LEGAL FRAMEWORK OF PROTECTION OF THE ANTARCTIC ENVIRONMENT

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1. INTRODUCTION

In the fifty years that have lapsed since the adoption of the Antarctic Treaty (Washington, 1 December 1959), a wide-ranging scheme of environmental protection measures has been developed and consolidated for this fragile ecosystem. While environmental concerns were not among the principles and objectives initially included in the treaty, they were the object of a comprehensive and innovative system for protecting the environment drawn up only a few years later. The

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1991 Protocol to the Antarctic Treaty created the first ever integrated system for environmental protection. The protocol is enhanced and supplemented by its six annexes.

The status of this area is unique both politically (defined as a continent – the last great continental wilderness[1] and legally (with an unprecedented international management system[2] speaking. It is also a progressive environmental protection system. The agreement to disagree on the question of Antarctic sovereignty has fathered an innovative system and the consolidation of the most advanced arrangements for protecting the environment.[3] While seven states – Argentina, Australia, China, France, New Zealand, Norway and the United Kingdom – have claimed parts of the continent, the lack of international recognition for the legitimacy of these claims has "put them on ice"[4] all these years.

The system has also proved to be very stable over the 50 years since its inception, and 20 since it could have been amended by its Contracting Parties. It may also be said to be generally accepted, for the Antarctic Treaty has 47 Contracting Parties (28 consultative and 19 non-consultative, including all the members of the UN Security Council), and the Protocol on Environmental Protection has been ratified by 34 (28 consultative and 6 non-consultative).[5] The States most closely involved in Antarctic issues have ratified these texts. But, how is this system articulated? What are its chief characteristics? How has it adapted to the Antarctic and surrounding area's new needs? How effective would it be in the event of an environmental emergency? These are a few of the questions that this presentation will attempt to answer.

2. HISTORIC BACKGROUND

Three main stages can be defined in terms of the pre-eminence of environmental concerns in the Antarctic:

a) First stage (1950-1970). When the Antarctic Treaty was initially adopted, it contained no truly environmentally oriented principles (addressing only peaceful use, freedom of research, inspection...). It was not until 1964 that the Antarctic Treaty Consultative Meeting (ATCM) adopted a number of Agreed Measures for the Conservation of Antarctic Fauna and Flora. This is the original legal instrument for protecting the Antarctic environment.

b) Incubation stage (1970-1990). Two international treaties were adopted in this period and incorporated into the Antarctic Treaty System. These two conventions, which are formally ancillary to the Antarctic Treaty, constituted decisive progress toward environmental protection: The Convention for the Conservation of Antarctic Seals (CCAS, London, 1972); The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR, Canberra, 1980).

c) Consolidation stage (1990-). In this stage, which is ongoing, very high levels of international cooperation have been reached in protecting the Antarctic environment. The adoption of the Protocol to the Antarctic Treaty on Environmental Protection marked a turning point: Since then, the ATCM has adopted six annexes and a significant number of other measures. Together they comprise a complex and elaborate system for protecting the environment that are reviewed here: The Protocol on Environmental Protection to the Antarctic Treaty (Madrid, 1991); The six annexes to the Protocol.

3. LEGAL AND INSTITUTIONAL FRAMEWORK

A distinction can be usefully drawn between the legal and institutional frameworks in the Antarctic Treaty System.

The system's legal framework can be summarized as follows: a) Antarctic Treaty, Washington, 1 December 1959; Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 1991; Annex I. Environmental Impact Assessment; Annex II. Conservation of Antarctic Fauna and Flora; Annex III. Waste Disposal and Waste Management; Annex IV. Prevention of Marine Pollution; Annex V. Area Protection and Management; Annex VI. Liability arising from Environmental Emergencies (the only annex not yet in effect); ATCM Measures on Environmental Protection; Convention for the Conservation of Antarctic Seals (CCAS), London, 1972; Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), Canberra, 1980.

The three main bodies comprising the system's institutional framework are:[6] a) Antarctic Treaty Consultative Meeting (ATCM): Attended by the Consultative Parties to the Antarctic Treaty, for: the exchange of information, mutual consultation and the formulation of measures to attain Treaty objectives.[7] Making decisions: measures,[8] decisions[9] and resolutions[10] which are binding once ratified by all the Consultative Parties or, as appropriate, one year after approval (fast track approval procedure). b) Committee for Environmental Protection (CEP): a standing body with advisory functions. And c) Secretariat of the Antarctic Treaty (SAT): created in 2003 with headquarters in Argentina,[11] operational and in force since 6 October 2009.

4. LEGAL STATUS AND DEFINITION OF THE ANTARCTIC AREA

The Antarctic Area has *sui generis status* as a "natural reserve" for peace and science[12] but that cannot be considered as "Common Heritage of Mankind"[13] because of the claims to sovereignty over the continent. The system covers the entire area, land and sea, south of 60º South latitude, and is even concerned with possible adverse effects on dependent or associated ecosystems[14] outside the Antarctic Area.

5. SCHEME FOR PROTECTING THE ANTARCTIC ENVIRONMENT: GUIDING PRINCIPLES

The main guiding principles of the Antarctic System are: peaceful use, freedom of research, consistency with the Antarctic system, cooperation, ecosystem approach and, finally, the precaution principle.

The Antarctic Area must be reserved for peaceful use. In this regard, military activities, nuclear explosions and the deposit of radioactive waste are prohibited in the area.

The corollary to this first principle is that freedom of research prevails in the Antarctic for all States and not only for the Contracting Parties.[15] Such freedom also entails freedom of circulation on land, sea and in the air.

The system for environmental protection must be consistent with the Antarctic system. Along these lines, the parties are obliged to conduct their environmental protection activities in a manner consistent with the aforementioned legal instruments.

States are compelled to seek cooperation when planning and

conducting the activities set out in the Protocol.

The ecosystem approach is a cornerstone in the Antarctic System. This approach is adopted both generally (such as in the system's concern over the "dependent or associated ecosystems" affected by the Antarctic environment) and in connection with fisheries management. The Antarctic system, particularly the Convention on the Conservation of Antarctic Marine Living Resources, pioneered the application of this approach despite the practical problems involved, even today.(16)

Finally, the precaution principle underlies the spirit, for instance, of the environmental impact assessment system, although no consensus has yet been reached around its application to other important domains such as tourism.

6. MAINSTAYS OF THE SCHEME FOR PROTECTING THE ANTARCTIC ENVIRONMENT

6.1. OBJECTIVE AND KEY COMPONENTS

The main objective of the scheme is to provide comprehensive protection for the Antarctic environment and dependent and associated ecosystems.(17)

The mainstays of the scheme are: activity planning, prevention of environmental impact, scientific grounds, prohibition of activities relating to mineral resources, protection for native flora and fauna, waste control, prevention of marine pollution by ships, protection and management of certain areas, enforcement and, finally, dispute settlement.

Firstly, States must plan their activities in advance to avoid any adverse impact on the climate, water, air, fauna or flora... except in

emergencies where the safety of human life, vessels or facilities of high value ... calls for immediate and urgent action.[18]

Secondly, States must prevent environmental impact. To this end, prior studies on the environmental impact of the activity must always be conducted pursuant to the detailed and exhaustive procedure laid down in Annex I to the Protocol.[19] This unique and effective system, consolidated in states' domestic legislation, plays a vital role in protecting the Antarctic environment.[20]

Thirdly, all actions in the Antarctic Area must be backed by reliable scientific evidence based on the free circulation of scientific information and the exchange of scientific observations and findings.

This evidence is normally found in the reports issued by the Scientific Committee on Antarctic Research, SCAR, a body prior to but associated with the AT that advises the Antarctic Treaty Consultative Meetings (ATCM) and the Committee for Environmental Protection (CEP).[21]

Fourthly, a permanent ban has been placed on mineral resources-related activities other than research. In the wake of the failure of the negotiations held from 1982 to 1988 for the Convention on the Regulation of Antarctic Mineral Resource Activities (Wellington, 1988), which never entered into force, exploitation of mineral resources was permanently prohibited.[22] This is controversial, however, in light of the requests lodged with the United Nations Commission on the Limits of the Continental Shelf by countries claiming sovereignty over continental shelves south of 60º South latitude.[23]

Fifthly, the protection for native flora and fauna is based on the prohibition to take (particularly in the case of specially protected species) or introduce non-autochthonous species, parasites or

disease... unless otherwise authorized.(24)

Sixthly, waste control is another key component of the scheme. Waste reduction, storage and elimination in, as well as removal from, the Antarctic Area is strictly planned.(25)

Seventhly, the system attempts to prevent marine pollution by ships. Contracting Parties' vessels (except States' ships and other vessels participating in their Antarctic operations) may not discharge oil or oily mixtures, noxious liquid substances, garbage or sewage (except under certain conditions). Detrimental effects on dependent or associated ecosystems outside the Antarctic Area must also be avoided. Flag state jurisdiction is the sole jurisdiction explicitly provided for, although implicitly, port State jurisdiction may be possible in the framework of procedures for cooperative response to environmental emergencies.(26)

Eighthly, certain areas are subject to special protection and management. ATCMs define "Antarctic specially protected areas" and "Antarctic specially managed areas".(27) Specific management plans and codes of conduct based on cooperation are established for both, and access to the former is subject to authorization. The designation of marine areas as ASPA or ASMA is subject to CCAMLR approval.(28)

Finally, the scheme for protecting the Antarctic environment includes certain guarantees:

a) Enforcement: via inspections conducted by the Consultative Parties' designated observers. Aerial inspections and the obligation to allow inspectors total accessibility to: stations, installations, equipment, and vessels and aircraft at points of discharging and personnel and embarking cargoes.(29)

b) Dispute settlement: this system is based on Art. 33 of the UN Charter(30) and contains the obligation to engage in consultations and

seek settlement by any peaceful means and the intervention of an arbitral Tribunal. This arbitral Tribunal has residual jurisdiction in the event of disagreement about the prohibition of activities relating to mineral resources, environmental impact assessment, response to environmental emergencies (and national implementation of such measures) and annexes (except as regards prevention of pollution by ships owned or operated by States.(31) The balance between parties' rights and interests has rendered these arrangements purely theoretical, for they have never been applied.

6.2. MAINSTAYS OF THE SCHEME SPECIFICALLY RELATING TO ENVIRONMENTAL EMERGENCIES

Some mainstays of the scheme are related specifically to action in the event of environmental emergencies. A distinction may be drawn in this regard between action protocols and liability protocols.

Article 15 of the Protocol and Article 12 of its Annex IV, for instance, provide for a protocol, now consolidated, for environmental emergencies. In this context, Contracting Parties are generally required to respond promptly and effectively to emergencies. Responses must be cooperative, entail a procedure for immediately notifying and responding to environmental emergencies and draw from advice provided by the international organizations involved, such as the IMO. Nonetheless, the main instrument is indisputably the establishment of contingency plans for all incidents that may have adverse effects on the Antarctic environment and dependent and associated ecosystems (including contingency plans for vessels and a cooperative response to marine pollution emergencies).

Moreover, Article 16 of the Protocol lays down the obligation

to adopt an annex containing rules and procedures relating to the liability for damage arising from activities in the Antarctic Area. Pursuant thereto, the Contracting Parties adopted Annex VI to the Protocol. The States failed, however, to reach an actual agreement on liability. They simply adopted an action protocol for environmental emergencies in the Antarctic Treaty area that establishes a complex mechanism for reimbursing the costs of action in such cases. The mechanism is geared more to prevention than the attribution of actual liability. The system envisaged in this annex is not yet in force, for it has been ratified only by Spain, Peru, Poland and Sweden.(32) The scope of this system is: a) Area: the Antarctic Area; b) Object: critical environmental situations caused by activities subject to notification and conducted by public and private operators, including tourist vessels;(33) c) Parties: all Contracting Party operators (defined to be natural persons or governmental or non-governmental juridical persons organizing activities in the Antarctic Area).

The Annex lists and describes Parties' and operators' obligations respecting the preventive and contingency plans provided for in Art. 15 of the Protocol and requires Parties to undertake preventive measures. Parties are also required to respond promptly and effectively to environmental emergencies generated by their activities.

The Annex establishes, first and foremost, a system of de strict liability in the event of inaction or ineffective response to an emergency. In such instances the Annex provides that operator liability (individual or joint and several if the emergency is the result of the actions of two or more operators) includes defrayal of the costs incurred by others responding in their place. This is the most innovative and significant aspect of Annex VI, which also

lays down the conditions for bringing liability action when emergency measures are taken by a party upon whom they are not initially incumbent. These include: a) Non-state operator: in Parties' courts. Specifically, under the jurisdiction of the Contracting Party where the operator is incorporated or has its principal place of business or his or her habitual place of residence, and subsidiarily, under the jurisdiction of the State on whose soil the operator conducts its business. This, naturally, must be supplemented by the institution of mechanisms in domestic law whereby actions can be entertained by Contracting Parties' courts to guarantee redress.(34) And b) State operator: in the event of disputes arising because a Contracting Party has taken emergency measures in lieu of a State operator, resolution is to be attained via an enquiry procedure or, as appropriate, arbitration. The Party is liable only if it failed to take suitable measures to ensure that its operator fulfilled its obligations. Such State's liability must be resolved under dispute settlement mechanisms. Although Annex VI explicitly rules out application of the mandatory dispute settlement mechanism provided for in the Protocol, as Gautier notes, this poses the question of whether the mechanism would be mandatory for disputes arising in the framework of the Annex but related to the provisions of Article 13 of the Protocol.(35)

Exemptions from and limits to liability are likewise established(36) and a specific fund is created to be administered by the Secretariat of the Antarctic Treaty to finance response actions whenever necessary.

As acknowledged in the Preamble itself, this Annex is a mere "step in the establishment of a liability regime". It establishes bare minimum conditions that fail to fully develop the potential envisaged in Article 16 of the Protocol.

7. FINAL REMARKS

To conclude, the main features of the scheme for protecting the Antarctic environment are:

- its Adaptability: the system is highly adaptable to new needs through ATCM decisions;

- its Coordination and consistency: the international information, management and conservation systems (SCAR, CCAS, CCAMLR, IMO…) are closely coordinated and highly consistent. Also, its Effectiveness: the absence of serious emergencies stands as proof of the effectiveness of the prevention system; and

- its Comprehensiveness, despite the possible management gaps in areas such as the tourist industry and its adverse medium- and long-term effects on the environment.(37)

But it has still proven to be unable to eliminate outside impacts detrimental to the Antarctic environment such as global warming or the hole in the ozone layer over Antarctica.(38) Effective environmental impact assessments, long-term monitoring and the establishment of further mitigation measures for non-indigenous species have become indispensable… And its definition of the criteria for State authorization of activities in Antarctica is insufficient.(39) At least one Contracting Party (USA) has no such system. As Manzoni(40) notes: "unlimited access to a reserve is a contradiction of terms". Its arrangements are difficult to apply in comparable environments (Arctic,(41) Mediterranean(42)...). Equivalent continent-wide environmental arrangements are in place in Europe only. In short, States' consensus about the fragility of the Antarctic ecosystem and the need to protect it while at the same time protecting its dependent or associated ecosystems has given rise to and consolidated a dense, complex and highly developed system to prevent and respond to environmental emergencies. ❖

NOTES:

1. "As a result of its extreme isolation from human settlements", BASTMEIJER K., VAN HENGEL S.: "The role of the protected area concept in protecting the world´s largest reserve: Antarctica", *Utrecht Law* Review, vol. 5, Issue 1, June 2009, p. 1. In this regard, BASTMEIJER notes that the "broad acknowledgement of the wilderness values of these regions, the current lack of attention for wilderness protection at the international level and the fast increase of commercial activities in both Polar Regions are strong arguments … for urging the states involved in the Arctic Council and the Antarctic Treaty System to open the debate on relevant questions: What are wilderness values in the context of the Polar Regions more precisely and when would these values be adversely affected? What are the consequences of wilderness protection for human activities?, BASTMIJER, K.: "Protecting polar wilderness: just a western philosophical idea or a useful concept for regulating human activities in the polar regions?", paper presented at the International Symposium 'Looking beyond the International Polar Year Emerging and Re-Emerging Issues in International Law and Policy in the Polar Year', University of Akureyri, Iceland, September 7-9, 2008, published in the first edition of the *Yearbook of Polar Law* (Boston/Leiden: Brill/Martinus Nijhoff Publishers, forthcoming 2008/2009); Electronic copy available at: <http://ssrn.com/abstract =1295430>.

2. Despite the gaps that have yet to be closed: soft law in many areas, significant exceptions to the general regime, enforcement problems... see in this regard: PINESCHI, L.: "The Madrid Protocol on the Protection of the Antarctic Environment and its effectiveness", in FRANCIONI, SCOVAZZI: *International Law ...,* cit., pp. 261-291 (272 *et sequentes*.).

3. ROTHWELL even noted that "it is possible to draw some important lessons from Antarctic experience for the development of international environmental law

and treaty-making generally"; ROTHWELL, D.R.: "Polar Environmental Protection and International Law: The 1991 Antarctic Protocol", *European Journal of International Law*, 2000, pp. 591-614 (593); ROTHWELL, D.R.: *The Polar regions and the development of international law*, Cambridge, 1996, p.154.

4. Nonetheless, the continental shelf requests submitted to the United Nations Commission on the Limits of the Continental Shelf by some of the States claiming sovereignty over the Antarctic (Australia, New Zealand, Argentina, Norway, France and the United Kingdom; to date, only Chile has not submitted a continental shelf request) and the Commission's recommendations to some of these States have to some degree rekindled territorial claims over Antarctic areas for the first time in fifty years. See, HEMMINGS A., STEPHENS T.: "Reconciling Regional and Global Dispensations: The implications of Subantarctic Extended Continental Shelf Penetration of the Antarctic Treaty Area", *Legal Studies Research Paper, Sydney Law School*, No. 09/68, July 2009, pp. 1-16.

5. A considerable portion of the legislation on the Antarctic system stems not only from conventions, but also from customary international law. CHARNEY, J.I.: "The Antarctic System and customary international law" in FRANCIONI, F., SCOVAZZI, T. (eds.): *International Law for Antarctica*, The Hague, 1996, pp. 51-101.

6. The Antarctic system is not conceived as an IO but it does have standing bodies that adopt binding decisions, as discussed below. WATTS pointed out that the Antarctic Treaty, more than constituting conventional law, generated law. WATTS, A.: *International Law and the Antarctic Treaty System*, Cambridge, 1992, p. 12.

7. The latest was the 32nd Atlantic Treaty Consultative Meeting held at Baltimore, United States, in April 2009, which commemorated the 50th anniversary of the Antarctic Treaty.

8. A text which contains provisions intended to be legally binding once it has been approved by all the Antarctic Treaty Consultative Parties will be expressed as a Measure recommended for approval in accordance with paragraph 4 of Article IX of the Antarctic Treaty, and referred to as a "Measure". Decision 1 (1995).

9. A decision taken at an Antarctic Treaty Consultative Meeting on internal organizational matters will be operative at adoption or at such other time as may be

specified, and will be referred to as a "Decision". Decision 1 (1995).

10. A hortatory text adopted at an Antarctic Treaty Consultative Meeting will be contained in a Resolution. Decision 1 (1995). The Nineteenth ATCM held at Seoul in 1995 changed the terminology used to denominate decision instruments (Decision 1 (1995)) and eliminated the prior reference to recommendations. The latest amendment to the rules of procedure was adopted under Decision 1 (2008).

11. With which it has signed a Seat Agreement (despite being neither a State nor an IO).

12. Although as BASTMEIJER noted, "This agreement on the need to protect wilderness values in Antarctica probably has its foundation in relevant provisions of CRAMRA, Recommendation XV-1 of 1989 and the campaign of NGOs and some states to save Antarctica as a 'World Park' or 'Wilderness Park' (1989/1990). In view of this historical background, the legal status of wilderness values in the Protocol and the fast increase of human activities in the Antarctic, it is striking that wilderness protection has not been seriously implemented in practice. Some Contracting Parties to the Protocol did not even incorporate the obligation to take account of wilderness values (see Article 3(1) of the Protocol) in their domestic legislation. Furthermore, the issue of protecting wilderness values has received little attention in the almost fifteen years of debate on policy issues, such as tourism management in Antarctica"; BASTMEIJER: "Protecting Polar Wilderness…", op. cit., pp. 1-18 (18).

13. See, with respect to whether or not it forms part of mankind's common heritage: INFANTE CAFFI, M.T.: "El Sistema Antártico y el desarrollo del Derecho Internacional", *Cursos Euromediterráneos Bancaja de Derecho Internacional*, Vols. VIII/IX, 2004/2005, pp. 281-347 (308-311); VUKAS, B.: *The Law of the Sea. Select writings*, Martinus Nijhoff Publishers, Leiden, 2004, pp.125-129; HAMBRO, E.: "Some Notes on the Future of the Antarctic Treaty Collaboration", *American Journal of International Law*, 1974, pp. 217-226; NATHAN, A.: "Defining the *common heritage of mankind*", in SUSSKIND, L.; MOOMAW, W. AND GALLAGHER, K. (eds.): *Transboundary Environmental Negotiation. New Approaches to Global Cooperation*, Jossey-Bass, San Francisco, 2002, pp.3-23; SHACKELFORD, S.J.: "The Tragedy of the common heritage of mankind", *Stanford Environmental Law Journal,* vol. 27, 2009, pp.101-157 (128 *et sequentes*.);

JOYNER, CH.C.: *Governing the Frozen Commons. The Antarctic Regime and Environmental Protection*, University of South Carolina Press, 1998, pp. 220 *et sequentes*.

14. Claims to and acknowledgement of sovereignty over sub-Antarctic island continental shelves may have a special impact on associated and dependent species inside and outside the Antarctic Area. See: HEMMINGS, STEPHENS: "Reconciling Regional and Global…", op. cit., pp. 2-15.

15. The significant scientific progress made in both Poles was highlighted on the occasion of the Fourth International Polar Year (<http://www.ipy.org>). Many projects have been undertaken, involving scientists from over 60 States conducting research in a wide range of areas: biology, physics and even social science.

16. See, in respect of the innovative nature of the CCAMLR and some of these practical problems: REDGWELL, C.: "Protection of ecosystems under international law: lessons from Antarctica", in BOYLE A., FREESTONE D. (eds.): *International Law and Sustainable Development*, Oxford, 2001, pp.205-224; REDGWELL, C.: "The protection of the Antarctic environment and the ecosystem approach", in BOWMAN M., REDGWELL C. (eds.): *International Law and the Conservation of Biological Diversity*, London, 1996, pp.109-128; BENDER, Ph.: "A state of necessity: IUU fishing in the CCAMLR Zone", *Ocean and Coastal Law Journal*, 2008, pp.2 33-279; KOCK, K.H.: "Hacia una mejor comprensión del concepto de ordenación en la CCRVMA", mayo 2000, <http://www.fucema.org.ar/old/sistema/ccamlr/comprension.pdf>.

17. As it has been establish in Protocol, Art. 2.

18. Protocol, Art. 3.2.

19. Protocol, Art. 8 and Annex I.

20. Although "the limitations of EIA in establishing comprehensive protection of Antarctica in accordance with Article 3 of the Protocol should be noted. EIA establishes a key linkage between national (or private) activity proposals and international environmental protection in the Antarctic Treaty Area. However, the final decisions on whether and how activities subjected to EIA should proceed are taken entirely at the national level – and with national interests in mind", BASTMEIJER K., ROURA R.: "Environmental impact assessment in Antarctica", in BASTMEIJER K., KOIVUROVA T. (eds.): *Theory and Practice of*

Transboundary Environmental Impact Assessment, Leiden/Boston, 2008, 175-219 (219).

21. Protocol, Art. 3. The SCAR's area of competence is limited to the Antarctic Convergence.

22. Protocol, Art. 7.

23. Despite the prudence exhibited by most of the claimants, the author agrees with HEMMINGS AND STEPHENS, who "see a fundamental conflict with a state arguing its commitment to one set of norms under one dispensation (such as the prohibition of minerals activity under the Protocol, or collective decision making about Antarctic bioprospecting) whilst actively seeking preclusive rights to precisely this under another (coastal state rights over the ECS under UNCLOS)", HEMMINGS, STEPHENS: "Reconciling regional and global…", op.cit., p.14. On the claims and their consequences, see: VIGNI, P.: "Antarctic maritime claims: f*rozen sovereignty* and the Law of the Sea", in OUDE ELFERINK A.G., ROTHWELL D.: *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, The Hague, 2001, pp.85-104.

24. Protocol, Annex II.

25. Protocol, Annex II.

26. Protocol, Annex IV.

27. For a fuller discussion see: BASTMEIJER, VAN HENGEL: "The role of the protected area…", op. cit., p. 1-19 (12-18).

28. Annex V.

29. Protocol, Art. 14.

30. Protocol, Arts 18 to 20 and Schedule. See, TREVES, T.: "Compulsory settlement of disputes: a new element in the Antarctic System", in FRANCIONI, SCOVAZZI: *International Law …, op.cit.*, pp. 603-612.

31. Art. 11.4 of Annex IV.

32. On April 2, 2009, President Obama conveyed Annex VI to the Senate for its advice and consent on ratification and recommended that the Senate give early and favourable consideration. The Treaty Transmittal package has been referred to the Foreign Relations Committee for its consideration (Senate Treaty No. 111-2); <http://www.gc.noaa.gov/gcil_antarctic.html>.

33. In connection with control over vessels, especially tourist vessels registered

in third States not parties to the Antarctic system, GAUTIER identifies a need to use"tout le potentiel qu'offre *l´arsenal juridictionnel* contenu au paragraphe 5 de l´annexe VII du traité sur l´Antarctique (nationalité des passagers, nationalité ou lieu d´établissement de l´organisateur de voyages; juridiction de l´État du port) , GAUTIER, Ph.: « L´annexe VI au Protocole de Madrid relatif à la protection de l´environnement de l'antarctique : responsabilité découlant de situations critiques pour l´environnement », *AFDI*, 2006, pp. 418-431 (424).

34. Article 7 of Annex Vi.

35. In that regard as well as for a stimulating reflection on the relationship between the system envisaged in Annex VI and the possibilities stemming from the general regime for international liability for illegal acts laid down in the International Law Commission's draft, see GAUTIER: "L´annexe VI au Protocole …," op.cit., pp. 418-431 (431).

36. Action required to protect human life, a natural disaster of exceptional proportions...

37. On State reluctance to adopt binding decisions on tourism that extend beyond the provisions of the Protocol and its consequences, see: BASTMEIJER, K.: "A long term strategy for Antarctic tourism: the key to decision making within the Antarctic Treaty System", in MAHER P., STEWART E., MICHAEL LÜCK (eds.): *Polar Tourism: Human, Environmental and Governance Dimensions,* Cognizant Communication Corporation, New York, 2009. And on the impact of the tourist trade on Antarctic ecosystems: BENAYAS DEL ÁLAMO J., BOADA JUNCÁ, M. (Coords.): *Valoración del impacto ambiental del turismo comercial sobre los ecosistemas antárticos*, UAM, UAB, IE Universidad, Fundación Abertis, 2009.

38. At the most recent session of the ATCM, held in Baltimore in 2009, a working group was created to study the future challenges facing the Antarctic system: development of a liability regime, increasing tourism, climate change (despite the fact that the December, 2009 SCAR scientific report titled "Antarctic Climate Change and the Environment" claims that the hole in the ozone layer saves the Antarctic from climate change), bioprospecting (for this specific item see: HEMMINGS A.D., ROGAN-FINNEMORE, M.: "Access, obligations, and benefits: regulating bioprospecting in the Antarctic", in JEFFERY M.I., FIRESTONE J., BUBNA-LITIC K. (eds.): *Biodiversity Conservation, Law + Livelihoods*,

Cambridge, 2008, pp.529-552); ROGAN-FINNEMORE, M.: "What bioprospecting means for Antarctica and the Southern Ocean", in LEANE G., VON TIGERSTROM B. (eds.): *International Law Issues in the South Pacific*, Ashgate, Hampshire, 2005, pp.199-228), safety of air and maritime navigation…

39. BASTMEIJER, VAN HENGEL: "The role of the protected area…", op. cit., p. 1-19 (12).

40. MANZONI, M.: "Environmental nazards in Antarctica and man´s impacts on the Antarctic environment", in: FRANCIONI, F.: *International Environmental Law for Antarctica*, 1992, pp.53-92 (88).

41. Despite the ambitious position adopted by European Parliament, which has proposed negotiating a "Charter for Arctic Governance" similar to the Antarctic Treaty and its environmental protocol. In this respect, see in this volume: C. CINELLI, *L'ambition politique de l'Union européenne face à l'émergence environnementale dans l'Océan arctique*.

42. With regard to the difficulties entailed, see: SCOVAZZI, T.: "The Antarctic Treaty System and the new Law of the Sea: selected questions", in FRANCIONI, SCOVAZZI: *International Law ..., op.cit.*, pp. 377-394 (392 *et sequentes*).