The Antarctic Treaty: 1961–1991 and Beyond

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The conclusion of the 'Heroic' era in Antarctic history, when explorers such as Amundsen, Scott and Shackelton had completed major expeditions of discovery to the continent, saw the beginning of a period of intense national rivalry amongst states to assert and maintain their sovereignty claims on the continent. By the late 1940s sovereignty claims in Antarctica had been asserted by Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom. The legal status of these claims however were controversial, with no states outside of the group recognising the validity of the claims, while the Argentinian, Chilian and United Kingdom claims to the Antarctic peninsula overlapped. A further political pressure that was developing in Antarctica was the impact of the Cold War. With the two major Cold War protagonists, the United States and Soviet Union, having substantial historical and scientific interests in Antarctica but without having ever asserted a sovereignty claim, there was a growing fear that Antarctic sovereignty and the strategic and scientific importance of the continent could result in a conflict which would result in the world's greatest natural laboratory being permanently damaged.[1] From this situation of potential conflict during a time of great international tension came the Antarctic Treaty.[2] The Treaty had been negotiated following various initiatives which had received support during the 1957-1958 International Geophysical Year (IGY). This led to the 1959 Washington Conference on Antarctica which eventually saw 12 states sign the final text of the negotiated treaty. When the Treaty entered into force on 23 June 1961, Antarctica was for the first time governed by a specific international law instrument, the first continent to be so completely subject to a legal regime.

The Treaty had been negotiated by those states with the greatest interest in the future of Antarctica. The seven claimant states were present as also were the United States and Soviet Union. Three states who had also developed a substantial scientific interest in Antarctica were also present at the Conference: Belgium, Japan, and South Africa. The Treaty achieved many of the goals of the Confer-

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1 For a general review of the position in Antarctica prior to 1959 see Debenham, F, *Antarctica: The Story of a Continent* (1959); Grenfell Price, A, *The Winning of Australian Antarctica* (1962); Auburn, F M, *The Ross Dependency* (1972); Hatherton, T, "Antarctica prior to the Antarctic Treaty–A Historical Perspective" in *Antarctic Treaty System: An Assessment* (1986).

2 Done at Washington on 1 December 1959, entered into force on 23 June 1961, (1961) 402 *UNTS* 71; following the reunification of the German Democratic Republic and the Federal Republic of Germany there are 39 parties to the Antarctic Treaty and in order of signature or accession they are the UK, South Africa, Belgium, Japan, USA, Norway, France, New Zealand, USSR, Poland, Argentina, Australia, Chile, Czechoslovakia, Denmark, Netherlands, Romania, Germany, Brazil, Bulgaria, Uruguay, Papua New Guinea, Italy, Peru, Spain, People's Republic of China, India, Hungary, Sweden, Finland, Cuba, Republic of Korea, Greece, Democratic People's Republic of Korea, Austria, Ecuador, Canada, Colombia, and Switzerland.

ence: it sought to preserve Antarctica for scientific research, ensured that Antarctica was demilitarized, sought to rid Antarctica of any threat of nuclear weapons and nuclear waste, and ensured that sovereignty claims were respected but could not be vigorously asserted during the term of the treaty. Other features of the Treaty included the expectation that regular meetings of the Treaty parties would take place at which further recommendations could be made for the implementation of measures which affected Antarctica, and the application of the Treaty to not only the Antarctic continent but also ice shelves and the surrounding Southern Ocean up to 60° South. In the concluding provisions of the Treaty dealing with amendment, a mechanism was established whereby a 'Review Conference' could be held after 30 years from the entry into force of the treaty. If any modification or amendment to the Treaty approved at such a Conference did not enter into force within a period of two years then parties could withdraw from the Treaty. The 30 years expired in 1991.

In the 30 years since the Treaty has been in force, it has evolved from a rather simple international law document of only 14 articles seeking to provide a legal regime for a whole continent, into the Antarctic Treaty System (ATS). Through the negotiation of supporting instruments such as the 1964 Agreed Measures for the Protection of Antarctic Flora and Fauna,[3] the 1972 Convention for the Conservation of Antarctic Seals (CCAS)[4] and the 1980 Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)[5] the ATS has been able to confront emerging issues in Antarctic management that were not considered in 1959. However, despite the considerable success of the Treaty, it has come under intense scrutiny during the past decade. Three issues in particular have been discussed. These are the ability of the Treaty to deal with issues of Antarctic resource exploitation, the preservation of the Antarctic environment, and to accommodate the interests of states who were not present at the 1959 Washington Conference and who now wish to play an active role in Antarctic affairs. In 1991 some of these issues seemed to have been resolved with the negotiation of a Protocol to the Antarctic Treaty.[6] The Protocol seeks to impose a ban on mining activities in Antarctica for 50 years while also implementing a new environmental regime for the continent. The negotiation of the Protocol is a significant advance for the ATS but also one which creates new challenges. This article will assess the developments which led to the negotiation of the Antarctic Treaty, the Treaty's provisions and its success to date, and then give some consideration to the current issues confronting the Treaty following the events of 1991.

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3 Reprinted in Bush, W M, *Antarctica and International Law* (vol I, 1982) at 146-160.

4 Done in London on 11 February 1972, entered into force on 11 March 1978, reprinted in (1972) 11 *ILM* 251; the parties to CCAS are Argentina, Australia, Belgium, Chile, France, Germany, Japan, Norway, Poland, South Africa, Sweden, USSR, UK, and USA.

5 Done in Canberra on 20 May 1980, entered into force on 7 April 1982, reprinted in (1980) 19 *ILM* 841; the parties to CCAMLR are Argentina, Australia, Belgium, Brazil, Canada, Chile, Finland, France, Germany, Greece, India, Italy, Japan, Republic of Korea, Netherlands, New Zealand, Norway, Peru, Poland, South Africa, Spain, Sweden, Uruguay, USSR, UK and USA, with the European Economic Community also a party under art29(2).

6 Protocol on Environmental Protection to the Antarctic Treaty, XI ATSCM/2, done in Madrid on 4 October 1991.

I. The Antarctic Treaty: 1961- 1991

A. Early deliberations over an Antarctic Accord

The initial genesis of the Antarctic Treaty can be traced to the conflict which developed between Argentina, Chile and the United Kingdom in the 1940s over their sovereignty claims to the Antarctica Peninsula. In response to this the United States suggested in 1948 that a moratorium be placed on all sovereignty claims and that consideration be given to the continent being administered under a United Nations Trusteeship.[7] While Argentina and the United Kingdom were opposed to any solution which could result in their losing territorial sovereignty, Chile took the proposal further in the 'Escudaro Declaration' which suggested that sovereignty claims be held in abeyance for five years, during which time scientific cooperation would be encouraged.[8] With an initial suggestion having been made for the creation of an international legal regime for the Antarctic more impetus was needed to further encourage negotiation. This came in the form of the IGY and through the preliminary agreements reached prior to the commencement of the scientific projects and the goodwill that developed between the participating states during that time.

While there existed an impetus for negotiation of a settlement to the 'Antarctic Question', it was necessary for some further developments to occur and issues to be resolved before any serious negotiation could begin. Four factors can be identified as being responsible for the push towards the 1959 Washington Conference. First, a tacit agreement developed amongst the seven claimant states that during the IGY they should cooperate in a spirit of scientific friendship and accord, thereby encouraging other Antarctic states to believe that sovereignty disputes could be amicably resolved or at the very least set aside.[9] Second, the New Zealand Prime Minister, Walter Nash, took up the earlier 1948 proposal of the United States and advocated that Antarctica be placed under United Nations Trusteeship.[10] Third, interest was expressed about Antarctica for the first time by states which had till then no record of interest in the continent. India in particular was active in the United Nations, suggesting that the "Question of Antarctica" be placed on the agenda of the General Assembly.[11] Finally, the continuing interests of both the United States and Soviet Union in Antarctica encouraged the seven claimant states to reassess their attitude towards an Antarctic settlement. During the IGY the United States had been able to reassert its influence in Antarctic affairs because of the substantial scientific presence it had on the continent during that time.[12] This was consistent with the interest shown in Antarctica by the United States since 1930 and led to speculation on whether a sovereignty claim would be made by the United States.[13] Soviet interest in Antarctica had been 'reawoken'[14] during the Cold War due to a concern that a 'solution' to

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7 Above n3 (vol III) at 461-468.

8 Above n3 (vol II) at 385; Lovering, J F, and Prescott, J R V, *Last of Lands... Antarctica* (1979) at 153.

9 Hanessian, J, "The Antarctic Treaty 1959" (1960) 9 *ICLQ* 436 at 449.

10 Above n3 (vol III) at 78-79.

11 UN Doc A/3852, 15 July 1958; Brazil, Uruguay, and Peru had also begun to consider whether they could assert Antarctic sovereignty claims, see Hayton, RD, "The Antarctic Settlement of 1959" (1960) 54 *AJIL* 349 at 352, and Hanessian, above n9 at 451-452.

12 Jones, T O, "The Antarctic Treaty", in Quam, L O (ed), *Research in the Antarctic* (1971) at 60.

13 Auburn, F M, *Antarctic Law and Politics* (1982) at 63-65.

14 The Soviet Union had a long historical interest in Antarctica dating from the voyage of

Antarctica's problems could be reached without Soviet participation.[15] The enthusiastic participation by the Soviet Union in the IGY, during which time seven Soviet scientific bases were established in the Australian Antarctic Territory, demonstrated the Soviet intention to play an active role in Antarctic affairs.[16] Further, the launch by the Soviet Union of the Sputnik satellite convinced some Antarctic states of the seriousness of the Soviet challenge and the strategic importance of the continent. In light of all these developments, it was seen that a Treaty which renounced military activities in Antarctica and sought to resolve the problems of Antarctic sovereignty was not only possible but also necessary if the continent was to remain free of the continuing Cold War and maintain the spirit of scientific cooperation which had been established during the IGY.[17]

As a consequence of these developments, a series of informal discussions took place in February and March 1958 amongst those states with an interest in Antarctic affairs. The United States took the initiative during these discussions to put forward a proposal for the development of an Antarctic regime based upon the following principles:

a) free access to Antarctica by all nations interested in carrying out scientific research;

b) the growth of scientific cooperation and exchange of information and data among participating nations;

c) the use of Antarctica for peaceful purposes only;

d) non-militarisation of the area;

e) guaranteed rights of unilateral access and inspection by all participating parties to all parts of Antarctica;

f) the freezing of the legal status, so that no one state need renounce any claims or rights currently held, and;

g) the creation of an administrative unit in which all participating states would have an equal footing.[18]

B. The 1959 Washington Conference

Following these negotiations, President Eisenhower of the United States announced that an invitation had been issued to eleven other countries to attend a Conference to discuss the future of Antarctica. In the lead up to the Conference sixty preparatory meetings were held during an 18 month period. These meetings were instrumental in resolving many of the most debated issues which existed between the claimant states and those with other Antarctic interests and so paved the way for a successful Conference to follow. The issues most discussed during these preparatory meetings were:

a) the strong national feelings of Argentina and Chile towards Antarctica;

Bellingshausen between 1819 and 1821 to the activities of Russian whalers in the late 1940s, see id at 78-79.

15 Lovering and Prescott, above n8 at 154.

16 Hanessian, J, "Antarctica: Current National Interests and Legal Realities" (1959) *Proceedings Am Soc Int'l L* 145 at 157-158.

17 Shapley, D, *The Seventh Continent* (1985) at 90.

18 Above n9 at 456.

b) the reluctance of some nations to accept any proviso for an international administrative body;

c) the opposition by several states to the principle of demilitarisation with its corollaries of inspection and control;

d) the actual zone of application of the treaty;

e) the question of whether provisions to cover economic exploitation should be included in the treaty;

f) and membership of the treaty.[19]

With these preliminary negotiations completed, the Antarctic Conference convened in Washington in October 1959. The United States hosted and chaired the Conference, with delegations from Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, and United Kingdom also attending. At the opening of the Conference, delegates continually expressed the hope that the negotiations would result in an accord being reached for Antarctica which would result in the continent being used only for peaceful purposes, free of political conflict, and open for the conduct of scientific investigations.[20] Once there was mutual acceptance amongst the delegations on the primacy of these goals for an Antarctic accord, the Conference set about negotiating a suitable Treaty.

It was a major achievement that six weeks after the Conference began it concluded on 1 December with the signing by all 12 participants of the Antarctic Treaty. Despite common agreement amongst the delegations on the principles of an Antarctic accord, it must be recalled that serious conflicts of national interest also existed between the various delegations: the United States and Soviet Union were engaged in the Cold War; Argentina, Chile and the United Kingdom were still in conflict over the validity of their Antarctic sovereignty claims; and lesser powers such as Australia, New Zealand, and Norway were anxious to protect their historic claims to the continent. Despite these potential difficulties, the Treaty was ratified without undue delay, all 12 participants at the Washington Conference becoming original parties.[21] Poland become the first state to accede to the new Treaty so that upon its entry into force there were 13 parties.

C. The Antarctic Treaty

The Preamble to the Antarctic Treaty restates the basic premise upon which the Treaty negotiations were conducted prior to and during the Washington Conference. It emphasises several aspirations which are embodied in the text of the Treaty: that the continent be used for peaceful purposes and not become the scene or object of international discord, that the spirit of scientific cooperation which developed during the IGY continue, and that the Treaty be in harmony

19 Above n9 at 461.

20 The Conference on Antarctica: Doc No 4 (Welcoming Statement, Mr Christian Herter, US Secretary of State) 15 October 1959; Doc No 5 (Opening Statement, South African Delegation) 15 October 1959; Doc No 6 (Opening Statement, New Zealand Delegation) 15 October 1959; Doc No 7 (Opening Statement, Japanese Delegation) 15 October 1959.

21 The greatest difficulty that existed during the interim period between signature and ratification occurred in the US where some opposition was expressed in the Senate over the failure of the US to assert a sovereignty claim prior to the entry into force of the Treaty, see "The Antarctic Treaty, Hearing before the Committee on Foreign Relations", Ex B, 86th Congress, 2d Sess (14 June 1960); "The Antarctic Treaty, Report from the Senate Committee on Foreign Relations", Ex Rep 10, 86th Congress, 2d Sess (23 June 1960); above n3 (vol III) at 479-480.

with the principles of the United Nations. Article I immediately reiterates one element of the Preamble by providing that Antarctica is to be used for peaceful purposes only, with the consequence that any measures of a military nature are to be prohibited. The only exception to this demilitarisation of the continent is that military personnel or equipment may be used for scientific research or other peaceful purposes.[22]

Articles II and III implement the goal of Antarctica being a continent for science. The freedom of scientific investigation which applied throughout the IGY is actually entrenched in artII, being subject only to the provisions of the Treaty.[23] Article III seeks to implement the aspiration of artII by committing the parties to exchanging information on the extent of their scientific programs. To that end scientific personnel shall be exchanged between expeditions and stations, and the results of scientific observations shall be exchanged and made freely available.[24] Encouragement is also given to the establishment of working relations with United Nations agencies and organisations with scientific or technical interests in the Antarctic.[25] In this regard the Scientific Committee on Antarctic Research (SCAR) has played a vital role in the coordination and monitoring of Antarctic scientific activities to such an extent that it could be described as offering a secretariat function in that area of activity.[26]

The difficult question of sovereignty in Antarctica is dealt with in artIV. There are two parts to artIV, with the first seeking to reassure the parties to the Treaty that nothing contained therein is to be interpreted as a renunciation of a previously asserted claim, or of any basis for the assertion of a territorial claim, or as prejudicing the position of any party as regards its recognition or non-recognition of any other State's claim or basis of territorial claim.[27] What artIV(1) therefore attempts to deal with is the controversial nature of the seven existing territorial claims, the potential claims of the US and USSR, and the consequence of those claimant and potential claimant states entering into a multilateral treaty which impacts upon Antarctic sovereignty. It does so in such a manner that all the principal parties to the Treaty could come together under the control of a single regime without compromising their position on the status of sovereignty claims, or potential sovereignty claims. All seven claimant states were provided for by sub-paragraph (1)(a), while the US and USSR were catered

22 ArtI(2); this exception is an acknowledgement that the scientific activities of most Antarctic parties could not be mounted without some military assistance, the Antarctic scientific programmes of some states are actually directed by branches of the military, see above n13 at 95-96.

23 The most substantial impact upon the freedom of scientific investigation has been through various Recommendations which have sought to control certain types of scientific activity, see as examples Recommendations VI-5 (The Use of Radio-isotopes in the Antarctic), X-4 (Man's Impact on the Antarctic Environment: Collection of Geological Specimens), XIII-4 (Man's impact on the Antarctic environment: Code of conduct for Antarctic expeditions and station activities: waste disposal); generally on Antarctic science see Budd, WA, "Scientific research in Antarctica and Australia's effort" in *Australia's Antarctic policy options* (S Harris ed, 1984); Walton, DWH and Morris, EM, "Science, environment and resources in Antarctica" (1990) 10 *Applied Geography* 265.

24 ArtIII(1); see Quilty, P, "Cooperation in Antarctica in Scientific and Logistic Matters: Status and Means of Improvement" in *Antarctic Challenge III* (R Wolfrum ed, 1988).

25 ArtIII(2); the World Meteorological Agency, International Telecommunications Union and UN Environment Programme have all taken an active interest in Antarctic science.

26 Above n13 at 171-183 where at 171 it is asserted that in Antarctica "Science belongs to SCAR".

27 ArtIV (1).

for in sub-paragraph (1)(b). The overlapping claims of Argentina, Chile and the UK were also specially dealt with by sub-paragraph (1)(c).

Having clarified the position regarding the impact of the Treaty upon existing or potential claims, artIV(2) addresses the issue of the continuing impact of the Treaty upon sovereignty claims throughout the duration of the Treaty. It plainly states that no form of territorial claim can be asserted while the Treaty is in force, and further that no acts or activities which take place while the Treaty is in force shall constitute a basis for "asserting, supporting or denying a claim to territorial sovereignty...". In effect, artIV(2) seeks to ensure that Antarctic sovereignty is 'frozen' for the duration of the Treaty and that nothing which occurs during the time of the Treaty is to impact upon sovereignty.

Article IV has been described as the "cornerstone of the Antarctic Treaty"[28], which in the words of the New Zealand diplomat, Chris Beeby "represented, and it still represents, an assurance — and the only assurance available — that Antarctica will remain peaceful and stable, will not become, in the words of the Treaty, 'the scene or object of international discord'".[29] Yet while artIV has been rightly seen as one of the most important factors in the Treaty being initially negotiated and continuing in force, it has also provoked a substantial legal debate. It has been argued that the wording of artIV(1) is such that it can "mean all things to all states".[30] This is especially so in regard to what continuing impact if any, the special sovereignty regime created by artIV would have once the Treaty came to an end. Auburn contends that it is possible to interpret artIV(1) as referring to past, present and future rights, which would seem to diminish the effect of artIV(2). He argues that if:

> ... it were accepted that Article IV(1)(b) referred to the future, then nothing in the Treaty shall be interpreted as a renunciation or diminution of any basis of claim to territorial sovereignty which any Contracting Party may have in the future. Such an interpretation would reduce the ambit of Article IV(2) and give a special status to 'any basis of claim' or, in other words, US and Soviet interests.[31]

Auburn goes as to assert two possible interpretations of artIV: the 'status quo ante' approach which favours those states who claimed sovereignty in Antarctica prior to 1961; and the 'continuing activities' approach which emphasises the continuing Antarctic activities of states since 1961 irrespective of the legal effect of artIV. He concludes that:

> Although the status quo ante approach may have been used to persuade governments to ratify the Treaty, it is submitted that the continuing activities interpretation is preferable. In case of need it would no doubt be advocated by those countries which would benefit from it, especially the Soviet Union. Article IV(2) is an exercise in unreality.[32]

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28 Trolle-Anderson, R, "The Antarctic scene: legal and political facts" in Triggs, G D (ed), *The Antarctic Treaty regime: Law Environment and Resources* (1987) at 59.

29 Beeby, C, "The Antarctic Treaty System as a Resource Management Mechanism: Non-Living Resources" in *Antarctic Treaty System: An Assessment* (1986) at 270.

30 Triggs, G D, "The Antarctic Treaty Regime: A Workable Compromise or a 'Purgatory of Ambiguity'?" (1985) 17 *Case Western Reserve J Int'l L* 195 at 201; Auburn notes that "Article IV was deliberately drafted to enable States with conflicting interests to adopt differing views as to its meaning", above n13 at 104.

31 Above n13 at 106.

32 Above n13 at 108.

The other difficulty with artIV is that it does not bind third states[33] and therefore cannot impact upon non Antarctic Treaty states who may, through their Antarctic activities, begin to create a basis for a sovereignty claim.[34]

Despite the legal uncertainty that exists over the true effect of artIV, others have emphasised the political importance of the provision in that it was the ultimate political compromise which stabilized the competing political interests of the parties. Shapley contends that "Article IV is the treaty's linchpin. In effect it was an admission that the problem preoccupying them for three decades was insoluble".[35] Article IV has therefore despite the legitimate concerns of international lawyers, achieved its goal of solving the political problems associated with Antarctic sovereignty through a legal settlement.[36] Whether the Article would have a continuing impact if the Treaty was to dissolve is not presently at issue.

Article V prohibits nuclear explosions and the disposal of radioactive waste material in the Antarctic. However the Article does not prohibit the use of nuclear energy on the continent, an exception exploited by the US when it built a nuclear power station at McMurdo base in the 1970s.[37] Through the combination of Articles I and V Antarctica thereby became a complete zone of peace free from all nuclear weapons. This was a remarkable achievement given that the Treaty was negotiated at the height of the Cold War when nuclear disarmament was unfashionable.[38]

Article VI defines the zone of application of the Treaty as being the area south of 60° South latitude, including all ice shelves. It further provides that nothing in the Treaty is to prejudice the exercise of rights by any state on the high seas within that area. This provision was subject to some disagreement at the Washington Conference, especially in regard to those islands of the Southern Ocean which fell within the Treaty area.[39] As the area is defined, the zone of application includes Peter Island, the South Shetland Islands, the South Orkney Islands and the Balleny Islands.[40] The Article makes an important distinction between ice shelves and the high seas. By including ice shelves in the zone of

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33 This assertion is made on the basis that the Antarctic Treaty is not an objective regime for the purposes of international law, see art36, Vienna Convention on the Law of Treaties, done at Vienna on 22 May 1969 and entered into force on 27 January 1980, (1980) 1155 *UNTS* 331; and Triggs, G D, *International Law and Australian Sovereignty in Antarctica* (1986) at 140-147.

34 Triggs, above n30 at 201; Parriott, TJ, "Territorial Claims in Antarctica: Will the United States Be Left out in the Cold?" (1986) 22 *Stanford J Int'l L* 67 at 90-93.

35 Above n17 at 92; cf Kimball, L, "Whither Antarctica ?" (1985) No3, 11 *Int'l Studies Notes* 16 at 17.

36 Above n28 at 60, cf Fox, H, "The relevance of Antarctica to the lawyer" in Triggs, G D (ed), *The Antarctic Treaty regime: Law, Environment and Resources* (1987) at 79-83.

37 Above n13 at 146.

38 For a comment on the demilitarisation provisions of the Treaty see Rybakov, Y M, "Juridical Nature of the 1959 Treaty System" in *Antarctic Treaty System: An Assessment* (1986) 35-37; Almond, H H Jr, "Demilitarisation and Arms Control: Antarctica" (1985) 17 *Case Western Reserve J Int'l L* 229 at 246-255.

39 Above n9 at 471-472 where it is noted that the major sub-Antarctic islands of the South Sandwich Island group, South Georgia, Kerguelen, Marion Island, Macquarie Island, Heard Island, Campbell Island, Bouvet Island, Gough Island, and Crozet Island were excluded from the application of the Antarctic Treaty.

40 These islands, and those noted at above n 39, are all claimed by either one of the seven Antarctic territorial claimants or South Africa; for a discussion of those islands claimed by Australia see Kaye, S, "Australian Sovereignty over Heard and McDonald Islands: Law of the Sea Implications" (May/June 1990) 52 *Maritime Studies* 11.

Treaty application it clarified the status of these formations which are neither land or water but rather sui generis.[41] Yet, by specifically allowing the parties to continue to exercise their rights in international law over the high seas within the area, it creates confusion as to the status of the water beneath the ice shelves, especially in the case of the two largest ice shelves — the Ross and the Ronne.[42] Another doubt over the extent of the Treaty's application is whether it does impact upon the high seas of the Southern Ocean. It has been stated that in drawing up artVI the intention was "to leave indefinite the question of what was the high seas".[43] The debate on this issue has intensified since the 1982 United Nations Convention on the Law of the Sea recognised a 200 mile exclusive economic zone, and extended territorial sea and continental shelf maritime zones.[44] Both Auburn and Triggs, however, argue that in light of the development of the ATS through CCAMLR and the practical consideration of the Treaty having been specifically extended to 60° South and thereby including much of the Southern Ocean surrounding Antarctica, that it is a reasonable implication that the high seas are included within the ambit of the Treaty.[45]

Article VII sets up a procedure whereby the Contracting Parties are allowed to inspect the activities of each other in the Antarctic, the purpose of this being to ensure cooperation continues in the Antarctic and for the Treaty members to assist in self-regulation of their activities. Despite the extensive rights to carry out inspections, only the United States has taken advantage of that opportunity on a regular basis.[46] Article VII(5) also formalises procedures for the exchange of information between the Contracting Parties on matters regarding expeditions to and within Antarctica by ships or nationals of that state, all stations in Antarctica occupied by its nationals, and any military personnel on the continent who are working on scientific projects. The exchange of information between the Contracting Parties was another feature of the Treaty which was implemented following the close cooperation that developed during the IGY. Information is now exchanged between the parties on a wide variety of matters including logistics problems, measures adopted to protect living resources and the state of living resources, telecommunications facilities, tourism, and proposed scientific research rockets.[47]

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41 On the question of the legal status of the various types of ice found in Antarctica, see Mangone, G J, "The Legal Status of Ice in International Law" in Wolfrum, R (ed), *Antarctic Challenge III* (1988); Joyner, C C, "Ice-Covered Regions in International Law" (1991) 31 *Nat Resources J* 213.

42 See Alexander, F C, "Legal Aspects: Exploitation of Antarctic Resources" (1979) 33 *U Miami LR* 371 at 384-397.

43 Evidence by Herman Phelger, Legal Adviser to the US Department of State and Head of US delegation at 1959 Washington Conference, to US Senate Committee on Foreign Relations (14 June 1960), reprinted in above n3 (vol I) at 114.

44 Art55 and art57 (exclusive economic zone), art3 (territorial sea), art76 (continental shelf), United Nations Convention on the Law of the Sea, done at Montego Bay, Jamaica, 10 December 1982, A/CONF 62/122, reprinted in (1982) 21 *ILM* 1261; see Joyner, C C, "The Exclusive Economic Zone and Antarctica" (1981) 21 *Va J Int'l L* 691.

45 Above n13 at 130; Triggs, above n33 at 158.

46 Above n13 at 112-113; in the 1980s there was increasing evidence that inspections were being relied upon by various Treaty parties, see *Final Report of the Fourteenth Antarctic Treaty Consultative Meeting* (1987) at 62-66.

47 See Recommendations I-VI, II-II, V-2, VI-7, VIII-9, X-8; and generally on the annual exchange of information Recommendation VIII-6.

Article VIII attempts to deal with jurisdiction over nationals, a difficult problem given the Treaty's non-recognition of sovereignty on the continent. It gives jurisdiction to the Contracting Parties over their nationals who are designated scientific personnel, and also provides that in the case of dispute over the exercise of jurisdiction over personnel, the parties shall consult together with a view to reaching a mutually acceptable solution.[48]

Article IX establishes the procedure under which the Antarctic Treaty Consultative Meetings (ATM) are held.[49] The state parties which attend these meetings are known as Antarctic Treaty Consultative Parties (ATCP). Since the first meeting in Canberra in 1961[50] an ATM has been held nearly every two years and has rotated amongst the capitals of each ATCP. Article IX also distinguishes between the various parties to the Antarctic Treaty by providing them with a designated Treaty status. The categories of parties are: a) ATCPs named in the preamble to the Treaty; b) ATCPs who became parties by accession and have conducted substantial scientific research activity in Antarctica; c) other Contracting Parties by accession. Group A is comprised of the twelve states which attended the 1959 Washington Conference.[51] These ATCPs have a continued right under the Treaty to attend each ATM and participate in the business of those meetings. Group B comprises ATCPs which have acceded to the Treaty and met the requirements of artIX(2) in that they have demonstrated their "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". Fifteen states have gained this special status.[52] There has been some criticism of the criteria set under the Antarctic Treaty which states seeking to establish their scientific credentials in Antarctica have had to meet. Poland, the first state to gain such status, had been a party to the Treaty for 16 years before the 12 original ATCPs accepted its application.[53] More recently though, Ecuador was admitted after being a Treaty party for only three years. The states in Group C are those which have acceded to the Treaty but have yet to meet the requirements of artIX(2) and therefore are commonly referred to as Non-Consultative Parties. At present there are 13 states with this status.[54] These states have observer status at ATMs.[55]

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48 ArtVIII(2).

49 This term was accepted by the Rules of Procedure adopted prior to ATM I in 1961, reprinted in above n3 (vol I) at 116.

50 ArtIX(1) made provision for the first meeting to be held in Canberra two months after the date of entry into force of the Treaty.

51 This group does not include Poland, which while an original party to the Treaty upon its entry into force, did not participate at the Washington Conference but rather acceded to the Treaty on 8 June 1961, 15 days prior to its entry into force.

52 Those states are Poland (1977), the German Democratic Republic (1987), Brazil (1983), the Federal Republic of Germany (1981), Uruguay (1985), Italy (1987), Peru (1989), Netherlands (1990), Spain (1988), China (1985), India (1983), Sweden (1988), Finland (1989), Republic of Korea (1989) and Ecuador (1990); following the reunification of the Federal Republic of Germany and the German Democratic Republic the number of Consultative Parties other than original Contracting Parties to the Treaty was reduced by one to 14.

53 See the discussion of this point in Auburn, F M, "Consultative Status under the Antarctic Treaty" (1979) 28 *ICLQ* 514.

54 These are Czechoslovakia, Denmark, Romania, Bulgaria, Papua New Guinea, Hungary, Cuba, Greece, The Democratic People's Republic of Korea, Austria, Canada, Colombia, and Switzerland; for a review of the role played by a non-Consultative Party see Bruckner, P, "The Antarctic Treaty System from the Perspective of a Non-Consultative Party to the Antarctic Treaty" in *Antarctic Treaty System: An Assessment* (1986).

The Treaty envisaged that at each ATM there would be an exchange of information, and consultation on matters of common interest. The most important aspect of these meetings, however, was for the parties to engage in "formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty".[56] These measures, which by artIX(4) only become effective when approved by the ATCPs, may relate to:

a) the use of Antarctica for peaceful purposes only;

b) the facilitation of scientific research in Antarctica;

c) the facilitation of international scientific cooperation in Antarctica;

d) the facilitation of the exercise of the rights of inspection provided for in artVII of the Treaty;

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

f) the preservation and conservation of living resources in Antarctica.[57]

The measures are known as Recommendations and 185 had been adopted up to ATM XV. Recommendations are adopted by consensus[58] at an ATM and must later be formally approved by an ATCP before they enter into force against that party.[59] While Recommendations have played an integral part in developing the ATS and allowing the Treaty parties to deal with emerging problems in Antarctica, their importance should not be overstated due to their inability to bind Treaty parties without approval and lack of binding force against third parties. While Treaty parties have been urged to approve Recommendations "as soon as possible"[60] there is uncertainty regarding the legal effect of Recommendations in regard to those States who became Treaty parties following the acceptance of Recommendations at an earlier ATM.[61] The accepted view seems to be that unless formally accepted by such States, Recommendations agreed to prior to the conferral of ATCP status are not binding.[62]

Article X provides that the parties to the Treaty agree to exert appropriate efforts in the Antarctic consistent with the Charter of the United Nations,[63] while artXI provides that in the case of dispute between the parties as to the application or interpretation of the Treaty the parties are to consult among themselves so as to solve the problem by means of their own choice. If such a dispute can not be solved, then provision is made in artXI(2) for the matter to be referred to the International Court of Justice with the consent of all the parties.[64]

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55 Recommendation XIII-15; see *Handbook of the Antarctic Treaty System* (pt 1) (7th edn, 1990) at 1108-1109.

56 ArtIX(1).

57 Ibid.

58 Rule 23, Rules of Procedure of Antarctic Treaty Consultative Meetings, reprinted in above n3 (vol I) at 117.

59 See *Final Report of the Fifteenth Antarctic Treaty Consultative Meeting* (1989) at 198-203 for a summary of the approval of Recommendations from ATM I to ATM XIV.

60 Recommendation II-IX(a) specifically provides that the Treaty parties "take the necessary steps to examine as soon as possible, in conformity with their legal and constitutional procedures, the recommendations adopted by any Consultative Meeting and that they take a decision on such recommendations as they find themselves able to approve as soon as possible. . . ".

61 Above n13 at 165-170; also Recommendation III-VIII.

62 Triggs, above n33 at 163.

63 See above n3 (vol I) at 99-103.

64 See above n13 at 138-142.

Article XII provides for amendment and review of the Treaty. Modification is provided for by way of unanimous agreement which has to be ratified by each contracting party.[65] If ratification is not received from a contracting party within two years from the date of entry into force of the modification or amendment, then that Party is deemed to have withdrawn from the Treaty.[66] The 1991 Protocol is the first such amendment to the Treaty. Article XII(2) details the provisions governing the 30 year review conference. At the completion of a 30 year period in which the Treaty has been in effect, any of the parties to the Treaty can request a review conference.[67] At such a Conference amendments or modifications to the Treaty which are accepted by a majority shall enter into force in the same manner as provided for in artXII(1).[68] If such modifications or amendments are not ratified within a two year period, then any party may, after that time, give notice of its withdrawal from the Treaty, such withdrawal to take effect after notice being given.[69]

The procedure for withdrawal from the Treaty provided for in artXII(2) is very complex, and it is important to note that any party can trigger a withdrawal from the Treaty by failing to ratify modifications or amendments approved at the review conference. Auburn has noted that the Treaty only deals with termination arising from modification or amendment. No provision is made for the withdrawal of a party from the Treaty under the accepted rules of customary international law or those codified in the Vienna Convention on the Law of Treaties.[70]

Finally, artXIII provides for the ratification of and accession to the Treaty and artXIV provides that the Treaty is done in English, French, Russian and Spanish, with each version being equally authentic.

II. The Antarctic Treaty System: 1961-1991

One of the reasons for the success of the Antarctic Treaty has been its ability to provide a basis for the implementation of further measures, both in the form of Recommendations and accompanying Conventions, so as to comprehensively manage Antarctic affairs. These have been combined to create the Antarctic Treaty System. While the Treaty is therefore the focus of the Antarctic legal regime, it has been unable to individually regulate Antarctica without further enhancement. The regular ATMs have played an important role in this process, as have those measures dealing with the Antarctic environment and CCAS and CCAMLR. It is necessary then to gain a understanding of these manifestations of the Antarctic Treaty to understand the ATS.

A. Antarctic Treaty Meetings

The ATMs are the main forum for discussion of Antarctic Treaty and related matters by the ATCPs. Sixteen ATMs have been held since 1961. While a number of decisions can be made at these meetings concerning the Treaty's

65 ArtXII(1)(a).
66 ArtXII(1)(b).
67 ArtXII(2)(a).
68 ArtXII(2)(b).
69 ArtXII(2)(c); for a discussion of the effect of artXII see Blay, S K, Piotrowicz, R W and Tsamenyi, B M, "Antarctica after 1991: The Legal and Policy Options" (1989) *ASOLP Occ Paper* 2 at 3-5.
70 Above n13 at 145; see Art54, art56, art62, art65, art67 of the Vienna Convention on the Law of Treaties concerning withdrawal from a Treaty.

operation, the most important of these always take the form of Recommendations. The recommendations made at ATMs may either deal with specific matters of concern to the ATCPs, or call for the convening of a Special ATM so as to discuss a single issue. Recommendations have been made at every ATM and cover a very wide range of topics, as allowed for under artIX(1). Prior to an ATM it is common for each ATCP to distribute working papers, proposals and draft recommendations and these often form the basis for Plenary or Committee discussion at the ATM. At the ATM the proposals are debated and recommendations are adopted by consensus.[71] As a consequence of ATMs only being held every two years, it become the practice for Preparatory Meetings to be scheduled prior to an ATM so as discuss the formal meeting agenda. At ATM XVI in Bonn during 1991 it was, however, decided to hold ATMs annually and it is envisaged that Preparatory Meetings will now no longer be required.

A Special ATM is called in response to a specific Recommendation whereby a special meeting or series of meetings are convened outside the forum of the regular ATMs. These meetings are arranged on an ad hoc basis and have primarily been relied upon as a means for considering applications by states for ATCP status, but were also extensively relied upon during the negotiation of the Antarctic minerals regime throughout the 1980s.[72] The Fourth Special ATM convened on twelve occasions with meetings held in Wellington, Bonn, Washington, Tokyo, Rio de Janiero, Paris, Hobart and Montevideo. An unusual feature of these meetings was that the chairman of the first meeting in Wellington, Chris Beeby, retained that position throughout in order to maintain continuity during the mineral negotiations. The Eleventh Special ATM, which met in Vina del Mar, Chile during November/December 1990 and Madrid during April and June 1991, was used as the forum for negotiating the 1991 Protocol on Environmental Protection to the Antarctic Treaty.

B. Environmental Protection by way of the 1964 Agreed Measures and related provisions

There was never an attempt when drafting the Antarctic Treaty to deal with all the various problems that confronted Antarctica at that time, or would confront it in the future. This was a role which was to be fulfilled by the ATM under its artIX(1) power to make recommendations. One of the specific areas such recommendations could cover was the "preservation and conservation of living resources".[73] And so in 1964 at ATM III in Brussels, through Recommendation III-VIII, the Agreed Measures for the Conservation of Antarctic Fauna and Flora were implemented.[74] The Agreed Measures declare the Antarctic Treaty area to be a 'Special Conservation Area'[75] and seek to bind not only Antarctic Treaty parties but also to impact upon third parties, such as members of expeditions and scientific stations who are from states that are not Treaty parties.[76] The specific

71 For a discussion of ATMs see above n13 at 147-165; Beck, P, *The International Politics of Antarctica* (1986) at 151-162.

72 See Watts, A D, "Lessons to be Learned from the Mineral Resources Negotiations" in Wolfrum, R (ed), *Antarctic Challenge III* (1988); a Special ATM had not previously been used for the negotiation of supporting Conventions to the ATS, both CCAS and CCAMLR having been negotiated at separate Conferences.

73 ArtIX(1)(f).

74 Reprinted in above n3 (vol I) at 146-160.

75 Id at 146 in Preamble.

76 ArtIV.

purpose of the Agreed Measures is to protect Antarctic flora and fauna from the impact of man's increasing activity on the Antarctic continent. To this end the Agreed Measures impose an obligation upon all participating governments to prohibit "within the Treaty area the killing, wound- ing, capturing or molesting of any native animal or native bird, or any attempt at any such act, except in accordance with a permit".[77] A significant feature of the Agreed Measures has been the creation of Specially Protected Areas (SPAs). These are areas of outstanding scientific interest which are accorded special protection in order to preserve their unique ecological system.[78] As a further implementation of the spirit of the Agreed Measures to protect the Antarctic environment and associated heritage of the continent, Sites of Special Scientific Interest (SSSI) were designated by Recommendation VII-3[79] and Sites of Historic Interest (SHI) by Recommendation VII-9.[80] During ATM XV in Paris in 1989, a time when there was considerable debate over protection of the Antarctic environment, Specially Reserved Areas (SRAs) and Multiple-Use Planning Areas (MPAs) were implemented to further supplement the Agreed Measures.[81]

C. Convention for the Conservation of Antarctic Seals (CCAS)

As a consequence of the concern which was expressed at ATMs during the 1960s, the ATCPs came together in London in 1972 for a Conference on Antarctic Seals. The Conference was held outside the Antarctic Treaty framework as no provision existed for the holding of Conferences which non-parties to the Treaty could attend. Despite this, the only participants were ATCPs, even though many did not actively engage in the harvesting of Antarctic seals. CCAS was opened for signature on 1 June 1972 and signed by all twelve ATCPs, coming into effect in 1978. CCAS applies to the seas south of 60° South latitude,[82] though there is some scope for its application to floating sea ice north of that area.[83] It applies specifically to six seal species[84] with catch limits set for the Crabeater, Leopard and Weddell Seal.[85] Of particular note is the provision made for participation by SCAR in the giving of scientific advice.[86] The Convention is noteworthy for adopting similar means to the Antarctic Treaty for implementing its goals and using the Antarctic Treaty as a basis for its area of application.[87] Despite the fact

77 ArtVI.

78 ArtVIII; 14 SPAs had been designated up to ATM XV, for a discussion of SPAs and their adequacy see Keage, PL, "Antarctic Protected Areas: Future Options" (1986) *U Tas Environ Studies Occ Paper* 19 at 14-46.

79 Also see Recommendation VIII-3, Recommendation VIII-4; following Recommendation XV-6 in 1989 there are 31 sites which have been designated as SSSIs; for a discussion on SSSIs see Keage, PL, Hay PR, and Russell, JA, "Improving antarctic management plans" (1989) No 155, 25 *Polar Rec* 309.

80 Up to ATM XV, 55 SHI had been designated.

81 See Recommendation XV-10, Recommendation XV-11; while generally considered as having been successful the Agreed Measures have on occasion been shown to be ineffective, see Joyner, CC, "Protection of the Antarctic Environment: Rethinking the Problems and Prospects" (1986) 19 *Cornell Int'l LJ* 259 at 268-270 discussing the decision by France to build an airstrip in Antarctica at Pointe Geologie in the vicinity of a penguin colony.

82 Art1(1).

83 Art5(7).

84 Art1(2); the Southern elephant seal, Leopard seal, Weddell seal, Crabeater seal, Ross seal and Southern fur seals.

85 Annex 1.

86 Art5.

87 Cf Bush, W M, "The Antarctic Treaty System: A Framework for Evolution" in Herr, R A, Hall,

that enforcement is solely a matter for the flag State,[88] CCAS has been a success, though undoubtedly aided by the diminishing interest shown in Antarctic sealing. Nevertheless, CCAS provided a valuable basis upon which to negotiate CCAMLR and demonstrated the ability of the Antarctic Treaty parties to deal with a resource problem prior to the resurgence of significant commercial activity.[89]

D. Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)

The Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) developed as a consequence of a recommendation made at ATM VIII in 1975. Following a further Recommendation made at ATM IX in 1977,[90] the methods and principles of procedure to establish such a conservation regime in the Antarctic were established. A series of meetings amongst the ATCPs followed until in May 1980 a special Conference was convened in Canberra. The Conference successfully concluded later that month and CCAMLR was opened for signature in August 1980, coming into effect on 7 April 1982 after the necessary eighth ratification had been received.[91]

CCAMLR broke new ground in the Antarctic Treaty System for a number of reasons. First, its zone of application is the area south of 60° South latitude, but it also applies to "the Antarctic marine living resources of the area between that latitude and the Antarctic Convergence which form part of the Antarctic marine ecosystem".[92] Hence, the adjacent marine areas of Antarctic islands such as South Georgia, Kerguelen, Heard and McDonald Islands which do not fall within the scope of the Antarctic Treaty, come within the scope of CCAMLR.[93] Secondly, CCAMLR provides that conservation of the resource includes its 'rational use'.[94] The Convention does not therefore prohibit the harvesting of available marine resources, but rather allows it to take place under a formula of compromise between rational use and certain stated principles of conservation.[95] Thirdly, the Convention establishes a Commission for the Conservation of Antarctic Marine Living Resources, the function of which is to give effect to CCAMLR's objectives.[96] The Commission can adopt conservation measures which become binding upon its members.[97] The Commission has a Secretariat

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H R and Haward, M G (eds), *Antarctica's Future: Continuity or Change?* (1990) at 129-130.

88 Art2(2), art5(5).

89 For a discussion of the 1988 review meeting of CCAS, see Marchal, A, "Convention for the Conservation of Antarctic Seals: 1988 review of operations" (1989) No 153, 25 *Polar Rec* 142; and generally see above n13 at 209-211; Gulland, J A, "The Management Regime for Living Resources" in Joyner, C C and Chopra, S K (eds), *The Antarctic Legal Regime* (1988) at 229.

90 See Recommendations VIII-10, IX-2.

91 For a discussion on the negotiation of CCAMLR see Barnes, J N, "The Emerging Convention on the Conservation of Antarctic Marine Living Resources: An Attempt to Meet the New Realities of Resource Exploitation in the Southern Ocean" in Charney, J I (ed), *The New Nationalism and the Use of Common Spaces* (1982).

92 Art1(1): the 'Antarctic Convergence' is defined in art1(4) by way of a line joining certain points along the parallels of latitude and meridians of longitude.

93 ArtIV(2) of CCAMLR adopts similar provisions to artIV of the Antarctic Treaty in regard to sovereignty or assertion of sovereignty while the Convention is in force; due to the extended jurisdiction of CCAMLR this in effect extends the application of artIV of the Antarctic Treaty, see above n3 (vol I) at 405-406.

94 Art2(2).

95 Art2(3).

96 Art7, art11.

97 Art7(2), art9(6).

which is located in Hobart[98] and is assisted by a Scientific Committee.[99] Contributions to the operation of the budget of the Commission and the Science Committee are to be made by each member state.[100]

The Convention has to date received mixed reviews.[101] While initially heralded as a milestone for the Antarctic Treaty System and a model conservation regime,[102] some commentators are now uncertain as to whether the Convention will be able to attain its goals. Some of the problems which have been particularly identified are the inability to enforce catch quotas on third parties due to the continued uncertainty of offshore jurisdiction in Antarctica and non membership of CCAMLR by principal fishing states, and the continuing special status given by CCAMLR to the Antarctic Treaty and ATCPs.[103] Perhaps the most significant criticism to date though is the continuing inability of CCAMLR to effectively regulate krill fishing, a fishery which, if over-exploited or not properly managed, has the potential to damage the whole Antarctic food chain.[104] However, despite the legal and political difficulties which have accompanied the implementation of CCAMLR,[105] the Convention has become a significant component in efforts by the ATS to deal with Antarctic environmental and resource issues.[106]

E. The Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA)

After having given some consideration at various ATMs to the question of regulating Antarctic minerals, and actually implementing a moratorium on the exploration and exploitation of Antarctic mineral resources till a regime was in place,[107] it was decided at ATM XI that a Special ATM should be convened to negotiate a legal regime on the question of Antarctic minerals.[108] After six years of negotiation between 1982 and 1988, the Convention for the Regulation of Antarctic Mineral Resource Activities (CRAMRA) was finally concluded in 1988 and opened for signature.[109] Nineteen states signed the Convention during the time it was available for signature.[110] Importantly, Australia and France

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98 Art13.

99 Art14, art15, art16, art17.

100 Art19; see "Commission for the Conservation of Antarctic Marine Living Resources" (1985) 56 *AFAR* 31.

101 A particularly detailed legal analysis of the provisions of CCAMLR and an assessment of its first five years of operation is found in Howard, M, "The Convention on the Conservation of Antarctic Marine Living Resources: A Five Year Review" (1989) 38 *ICLQ* 104.

102 Shusterich, K M, "The Antarctic Treaty System: history, substance, and speculation" (1984) 39 *Int'l J* 800 at 811-812; Sherman, K and Ryan, A F, "Antarctic Marine Living Resources" (1988) No2, 31 *Oceanus* 59.

103 Above n17 at 153-154; and generally Howard, above n101.

104 Heyward, P, "An Australian perspective on CCAMLR IX" (December 1990) 64 *ANARE News* 4; Howard, above n101 at 148-149; cf Gulland, above n89 at 230-231.

105 See Nagota, T, "The implementation of the Convention on the Conservation of Antarctic Marine Living Resources: needs and problems" in Vicunna, F O (ed), *Antarctic Resources Policy* (1983) at 119-137.

106 For an overall review of the operation of the Agreed Measures, CCAS and CCAMLR from an Australian perspective see Gardam, J G, "Management Regimes for Antarctic Marine Living Resources — An Australian Perspective" (1985) 15 *MULR* 279.

107 See Recommendation IX-1; and earlier Recommendations VII-6, VIII-14.

108 Recommendation XI-1.

109 Done in Wellington on 2 June 1988, reprinted in (1988) 27 *ILM* 868.

110 Those states were Argentina, Brazil, Chile, China, Czechoslovakia, Denmark, Finland, the German Democratic Republic, Japan, New Zealand, Norway, Poland, the Republic of Korea, Sweden, South Africa, the UK, USSR, and USA.

announced during 1989 that they would not sign the Convention with the consequence that, because of the membership requirements, it became impossible for CRAMRA to enter into force.[111] Following the negotiation of the 1991 Protocol to the Antarctic Treaty, art7 of which prohibits minerals activity in Antarctica, CRAMRA has now effectively become an abandoned Convention.

The Convention had the potential in 1988 to become the most sophisticated addition to the ATS, providing for the creation of both permanent and ad hoc institutions to regulate and monitor Antarctic mineral resource activities.[112] While CRAMRA was often referred to as a 'Minerals Convention' there was a serious attempt made to maintain a balance between the regulation of minerals activities and preserving the Antarctic environment. Chris Beeby, Chairman of the Fourth Special ATM and credited with having much influence on how the eventual Convention evolved, described CRAMRA as not incorporating a judgment that mining in Antarctica was acceptable and that it should or would take place, but rather that it constituted "a mechanism for assessing the possible impact on the environment of Antarctic mineral resource activities, determining whether they are acceptable, and, if so, regulating them in detail".[113] Whether CRAMRA may have been able to achieve these goals is purely a matter of speculation following the events of 1991.

F. The Protocol on Environmental Protection to the Antarctic Treaty

The Protocol resulted from Special ATCM XI which met on various occasions in 1990 and 1991 and was formally concluded on 4 October 1991. The Protocol will enter into force once it has been ratified by all of the 26 existing ATCPs.[114] While the Procotol's impact upon future Antarctic mining activities has been emphasised, equally important is its establishment of a new environmental regime for the continent. Under the Protocol, a framework regime is created based on certain environmental principles under which the parties "commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems".[115] The principles upon which the implementation of the Protocol will be based include:

a) that activities which take place within the Treaty area are to be planned and conducted so as to limit adverse impacts on the Antarctic environment and dependant and associated ecosystems;

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111 See Cook Waller, D, "Death of a Treaty: The Decline and Fall of the Antarctic Minerals Convention" (1989) 22 *Vanderbilt J Transnat'l L* 631; Podehl, J G and Rothwell, D R, "New Zealand and the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA): An Unhappy Divorce ?" (1992) 22 *Vic U Wellington LR* forthcoming; cf Blay, S K N and Tsamenyi, B M, "The Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA): Can a Claimant Veto it ?" (1989) *ASOLP Occ Paper 1*.

112 These Institutions were The Commission, The Advisory Committee, The Secretariat, The Special Meeting of Parties and The Regulatory Committee.

113 Beeby, C, "The Convention on the Regulation of Antarctic Mineral Resource Activities and its Future", in Herr, R A Hall, H R and Haward, M G (eds), *Antarctica's Future: Continuity or Change?* (1990) at 49; for other reviews of CRAMRA see Beck, P J, "Convention on the Regulation of Antarctic Mineral Resource Activities: A Major Addition to the Antarctic Treaty System" (1989) No152, 25 *Polar Rec* 19; Joyner, CC, "The Evolving Antarctic Minerals Regime" (1988) 19 *ODIL* 73; Watts, A D, "The Convention on the Regulation of Antarctic Mineral Resource Activities" (1990) 39 *ICLQ* 169.

114 Art22 provides that parties to the Antarctic Treaty will not have their applications for ATCP status considered until they also become a party to the Protocol.

115 Art2.

b) such activities in particular are to avoid:
   i) affecting the terrestrial, glacial or marine environments, or
   ii) detrimentally changing the distribution or productivity of species, or population of species, of fanua and flora;

c) the undertaking of environmental impact assessments in relation to planned activities;

d) and the monitoring of ongoing activities so as to allow for assessment of their impact upon the environment.[116]

A Committee for Environmental Protection is also to be created to monitor environmental impact assessment procedures concerning scientific research, tourism, and all other governmental and non-governmental activities in the Antarctic Treaty area.[117]

An important feature of the Protocol is the annexes which can be appended to it. The annexes are considered to form an integral part of the Protocol and additional annexes can be adopted if necessary.[118] The four original annexes to the Protocol deal with Environmental Impact Assessment, Conservation of Antarctic Fanua and Flora, Waste Disposal and Waste Management, and Prevention of Marine Pollution. Each annex creates a mini-regime on a particular subject matter which will be administered by the Committee under the framework provisions of the Protocol. Compliance with the Protocol is based upon a system of Inspection, a method consistent with artVII of the Antarctic Treaty.[119] In recognition of the importance associated with effective enforcement measures, art16 anticipates the development of "elaborate rules and procedures" relating to liability for damage which arises from activities within the Antarctic Treaty area covered by the Protocol. Once elaborated, these provisions will take the form of another Annex to the Protocol.

III. The Health of the Treaty after 30 years

The above assessment of the Antarctic Treaty demonstrates how successful the Treaty has been in providing a legal framework within which the Antarctic Treaty parties have been able to successfully administer the continent. It has also been flexible enough to allow for the implementation of supporting legal instruments which have enhanced the ability of the Treaty system to deal with existing or emerging threats to the environment and so deal with issues which had not been adequately considered in 1959. So while after 30 years the Treaty receives a favourable review, it would be incorrect to believe that the Antarctic Treaty system is smoothly functioning without any problems which could substantially impact upon the success of the regime. This is by no means the case. A number of major issues presently confront the treaty parties, which if not successfully resolved, could substantially undermine the past successes of the Treaty. These issues are the relationship between minerals exploitation and comprehensive protection of the Antarctic environment, an Antarctic Treaty Secretariat, the continuing impact of the debates which occurred in the UN during the 1980s, and sovereignty.

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116 Art3.
117 Art8, art11, art12; for the Environmental Impact Assessment procedures see Annex 1.
118 A Fifth Annex was agreed to at ATM XVI dealing with Protected Areas.
119 Art14, see art13 on compliance.

A. CRAMRA and the Madrid Protocol

The ATS has dealt with considerable differences of opinion amongst the ATCPs since the negotiations for CRAMRA ended in 1988. As soon as CRAMRA was available for signature in November 1988 signs of dissent began to emerge amongst the Treaty parties over whether the Convention equitably dealt with Antarctic mineral resources.[120] At the same time there was increasing concern raised over the failure of the Antarctic Treaty and its associated Conventions to comprehensively protect the Antarctic environment.[121] Antarctic environmental protection, both continental and marine, had become a matter of increasing international concern throughout the 1980s for the influential conservation movement which pressed for the declaration of Antarctica as the first 'World Park'.[122] As a result of this debate and the possibility that the implementation of CRAMRA could result in substantial environmental damage occurring because of minerals activity, the credibility of the Treaty Parties to manage the Antarctic environment in an environmentally sensitive way was questioned.[123]

The importance of protecting the Antarctic environment became the catalyst for the 1989 Australian/French decision to not sign CRAMRA but rather campaign for a comprehensive environmental protection regime for the continent.[124] The 1991 Protocol is the result of this effort. During the two years in which the campaign for the Protocol took place considerable disagreement existed amongst the Treaty parties over the impact such a regime should have upon Antarctic mining.[125] Both ATM XV in Paris during 1989 and the first session of Special ATM XI in Vina del Mar, Chile, during late 1990 were dominated by dissent amongst the ATCPs over whether mining in Antarctica should be allowed to proceed, be subject to a moratorium for a definite period of time, or prohibited indefinitely.[126] The April 1991 session of the Special ATM in Madrid did come to an agreement upon a draft Protocol which prohibited mining for 50 years, but the United States subsequently indicated that it would not support the Protocol as it stood because of concerns that in effect a permanent mining ban was being implemented.[127] Under considerable pressure, both domestic and international,

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120 For an example of the Australian reaction see Seccombe, M, "Keating warns against signing Antarctic treaty" 21 November 1988, *The Sydney Morning Herald*, 2.

121 While some steps had been taken towards the preservation and conservation of living resources and non-living resources, the integrity of the physical environment itself had only been dealt with by way of a series of unrelated Recommendations; see as examples Recommendations VIII-9 and X-8 (Effects of Tourists and non-Governmental expeditions in the Antarctic Treaty area), VIII-11 (Man's impact on the Antarctic environment), XII-4 (Man's Impact on the Antarctic Environment: Code of conduct for Antarctic Expeditions and Scientific Activities), XIV-2 (Human impact on the Antarctic environment: Environmental impact assessment).

122 For further background to this debate see Rothwell, D R, "A World Park for Antarctica? Foundations, Developments and the Future" (1990) *ASOLP Occ Paper* 3 at 2-11.

123 See Bogart, P S, "Environmental Threats in Antarctica" (1988) No2, 31 *Oceanus* 104; Mosley, G, "World Park for Antarctica" (1989) No5, 17 *Habitat Australia* 4; Manheim, B S, *On Thin Ice: The Failure of the National Science Foundation to Protect Antarctica* (1988).

124 For a discussion of the events leading up to the Australian refusal to sign CRAMRA see Blay, S K N and Tsamenyi, B M, "Australia and the Convention for the Regulation of Antarctic Mineral Resource Activities (CRAMRA)" (1990) No158, 26 *Polar Rec* 195.

125 See Heap, J, "The political case for the Minerals Convention", and Burgess, J, "Comprehensive environmental protection of the Antarctic: new approaches for new times" in Cook, G (ed), *The Future of Antarctica:Exploitation verses Preservation* (1990).

126 For a discussion of the negotiations which took place in Vina del Mar see "Antarctic Treaty: Comprehensive Protection for Antarctica" (1991) 21/1 *Environ Pol L* 11.

127 Rothwell, D R, "The Madrid Solution to Antarctica: The End of the Antarctic Minerals

the United States eventually agreed to the terms of the Protocol with the consequence that it was finalised and opened for signature in October 1991.

The debate since 1989 over CRAMRA and whether a comprehensive environmental protection regime should be adopted brought to a head a number of long-standing issues within the ATS. It forced the ATCPs to face the fundamental issue of whether Antarctica should be retained as a pristine continent preserved for science or opened up to commercial minerals exploitation. If the latter option was accepted, then despite the CRAMRA formula, it was bound to eventually raise the very difficult issue of Antarctic sovereignty which had the potential to destabilise the ATS. Adopting the Protocol itself was not an easy process. The US, UK and Japan all strongly favoured the retention of an Antarctic minerals regime right up till the April 1991 meeting in Madrid. Their eventual abandonment of that position allowed for the conclusion of the Protocol and avoided a major policy dispute amongst the ATCPs. The task ahead now for the ATS is to implement the Protocol and negotiate further Annexes so as to achieve comprehensive Antarctic environmental protection. To achieve that end it will be important for the ATCPs to regroup and cooperate towards this goal, leaving their past differences concerning the minerals' regime behind them.

B. An Antarctic Treaty Secretariat

Another significant issue for the future operation of the ATS is the need for a Secretariat. It is a curiosity that as Auburn notes the "Treaty did not set up even the most minimal form of international organisation".[128] One consequence of this is that the host governments of the regular ATMs have a considerable burden placed upon them to organise the meetings and are in effect responsible for the preparation of the report from that ATM. Another consequence is that difficulty has been experienced in collating the various Recommendations, Reports and debates that have taken place at ATMs over the 30 years, and while there is now produced a "Handbook of the Antarctic Treaty System" it is by no means as comprehensive as could be. Finally, because of the lack of a Secretariat there is no means of properly coordinating Antarctic research activity and the public dissemination of that research. With the creation of a Commission to be responsible for the on-going regulatory functions of CCAMLR, there has been recognition of the need for such a permanent infrastructure to support that Convention. The Commission, however, only has a limited mandate regarding the scientific research and monitoring functions which are carried out under the terms of CCAMLR and does not have a wider interest in all Antarctic research. Despite the role of SCAR in coordinating Antarctic scientific activity, the increasing sophistication of international regimes and interrelationship between many of those regimes dealing with the environment, science and resource management demands that the Antarctic Treaty have a mechanism through which it can maintain contact with these developing institutions and allow the ATCPs to communicate with each other.[129]

Debate?" (July 1991) 2:68 *Current Affairs Bull* 27; "Antarctica: US blocks Protocol" (1991) 3/4:21 *Environ Pol L* 133.

128 Above n13 at 155, where it is suggested that this was a deliberate response to concerns which had been expressed by Argentina, Australia and Chile to international administration.

129 For a comment on the question of a secretariat see Kimball, L A, "Antarctica: The Challenges That Lie Ahead" (1989) 18 *AMBIO* 77 at 81; Tucker Scully, R, "The Institutional Development of the Antarctic Treaty System: The Question of a Secretariat" in Wolfrum, R (ed), *Antarctic*

There has been some discussion at recent ATMs concerning the lack of a permanent infrastructure. At ATM XIV some delegations took the view that the role filled at ATMs by host Governments was already approaching that of the function expected of a Secretariat. Other ATCPs, though, took the view that with the growth in parties to the Treaty, together with increasing activities and interest in Antarctica, that "a small permanent infrastructure could ensure continuity between Consultative Meetings and timely circulation to all Contracting Parties of relevant documents and information in the inter-sessional periods".[130] A Working Paper on the topic was presented by the United States at ATM XV in which it was argued that the establishment of such a permanent infrastructure was necessary in order to "carry on the dynamism" of the ATS.[131] However, despite the glaring need for such an increasingly complex international legal regime to have a permanent Secretariat, a proposal dealing with the matter was rejected at ATM XVI in Bonn during 1991.

C. *The continuing impact of the UN debate*

Throughout the 1980s the ATS was the subject of considerable attention within the United Nations. The catalyst for this attention was the success of the 'Group of 77' at both United Nations fora and the Third United Nations Conference on the Law of the Sea in having the deep sea bed recognised as being part of the 'common heritage of mankind'.[132] This resulted in calls being made for Antarctica to be also be declared a part of the common heritage.[133] The debate within the United Nations, which importantly began during the negotiations for the Antarctic minerals regime, was led by Third World states who were not parties to the ATS and were concerned that the ATCPs were engaged in a process of dividing up the minerals riches of the continent for themselves.[134] Concern was also expressed over the exclusive nature of the ATS and the 'club mentality' that existed amongst the parties to the Treaty. While the response from the ATCPs was that accession to the Treaty was open to all states, it was countered with the claim that unless a state was admitted under artIX(2) as an ATCP, there was little active role that a new member could play at an ATM.

The ATCPs were sensitive to the criticism they received throughout the 1980s at the United Nations,[135] with one response being to allow Non-Consultative

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Challenge III (1988).

130 *Final Report*, above n46 at 16, and generally 13-19.

131 *Final Report*, above n59 at 10.

132 Art136 of the Convention declares that "The Area and its resources are the common heritage of mankind", with the 'Area' defined by art1 as "the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction"; for a review of the development of the principle especially in its application to the law of the sea, see Larschan, B, and Brennan, B C, "The Common Heritage of Mankind Principle in International Law" (1983) 21 *Col J Transnat'l L* 305.

133 See the speech to the UN General Assembly by the Malaysian Prime Minister, Mahithir bin Mohammad: UN Doc No A/37/PV 10 at 17 — 37th Session of the General Assembly, 29 September 1982.

134 For reviews on the annual UN debate see Beck, P J, "The United Nations and Antarctica" (1984) No137, 22 *Polar Rec* 137; Beck, PJ, "The United Nations' Study on Antarctica, 1984" (1985) No140, 22 *Polar Rec* 499; Hayashi, M, "The Antarctica Question in the United Nations" (1986) 19 *Cornell Int'l LJ* 275; Beck, P J, "The United Nations and Antarctica 1986" (1987) No146, 23 *Polar Rec* 683; Beck, PJ, "Another sterile ritual ? The United Nations and Antarctica 1987" (1988) No150, 24 *Polar Rec* 207.

135 See Woolcott, R A, "The Interaction between the Antarctic Treaty System and the United Nations System" in *Antarctic Treaty System: An Assessment* (1986).

parties and Non-Governmental Organisations with Antarctic interests to attend ATMs.[136] However, the fact remains that very few of the states which acceded to the Treaty throughout the 1980s were those which were critical of the ATCPs in the UN. The issue which still exists, even after the UN debate seems to have lost much of its momentum now that the ATCPs have rejected an Antarctic minerals regime, is the non participation in the ATS of a large number of seemingly disaffected states who are not technically bound by the provisions of the Treaty.[137] Continuing unrest, therefore, amongst these states throughout the 1990s could conceivably see the Antarctic Treaty System come under threat from third parties attempting to explore and exploit Antarctica's living and non-living resources for their own benefit, irrespective of regulatory mechanisms or moratoriums which may exist on such activity. It may seem an unlikely scenario, but if the ATS is seen to be weak and lacking enforcement authority, then such a possibility should not be dismissed.[138]

E. Sovereignty

Antarctic sovereignty remains a problem which has continued to impact upon the development of the ATS since its inception. While the formula found in artIV of the Antarctic Treaty may have resolved the sovereignty question in 1959 and thereby allowed all the claimant states to become parties to the Treaty, it has by no means completely removed the sovereignty issue. This was shown up during the negotiations for CRAMRA, when it was never contemplated that minerals activity could take place without the involvement of the state which claimed sovereignty over the territory which was to be subject to exploration or exploitation. CRAMRA made it clear in art9 that the legal positions established under the Antarctic Treaty with respect to territorial sovereignty remained in place under the minerals regime. This was also reflected in the decision-making mechanisms under the Convention which established a Regulatory Committee to consider applications and issue permits for exploration and development of Antarctic mineral resources.[139] Membership of the Committee was to be made up by the USSR and US[140] and also "the member, if any, or if there are more than one, those members ... which assert rights or claims in the identified area".[141] Consequently, claimant states would always be represented and could participate in the decision-making processes of the Committee concerning minerals activities within their claimed territory.

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136 At ATM XV observers from SCAR and CCAMLR attended as did experts from the International Hydrographical Bureau, Intergovernmental Oceanographic Commission, International Civil Aviation Organisation, International Maritime Organisation, the World Meteorological Organisation, and the International Union for the Conservation of Nature and Natural Resources, while a number of government delegations contained representatives from prominent environmental organisations such as Greenpeace and ASOC.

137 Pakistan, a non member of the Antarctic Treaty, has recently sent scientific expeditions to Antarctica thereby raising concern over whether other third parties will begin to engage in Antarctic activities outside of the ATS, see Darby, A, "Pakistan looks for a crack in the ice" 12 December 1990, *The Sydney Morning Herald*, 4.

138 On the question of the impact of the ATS upon third states see above n13 at 115-129; Birnie, P, "The Antarctic Legal Regime and Third States" in Wolfrum, R (ed), *Antarctic Challenge III* (1986).

139 Art31.

140 Art29(2)(b) in effect acknowledges the US and USSR by referring to "the two members of the Commission... which assert a basis of claim in Antarctica".

141 Art29(2)(a).

The continuing importance of sovereignty was also in evidence during the debate over the development of a comprehensive environmental protection regime for Antarctica. The genesis of the debate can be traced back to a New Zealand proposal at ATM VIII in Oslo, that ATCPs consider the establishment of a 'World Park' in Antarctica. The matter was never given serious attention, partly because the New Zealand proposal would have involved the 'internationalisation' of Antarctica with the result that claimant states would have been required to renounce their sovereignty claims.[142] In 1989, when the 'World Park' proposal once again was adopted by some ATCPs, there was a deliberate attempt to adopt a different nomenclature such as 'Antarctic Wilderness Reserve' or 'nature reserve, land of science'.[143] This was done so as to ensure that no confusion existed over whether the proposals would involve the 'internationalisation' of the Antarctic. At no time, during the two years in which France and Australia actively pursued their Antarctic environmental campaign, was any suggestion made other than the ATS being the basis for the implementation of these improved environmental measures. In this way the delicate question of Antarctic sovereignty never became an issue amongst the ATCPs.[144]

Therefore while artIV assisted in removing the issue of sovereignty over territorial claims from the Antarctic agenda during the term of the Treaty, it has not made it go away. There has been little or no attempt by the claimant states to refrain from asserting their sovereign rights over their claims, whether this be by way of the issuing of postage stamps, increased activity by national scientific expeditions, increasing the Antarctic budget, or the application of domestic or territorial laws to the claimed sector.[145] It seems that as long as there is any international debate over the sovereign status of Antarctica and the applicability of international concepts of common heritage, the seven territorial claims will be a continuing issue.[146]

IV. Conclusion

It can be seen from the above review that no matter what the inadequacies of the 1959 Antarctic Treaty the development of the ATS has ensured that the Antarctic legal regime has not stood still. The multitude of recommendations and accompanying practices of the ATCPs, in conjunction with the 1964 Agreed Measures, CCAS and CCAMLR have enabled the Treaty to keep pace with developments in Antarctic politics and wider international concerns about the

142 Talboys, B E, "New Zealand and the Antarctic Treaty" (1978) No3/4, 28 *NZ Foreign Affairs Rev* 29 at 33.

143 See Franco-Australian Draft Working Paper on possible components for a Comprehensive Convention for the Preservation of Antarctica (XV ATCM/WP/3) reprinted in *Final Report*, above n59 at 209; Cockburn, M, "Hawke ties a diplomacy knot with Rocard", 21 June 1989, *The Sydney Morning Herald*, 9; Darby, A, "Aust wants Antarctic 'reserve'", 30 September 1989, *The Sydney Morning Herald*, 7.

144 See Hawke, R J, "Government plan for the environment" (1989) 60 *AFAT* 333 at 335; Rocard, M, "Opening Address to the Fifteenth Antarctic Treaty Consultative Meeting", reprinted in *Final Report*, above n59 at 113-118.

145 For a review of the Australian efforts to solidify its sovereignty claim see Triggs, above n33 at 241-268; Murray-Smith, S, *Sitting on Penguins* (1988).

146 On the question of applying the common heritage concept to Antarctica, see Triggs, above n33 at 297-305; cf Kiss, A, "The common heritage of mankind: utopia or reality ?" (1985) 40 *Int'l J* 422; Keyuan, Z, "The Common Heritage of Mankind and the Antarctic Treaty System" (1991) 38 *Netherlands Int'l LR* 173.

continent and its environment. This has really been one of the greatest virtues of the Antarctic Treaty. Through the mechanisms provided for in artIX of the Treaty, it has continued to evolve at the regular ATMs, Special ATMs, or issue-specific Antarctic conventions. An example of this is the debate over the need for a minerals regime which arose because of concerns in the late 1970s over the possibility of unregulated exploitation of Antarctic minerals. While CRAMRA has now fallen from favour, the Convention did represent a response by the ATS to those concerns well in advance of minerals activity becoming a commercial reality. The about-turn over CRAMRA and the adoption of a long-term moratorium on mining also demonstrates the flexibility of the ATS to respond to change.

Problems do exist with the ATS though and there is a need for these to be addressed by the ATCPs in coming years. The debate over the environment demonstrated how inadequate some of the measures taken during the first 30 years of the Antarctic Treaty have been in protecting the continent from the impact of man's activities. The growing concern over the impact of tourism on the continent is an example of this problem, which even following the 1991 Protocol remains to be solved.[147] The lack of a Secretariat has limited the ability of the ATCPs to coordinate certain Antarctic activities. Outside of the regular ATMs, or meetings of the Commission for the Conservation of Antarctic Marine Living Resources, no forum exists at which the ATCPs can come together to discuss urgent problems. The impact of Recommendations and the whole Treaty regime upon third parties continues to be a major problem which has yet to be resolved. Fortunately there have been very few examples of major breaches of the regime by such third parties, however the implementation of a fifty year moratorium on mining may prove difficult to enforce against third parties who seek to exploit Antarctica's mineral reserves.

The Antarctic Treaty during its first 30 years has indeed proved to be a remarkable document. On its face a rather simple treaty, it has successfully provided the basis for the development of a regime which has kept Antarctica free of conflict and open to scientific research. Given that this has been achieved during a period of great change in both international law and international relations, is evidence not only of the success of the Treaty and those responsible for its negotiation, but also of the commitment of the parties to the creation of a demilitarised and peaceful continent which serves as a natural scientific laboratory. Despite many predictions to the contrary, a Review Conference of the Antarctic Treaty was not called for during 1991. Instead, 1991 saw the abandoning of CRAMRA and the speedy negotiation of a new environmental regime which if effectively implemented and developed has the potential to infuse the ATS with a fresh focus on Antarctic environmental management. Admirable as this goal may be, it would be a mistake for the issues of minerals, sovereignty and expanded participation in the ATS by the international community to be ignored. These are the challenges the Antarctic Treaty faces as it begins its second 30 years.

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147 See Beck, P J, "Regulating one of the last tourism frontiers: Antarctica" (1990) 10 *Applied Geography* 343; Wace, N, "Antarctica: a new tourism destination" (1990) 10 *Applied Geography* 327; Report of the House of Representatives Standing Committee on Environment, Recreation and the Arts (Australia), *Tourism in Antarctica* (1989).