approval of the Antarctic Treaty Consultative Meeting, invite such other relevant scientific, environmental and technical organisations which can contribute to its work to participate as observers at its sessions.

5. The Committee shall present a report on each of its sessions to the Antarctic Treaty Consultative Meeting. The report shall cover all matters considered at the session and shall reflect the views expressed. The report shall be circulated to the Parties and to observers attending the session, and shall thereupon be made publicly available.

6. The Committee shall adopt its rules of procedure which shall be subject to approval by the Antarctic Treaty Consultative Meeting.

ARTICLE 12
FUNCTIONS OF THE COMMITTEE

1. The functions of the Committee shall be to provide advice and formulate recommendations to the Parties in connection with the implementation of this Protocol, including the operation of its Annexes, for consideration at Antarctic Treaty Consultative Meetings, and to perform such other functions as may be referred to it by the Antarctic Treaty Consultative Meetings. In particular, it shall provide advice on:

(a) the effectiveness of measures taken pursuant to this Protocol;
(b) the need to update, strengthen or otherwise improve such measures;
(c) the need for additional measures, including the need for additional Annexes, where appropriate;
(d) the application and implementation of the environmental impact assessment procedures set out in Article 8 and Annex I;
(e) means of minimising or mitigating environmental impacts of activities in the Antarctic Treaty area;
(f) procedures for situations requiring urgent action, including response action in environmental emergencies;
(g) the operation and further elaboration of the Antarctic Protected Area system;
(h) inspection procedures, including formats for inspection reports and checklists for the conduct of inspections;
(i) the collection, archiving, exchange and evaluation of information related to environmental protection;
(j) the state of the Antarctic environment; and
(k) the need for scientific research, including environmental monitoring, related to the implementation of this Protocol.

2. In carrying out its functions, the Committee shall, as appropriate, consult with the Scientific Committee on Antarctic Research, the Scientific Committee for the Conservation of Antarctic Marine Living Resources and other relevant scientific, environmental and technical organizations.

ARTICLE 13
COMPLIANCE WITH THIS PROTOCOL

1. Each Party shall take appropriate measures within its competence, including the adoption of laws and regulations, administrative actions and enforcement measures, to ensure compliance with this Protocol.

2. Each Party shall exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity contrary to this Protocol.

3. Each Party shall notify all other Parties of the measures it takes pursuant to paragraphs 1 and 2 above.

4. Each Party shall draw the attention of all other Parties to any activity which in its opinion affects the implementation of the objectives and principles of this Protocol.

5. The Antarctic Treaty Consultative Meetings shall draw the attention of any State which is not a Party to this Protocol to any activity undertaken by that State, its agencies, instrumentalities, natural or juridical persons, ships, aircraft or other means of transport which affects the implementation of the objectives and principles of this Protocol.

ARTICLE 14
INSPECTION

1. In order to promote the protection of the Antarctic environment and dependent and associated ecosystems, and to ensure compliance with this Protocol, the Antarctic Treaty Consultative Parties shall arrange, individually or collectively, for inspections by observers to be made in accordance with Article VII of the Antarctic Treaty.

2. Observers are:

   (a) observers designated by any Antarctic Treaty Consultative Party who shall be nationals of that Party; and

   (b) any observers designated at Antarctic Treaty Consultative Meetings to carry out inspections under procedures to be established by an Antarctic Treaty Consultative Meeting.

3. Parties shall co-operate fully with observers undertaking inspections, and shall ensure that during inspections, observers are given access to all parts of stations, installations, equipment, ships and aircraft open to inspection under Article VII (3) of the Antarctic Treaty, as well as to all records maintained thereon which are called for

pursuant to this Protocol.

4. Reports of inspections shall be sent to the Parties whose stations, installations, equipment, ships or aircraft are covered by the reports. After those Parties have been given the opportunity to comment, the reports and any comments thereon shall be circulated to all the Parties and to the Committee, considered at the next Antarctic Treaty Consultative Meeting, and thereafter made publicly available.

ARTICLE 15
EMERGENCY RESPONSE ACTION

1. In order to respond to environmental emergencies in the Antarctic Treaty area, each Party agrees to:
   (a) provide for prompt and effective response action to such emergencies which might arise in the performance of scientific research programmes, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area for which advance notice is required under Article VII (5) of the Antarctic Treaty, including associated logistic support activities; and
   (b) establish contingency plans for response to incidents with potential adverse effects on the Antarctic environment or dependent and associated ecosystems.

2. To this end, the Parties shall:
   (a) co-operate in the formulation and implementation of such contingency plans; and
   (b) establish procedures for immediate notification of, and co-operative response to, environmental emergencies.

3. In the implementation of this Article, the Parties shall draw upon the advice of the appropriate international organisations.

ARTICLE 16
LIABILITY

Consistent with the objectives of this Protocol for the comprehensive protection of the Antarctic environment and dependent and associated ecosystems, the Parties undertake to elaborate rules and procedures relating to liability for damage arising from activities taking place in the Antarctic Treaty area and covered by this Protocol. Those rules and procedures shall be included in one or more Annexes to be adopted in accordance with Article 9 (2).

ARTICLE 17
ANNUAL REPORT BY PARTIES

1. Each Party shall report annually on the steps taken to implement this Protocol. Such reports shall include notifications made in accordance with Article 13 (3), contingency plans established in accordance with Article 15 and any other notifications

and information called for pursuant to this Protocol for which there is no other provision concerning the circulation and exchange of information.

2. Reports made in accordance with paragraph 1 above shall be circulated to all Parties and to the Committee, considered at the next Antarctic Treaty Consultative Meeting, and made publicly available.

ARTICLE 18
DISPUTE SETTLEMENT

If a dispute arises concerning the interpretation or application of this Protocol, 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, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means to which the parties to the dispute agree.

ARTICLE 19
CHOICE OF DISPUTE SETTLEMENT PROCEDURE

1. Each Party, when signing, ratifying, accepting, approving or acceding to this Protocol, 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 Articles 7, 8 and 15 and, except to the extent that an Annex provides otherwise, the provisions of any Annex and, insofar as it relates to these Articles and provisions, Article 13:

(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 18 and Article 20 (2).

3. A Party which 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 three 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 20
DISPUTE SETTLEMENT PROCEDURE

1. If the parties to a dispute concerning the interpretation or application of Articles 7, 8 or 15 or, except to the extent that an Annex provides otherwise, the provisions of any Annex or, insofar as it relates to these Articles and provisions, Article 13, have not agreed on a means for resolving it within 12 months of the request for consultation pursuant to Article 18, the dispute shall be referred, at the request of any party to the dispute, for settlement in accordance with the procedure determined by Article 19 (4) and (5).

2. The Arbitral Tribunal shall not be competent to decide or rule upon any matter within the scope of Article IV of the Antarctic Treaty. In addition, nothing in this Protocol 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 IV of the Antarctic Treaty.

ARTICLE 21
SIGNATURE

This Protocol shall be open for signature at Madrid on the 4th of October 1991 and thereafter at Washington until the 3rd of October 1992 by any State which is a Contracting Party to the Antarctic Treaty.

ARTICLE 22
RATIFICATION, ACCEPTANCE, APPROVAL OR ACCESSION

1. This Protocol is subject to ratification, acceptance or approval by signatory States.

2. After the 3rd of October 1992 this Protocol 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 the United States of America, hereby designated as the Depositary.

4. After the date on which this Protocol has entered into force, the Antarctic Treaty

Consultative Parties shall not act upon a notification regarding the entitlement of a Contracting Party to the Antarctic Treaty to appoint representatives to participate in Antarctic Treaty Consultative Meetings in accordance with Article IX (2) of the Antarctic Treaty unless that Contracting Party has first ratified, accepted, approved or acceded to this Protocol.

ARTICLE 23
ENTRY INTO FORCE

1. This Protocol shall enter into force on the thirtieth day following the date of deposit of instruments of ratification, acceptance, approval or accession by all States which are Antarctic Treaty Consultative Parties at the date on which this Protocol is adopted.

2. For each Contracting Party to the Antarctic Treaty which, subsequent to the date of entry into force of this Protocol, deposits an instrument of ratification, acceptance, approval or accession, this Protocol shall enter into force on the thirtieth day following such deposit.

ARTICLE 24
RESERVATIONS

Reservations to this Protocol shall not be permitted.

ARTICLE 25
MODIFICATION OR AMENDMENT

1. Without prejudice to the provisions of Article 9, this Protocol may be modified or amended at any time in accordance with the procedures set forth in Article XII (1) (a) and (b) of the Antarctic Treaty.

2. If, after the expiration of 50 years from the date of entry into force of this Protocol, any of the Antarctic Treaty Consultative Parties so requests by a communication addressed to the Depositary, a conference shall be held as soon as practicable to review the operation of this Protocol.

3. A modification or amendment proposed at any Review Conference called pursuant to paragraph 2 above shall be adopted by a majority of the Parties, including 3/4 of the States which are Antarctic Treaty Consultative Parties at the time of adoption of this Protocol.

4. A modification or amendment adopted pursuant to paragraph 3 above shall enter into force upon ratification, acceptance, approval or accession by 3/4 of the Antarctic Treaty Consultative Parties, including ratification, acceptance, approval or accession by all States which are Antarctic Treaty Consultative Parties at the time of adoption of this

Protocol.

5. (a) With respect to Article 7, the prohibition on Antarctic mineral resource activities contained therein shall continue unless there is in force a binding legal regime on Antarctic mineral resource activities that includes an agreed means for determining whether, and, if so, under which conditions, any such activities would be acceptable. This regime shall fully safeguard the interests of all States referred to in Article IV of the Antarctic Treaty and apply the principles thereof. Therefore, if a modification or amendment to Article 7 is proposed at a Review Conference referred to in paragraph 2 above, it shall include such a binding legal regime.

(b) If any such modification or amendment has not entered into force within 3 years of the date of its adoption, any Party may at any time thereafter notify to the Depositary of its withdrawal from this Protocol, and such withdrawal shall take effect 2 years after receipt of the notification by the Depositary.

ARTICLE 26
NOTIFICATIONS BY THE DEPOSITARY

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

(a) signatures of this Protocol and the deposit of instruments of ratification, acceptance, approval or accession;
(b) the date of entry into force of this Protocol and any additional Annex thereto;
(c) the date of entry into force of any amendment or modification to this Protocol;
(d) the deposit of declarations and notices pursuant to Article 19; and
(e) any notification received pursuant to Article 25 (5) (b).

ARTICLE 27
AUTHENTIC TEXTS AND REGISTRATION WITH THE UNITED NATIONS

1. This Protocol, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to all Contracting Parties to the Antarctic Treaty.

2. This Protocol shall be registered by the Depositary pursuant to Article 102 of the Charter of the United Nations.

SCHEDULE TO THE PROTOCOL

ARBITRATION

Article 1

1. The Arbitral Tribunal shall be constituted and shall function in accordance with the Protocol, including this Schedule.

2. The Secretary referred to in this Schedule is the Secretary General of the Permanent Court of Arbitration.

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 the Protocol for that Party. Each Arbitrator shall be experienced in Antarctic affairs, have thorough knowledge of international law and enjoy 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. A Party which designated an Arbitrator may withdraw the name of that Arbitrator from the list. If an Arbitrator dies 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 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 the Arbitral Tribunal.

4. The 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. This appointment shall be included in the notification referred to in Article 4.
   (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.
   (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.

The third Arbitrator shall not be either a national of a party to the dispute, or a person designated for the list referred to in Article 2 by a party to the dispute, or of the same nationality as either of the first two Arbitrators. The third Arbitrator shall be the Chairperson 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 and subject to the conditions prescribed in subparagraphs (b) and (c) above. In performing the functions accorded him or her in this subparagraph, the President of the Court shall consult the parties to the dispute.

(e) If the President of the International Court of Justice is unable to perform the functions accorded him or her 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 any dispute involving more than two Parties, those Parties having the same interest shall appoint one Arbitrator by agreement within the period specified in paragraph l (b) above.

Article 4

The party to the dispute commencing proceedings shall so notify the other party or parties to the dispute and the 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 Secretary to all Parties.

Article 5

1. Unless the parties to the dispute agree otherwise, arbitration shall take place at The Hague, 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 the Protocol, 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 the dispute shall comply promptly with any provisional measures prescribed under paragraph 1 (b) above pending an award under Article 10.

3. Notwithstanding the time period in Article 20 of the Protocol, a party to a dispute may at any time, by notification to the other party or parties to the dispute and to the Secretary in accordance with Article 4, 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, 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 Chairperson.

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 18, 19 and 20 of the Protocol.

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, on the basis of the provisions of the Protocol and other applicable rules and principles of international law that are not incompatible with such provisions, decide 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 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, shall be made by a majority of the Arbitrators who may not abstain from voting.

Article 13

1. This Schedule may be amended or modified by a measure adopted in accordance with Article IX (1) of the Antarctic Treaty. Unless the measure specifies otherwise, the amendment or modification shall be deemed to have been approved, and shall become effective, one year after the close of the Antarctic Treaty Consultative Meeting at which it was adopted, unless one or more of the Antarctic Treaty Consultative Parties notifies the Depositary, within that time period, that it wishes an extension of that period or that it is unable to approve the measure.

2. Any amendment or modification of this Schedule which becomes effective in accordance with paragraph 1 above shall thereafter become effective as to any other Party

when notice of approval by it has been received by the Depositary.

APPENDIX 4
ENVIRONMENTAL MANAGEMENT TOOLS

Tool	Description
Strategic environmental assessment	A systematic process for evaluating the environmental consequences of proposed policy, plan or program initiatives in order to ensure they are fully included and appropriately addressed at the earliest stage of decision making
Strategic planning	A planning process that clarifies mission and values, develops a vision for the future, analyses external challenges and opportunities, assesses internal strengths and weakness, develops strategic goals, develops and evaluates alternative strategies and action plans
Integrated sustainability assessment	An integrated systems analysis and participatory process to develop a shared interpretation among stakeholders of the sustainability of a particular system, to transform these into a shared vision of a sustainable future and to explore various solutions for a transition towards sustainability
Scenario analysis	Tools and methods for the exploration of possible future developments. Scenarios can be defined as coherent descriptions of alterative hypothetical futures that reflect different perspectives on past, present and future developments, which can serve as a basis for action
Risk assessment	Tools and methods for the determination of the quantitative or qualitative value of risk related to a concrete situation (e.g. accidents) or a recognised threat (e.g. chemical substances)
Recreation opportunity spectrum (ROS); Limits of acceptable change (LAC)	Development of standards to achieve a compromise between various types of visitor uses and other natural resource uses, and environmental protection in natural areas by zoning
Indicator inventories	Development of databases or maps of

	resources (e.g. undeveloped areas far from human infrastructure, certain species of wildlife) and footprint analyses of energy consumption or polluting substances (e.g. greenhouse gas emissions of human activities)
Cost-benefit analysis	Tools and methods for the evaluation of expected positive and negative impacts (usually in monetary terms) of a policy or project, which can be used to support or reject proposed actions
Systematic conservation planning	Methodology that assists in the design of a protected areas system that comprehensively represents the biodiversity of each region, through the achievement of well-defined objectives
Life-cycle analysis	Tools and methods to assess the environmental impacts and resources throughout the life of a product or service, including raw material acquisition, production, use and disposal

(Tin et al., 2014, pp. 313)

APPENDIX 5

ANTARCTIC TREATY CONSULTATIVE AND NON-CONSULTATIVE PARTIES

Consultative

Country	Entry into force [1]	Consultative status [2]	Environment Protocol [3]	CCAS [4]	CCAMLR	Web Site [5]
Argentina	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Australia	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Belgium	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Brazil	16 May 1975	27 Sep 1983	14 Jan 1998	✓	✓	
Bulgaria	11 Sep 1978	05 Jun 1998	21 May 1998		✓	
Chile	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
China	08 Jun 1983	07 Oct 1985	14 Jan 1998		✓	
Czech Republic	14 Jun 1962	01 Apr 2014	24 Sep 2004			
Ecuador	15 Sep 1987	19 Nov 1990	14 Jan 1998			
Finland	15 May 1984	20 Oct 1989	14 Jan 1998		✓	
France	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Germany	05 Feb 1979	03 Mar 1981	14 Jan 1998	✓	✓	
India	19 Aug 1983	12 Sep 1983	14 Jan 1998		✓	
Italy	18 Mar 1981	05 Oct 1987	14 Jan 1998	✓	✓	
Japan	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Korea (ROK)	28 Nov 1986	09 Oct 1989	14 Jan 1998		✓	
Netherlands	30 Mar 1967	19 Nov 1990	14 Jan 1998		✓	
New Zealand	23 Jun 1961	23 Jun 1961*	14 Jan 1998		✓	
Norway	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Peru	10 Apr 1981	09 Oct 1989	14 Jan 1998		✓	
Poland	23 Jun 1961	29 Jul 1977	14 Jan 1998	✓	✓	
Russian Federation	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
South Africa	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Spain	31 Mar 1982	21 Sep 1988	14 Jan 1998		✓	
Sweden	24 Apr 1984	21 Sep 1988	14 Jan 1998		✓	
Ukraine	28 Oct 1992	04 Jun 2004	24 Jun 2001		✓	
United Kingdom	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
United States	23 Jun 1961	23 Jun 1961*	14 Jan 1998	✓	✓	
Uruguay	11 Jan 1980	07 Oct 1985	14 Jan 1998		✓	

Non-Consultative

Country	Entry into force [1]	Environment Protocol [3]	CCAS [4]	CCAMLR	Web Site [5]
Austria	25 Aug 1987				
Belarus	27 Dec 2006	15 Aug 2008			
Canada	04 May 1988	13 Dec 2003	✓	✓	
Colombia	31 Jan 1989				
Cuba	16 Aug 1984				
Denmark	20 May 1965				
Estonia	17 May 2001				
Greece	08 Jan 1987	14 Jan 1998		✓	
Guatemala	31 Jul 1991				
Hungary	27 Jan 1984				
Korea (DPRK)	21 Jan 1987				
Malaysia	31 Oct 2011				
Monaco	31 May 2008	31 Jul 2009			
Pakistan	01 Mar 2012	31 Mar 2012		✓	
Papua New Guinea	16 Mar 1981				
Portugal	29 Jan 2010	10 Oct 2014			
Romania	15 Sep 1971	05 Mar 2003			
Slovak Republic	01 Jan 1993				
Switzerland	15 Nov 1990				
Turkey	24 Jan 1996				
Venezuela	24 Mar 1999	31 Aug 2014			

[1] Date on which the Treaty entered into force for the Party. In case of the original Parties, this is the date on which the Treaty first entered into force, 23 June 1961; in case of countries acceding later, it is the date in which they deposited their instrument of accession.

[2] The consultative status of the original parties, which is permanent, dates from the entry into force of the Treaty: 23 June 1961. They are marked by an asterisk *. For the other Parties, the date listed is the date on which the consultative status of the Party was recognized by the ATCM.

[3] Date of the entry into force of the Environment Protocol for that Party. The Protocol first entered into force on 14 January 1998.

[4] Countries Party to CCAS or CCAMLR are indicated with a check mark.

[5] In most cases, the URL is that of the Antarctic programme of the country. Where possible, the website of the authority in charge of Antarctic Treaty matters.

CCAS= Convention for the Conservation of Antarctic Seals.
CCAMLR= Convention for the Conservation of Antarctic Marine Living Resources

(Secretariat of the Antarctic Treaty, 2011b)