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Agenda item ?

**Report on the Work
of the Intersessional
Contact Group on
SAER**

Submitted by
Sweden

**REPORT ON THE WORK OF THE INTERSESSIONAL CONTACT GROUP
ON A
STATE OF THE ANTARCTIC ENVIRONMENT REPORT (SAER)**

Submitted by Sweden

BACKGROUND

1. At ATCM XXI two tabled papers advocated preparation of a State of the Antarctic Environment Report (SAER) – WP32: *On the Need for a State of the Antarctic Environment Report* submitted by New Zealand and WP19: *State of the Antarctic Environment Report* submitted by SCAR. These papers argued the value at both regional and global levels of a "benchmark" document on the Antarctic environment, the value of such a document for Parties in meeting their obligations under the Protocol and its Annexes, and for the Committee for Environmental Protection (CEP) in meeting its mandated advisory function on the state of the Antarctic environment under Article 12 of the Protocol. Most parties seem to interpret Article 12 of the Protocol as requiring the CEP to develop and maintain a SAER, while others interpret it to simply require that the CEP provide advice on the state of the Antarctic environment.
2. The meeting (ATCM XXI) discussed concerns about the potential scope, focus, cost and production of a SAER, noted that a report could be done in several ways, and agreed that its objectives needed clarification to take into account different audiences and foci. The uses to which the Report might be put were seen to include:
 - i) as an archival benchmark/baseline document of global relevance;
 - ii) as a basis for the provision of policy guidance; and
 - iii) as a basis for the provision of trend analysis in environmental monitoring.
3. ATCM XXI agreed to establish an open-ended contact group facilitated by New Zealand, which would consider intersessionally how uncertainties about the focus of a SAER and the methodology of production might be resolved. Paragraphs 139-150 of the Final Report of ATCM XXI, relating to the discussion of SAER and establishment of the intersessional contact group, are attached as *Appendix 1*.
4. A selected summary of the discussions in the intersessional contact group was presented in a working paper at ATCM XXII, tabled by New Zealand – WP11: *Report on the Work of the Intersessional Contact Group... (SAER)*. New Zealand was thanked for its intersessional work, but some parties remained concerned that key questions had not been adequately answered. These included who the audience target should be, the nature of the report and the resource implications. SCAR noted that it had established an ad hoc group to maintain a watching brief on this issue and remained prepared to provide advice and assistance if required.

5. Most members at ATCM XXII felt that the conclusions and the recommendations for further action given in the New Zealand Working Paper should be strengthened in order to give guidance for further work on SAER. Some members, however, were particularly concerned about resource implications despite New Zealand's offer to contribute towards the cost. It was therefore agreed that further work was required to identify the case for a SAER.
6. CEP I decided to establish an open-ended intersessional contact group to:
 - (i) further clarify the Report framework conditions as identified in the report from XXI ATCM, paras. 143-150, and in Working Paper XXII ATCM/WP11 as further elaborated during the debate of the CEP,
 - (ii) consider questions of financial and human resource implications and commitments,
 - (iii) consider the possible role of SCAR and experts, and
 - (iv) report back to the CEP.
7. This Working Paper constitutes the report to ATCM XXIII on the work of the intersessional contact group prepared by the facilitator, Sweden.

MODUS OPERANDI OF THE CONTACT GROUP

8. Interested Parties, observers and experts were invited to notify Sweden at ATCM XXII of their interest in participation in the intersessional contact group. Furthermore, the Final Report of ATCM XXII/CEP I identified an e-mail address for correspondence on SAER.
9. On 27 July 1998 the first circular was distributed, with the aim to check e-mail addresses to the contact points.
10. On 15 September 1998 Discussion Paper I was distributed via e-mail. The paper addressed different issues that were a development from WP11 (ATCM XXII). Responses to this paper were requested by 30 September 1998.
11. On the basis of received comments a further Discussion Paper was circulated on 5 November 1997. Comments received on Discussion Paper 1 showed disagreements on some main topics. Therefore, Discussion Paper 2 suggested a somewhat different approach compared with Discussion Paper 1 with the aim to find the "lowest common denominator". Responses to this paper were requested by 20 November 1998.
12. Discussion Paper 3 was circulated on 28 January 1999 based on comments received on Discussion Paper 2. This paper addressed some issues more in detail and tried to find a possible way forward, since there were still disagreements on some important issues (if ATCM/CEP should at all put resources into the production of SAER). Responses to this paper were requested by 12 February 1999.

13. Based on received comments on Discussion Paper 3, a draft Working Paper was circulated on 3 March 1999. Responses were requested by 8 March 1999. This Working Paper draws upon the comments received.
14. Altogether seven parties/organisations have participated in the discussions: Brazil, Netherlands, New Zealand, Norway, Sweden, UNEP, and USA.
15. Sweden expresses its gratitude to the participants in the contact group for their fruitful contributions to the intersessional work.

MATTERS ADDRESSED BY THE CONTACT GROUP

16. The remit of the contact group was to "further clarify the Report framework conditions as identified in the report from XXI ATCM, paras. 143-150, and in Working Paper XXII ATCM/WP11 as further elaborated during the debate of the CEP, consider questions of financial and human resource implications and commitments, consider the possible role of SCAR and experts, and report back to the CEP". This Working Paper presents the outcome of the discussions concerning the different parts of a production of a SAER. It is then the task for ATCM/CEP to discuss and decide about the process and, among others based on this Working Paper, decide if a SAER will be produced or not.
17. The discussion has focused on the possibilities to reach consensus on a single suggestion how to proceed with a SAER and what a SAER could look like, rather than presenting a working paper with a number of alternatives. This direction was chosen in order to make an as efficient use as possible of WP11 at ATCM XXII/CEP I, and was by the chair of the group considered fulfilling the remit of the intersessional contact group. However, the opinion of the U.S. was that the contact group was tasked with identifying the range of possibilities and the relative costs and benefits of each.
18. In this regard, the U.S. noted in its comments on the last draft Working Paper (paras. 19-25 below) that there may not be a common understanding of what is meant by the term "further clarify the Report framework". Most of those who have been involved in the discussions seem to be of the opinion that there is agreement that the task of the group was to recommend a framework for a SAER, while others are not.
19. From discussions during and since ATCM XXI, it is clear that there is no agreement on what if any kind of SAER would justify its production. In this regard it is useful to look at paras. 143-150 in the report from ATCM XXI in the context of paras. 140 and 141 that state:

"Parties acknowledge that a SAER could provide a valuable benchmark against which environmental change might be monitored and impacts measured, and that it might provide a valuable synthesis of the large and diverse amount of scientific information available. The discussions noted that such a report could be done in several ways, each with a differing focus and level of detail.

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The Meeting raised concerns about the potential scope, focus, cost and production of an SAER....”

20. When viewed in this context, it is clear that the reference to options and possible financial commitments in para. 148 was intended by the ATCM to instruct the contact group to identify and assess the relative costs and benefits of the various types of SAER's that conceivably could be done. It also is clear that there are several relatively discrete options with a range of sub-options. The possibilities include
- (i) having each of the countries operating stations and the non-governmental organizations conducting activities in Antarctica develop and periodically report the results of environmental monitoring programs designed to determine the environmental impacts of their operations;
 - (ii) conducting a survey of the Treaty Parties, members of SCAR, and the Antarctic science community to determine what is known and what the various entities think needs to be learned about the various components and threats to the various components of the Antarctic marine, terrestrial, and atmospheric environments;
 - (iii) constituting a working group, as was done by the Arctic countries, to prepare a report on the sources, fates and effects of anthropogenic contaminants on the Antarctic environment; and
 - (iv) preparing and periodically updating a more comprehensive status report along the lines outlined in Appendix 2 of the draft working group report.
21. The first of these possibilities could be undertaken by allowing each of the countries operating stations and the non-governmental organisations carrying out activities in the Antarctic to decide what they will monitor, taking into account the findings, conclusions, and recommendations in the 1996 SCAR/COMNAP report "Monitoring of Environmental Impacts from Science and Operation in Antarctica." Alternatively, the Treaty Parties and non-governmental organisations could ask the CEP and/or SCAR and COMNAP for advice on what should be monitored, quality assurance, reporting requirements, analytical techniques, etc. and undertake monitoring programs, individually or collectively, based on the advice provided. With respect to collective monitoring, countries with stations in the same general areas might coordinate their efforts. Cost would be determined by what is done and would be borne by or apportioned among the individual countries conducting or supporting the programs.
22. The second of the possibilities could be undertaken in a variety of ways, e.g., by having the CEP (a) develop and, following endorsement by an ATCM, forward a questionnaire to relevant entities seeking input; and then (b) task a member or constitute a working group to prepare a report summarising the information provided. Alternatively, the ATCM could ask the COMNAP or request that SCAR undertake and report the results of the survey. Any Treaty Party or group of parties also could conduct the survey. The cost would be borne by those doing the work.

23. The third possibility presumably would require an effort similar to that devoted by the AMAP Working Group to preparing the State of the Arctic Environment Report. If this is considered a viable option, the contact group's report should describe how this report was prepared, what it contains, how long it took to complete, what it cost, and the difficulties that were encountered in compiling information and agreeing what would be included in the report.
24. The fourth possibility likely would require the same level of effort that went into preparing the report on the state of the Arctic environment. At least one or two people with backgrounds in Antarctic science and environmental assessment would have to work full time on the project if a report is to be completed in three years or less. One or more Treaty Parties or organisations could detail people to do this work themselves or through SCAR, COMNAP, or the CEP. Alternatively, one or more Treaty Parties, SCAR, COMNAP, etc. could contract individuals or an organisation to do the work. A draft of the report would have to be provided to the contracting or parent organisation(s) for review and comment before it is submitted in final form.
25. The target audience, content, and procedures for reviewing, finalising, and distributing the report would be determined by whoever produces it. The real costs would be at least several hundreds of thousands of dollar (U.S.) per year.

GENERAL

26. General issues that were up to discussion in the contact group were whether a potential SAER would be of comprehensive or summary nature, if it would be based on available data, and if it would be presented on the Internet.
27. The first issue was discussed only briefly, since the topic was discussed in deeper context in WP 11, ATCM XXII/CEP I, and most parties/organisations involved in the contact group agreed that a SAER should be of summary nature. However, one remark was that, without fully exploring what the objectives for a summary document versus a comprehensive document might be, it is not appropriate to endorse a particular approach.
28. Concerning the second issue, it was expressed that a potential SAER should be based on available data. One concern was that there is no general agreements on this issue either. The usefulness of a SAER must be clarified first.
29. There was, however, a general agreement on the third issue, and all responses agreed that a SAER should be available on the Internet.

GOALS AND OBJECTIVES

30. Goals and objectives were discussed in the contact group. The following suggestion is based on this discussion. However, there was no general agreement on

goals and objectives in the contact group. It was argued that it is not right that a SAER should be identifying possible action, which may include international agreements, since this is well beyond the scope of a scientific work.

| Discussed goals [for a Summary SAER](#)

31. To provide decision- and policy-makers, including governments and the CEP, with an overview of the status of, pressures on, and trends in the Antarctic environment, in order to aid management of the Antarctic environment, and in relation to global processes, particularly pressures originating beyond Antarctica, which affect the Antarctic environment. However, it was expressed that the Environmental Protocol (a) applies explicitly to the effects of activities in Antarctica on the Antarctic environment and dependent and associated ecosystem; and (b) directs the CEP to provide advice on measures needed to implement the Protocol "and to perform such other functions as may be referred to it by the ATCMs." Thus, the CEP arguably would require a directive from an ATCM before considering pressures on the Antarctic environment originating from activities outside Antarctica. Further, before providing such a directive, the Treaty Parties presumably would consider whether such activities would be addressed more appropriately in other fora, such as GLOBEC (Global Ocean Ecosystems Dynamics Research) and the Montreal Protocol.

| Discussed objectives [for a Summary SAER](#)

[32.](#) The following objectives have been discussed:

- (a) Provide a current status of the Antarctic environment; summarise current scientific knowledge of the environment, identifying major areas of uncertainty and gaps in knowledge, draw on reviews/audits and monitoring programmes
- (b) Identify and document the principal pressures and their consequences (past, present and possible future) on the Antarctic environment including threats from local, regional and global activities
- (c) Provide the basis for identifying a core set of key environmental indicators for the Antarctic (cf. SCAR/COMNAP workshops in 1995 and 1996)
- (d) Identify significant trends in the Antarctic environment reflected in the information and key data sets compiled in (a) and (b). (It was suggested that indications of what trends would be considered significant presumably is needed, and that it is necessary to be able to distinguish changes due to natural causes from those due to different types of anthropogenic activities both in and outside Antarctica)
- (e) Provide recommendations for actions to address any significant environmental issues identified in the report, including monitoring programmes, scientific research, guidelines and international agreements

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AREA

| [33.](#) Possible area for a SAER is the area south of the Antarctic Convergence (SCAR ATCM XXI). This is an environmental boundary that includes all of the Antarctic Treaty area, and most of the areas subject to CCAMLR and the Southern Ocean Whale Sanctuary. It was also suggested that consideration presumably should be given to the possibility that the area of interest should include dependent and associated ecosystems.

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34. It was expressed that there may be some problems with explicitly defining the area of study as being that bounded by the Antarctic convergence. The convergence has no particular standing in Antarctic Treaty System instruments, and it would therefore be better to refer to the Antarctic Treaty area.

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AUDIENCE

35. The discussion resulted in some thoughts, and circled mostly around that the primary audience would be national managers and decision-makers, and that a SAER would be aimed at an audience with a serious interest in the Antarctic environment. This includes environmental managers on all levels, decision- and policy-makers and the CEP.

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36. Furthermore, it was suggested that the report also would be of considerable value to the scientific community as well as for wider public education.

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PROCEDURAL CONSIDERATIONS

37. It was suggested that a possible stepwise approach could be to develop a framework for a *review of existing information* as a first step (*State of Knowledge Report for the Antarctic*). The aim with the State of Knowledge Report would be to get a broad picture of existing information and gaps in knowledge on the Antarctic environment. With the result from the State of Knowledge Report in hand, it could then be decided if it is worth continuing the work and produce a SAER. This approach has a twofold advantage: 1) A SAER can be produced as a continuation, 2) the State of Knowledge Report is needed for a SAER, but at the same time useful even if ATCM/CEP will decide not to produce a SAER.

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38. However, concerns about this were expressed, and there was no general agreement that the ATCM/CEP should endorse a review of existing information as a first step. According to this position SCAR should not be asked to take on this work, which has been discussed in the contact group (see below). Individual parties may wish to do this, and could present their work to SCAR and/or the ATCM/CEP for information or review.

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39. Suggested goals and objectives of a "*State of Knowledge Report for the Antarctic*":

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- 1) To review existing scientific knowledge about the Antarctic environment as a basis for reviewing the state of the Antarctic environment, providing a summary of key information and identifying major gaps in the knowledge about Antarctica.
- 2) To give the CEP a basis on which to base its advice on the state of the Antarctic environment to the ATCM
- 3) To give the CEP a basis on which to assess whether a SAER should/could be developed

ISSUES

- | 40. Two possible issues for a SAER are presented in Appendix 2. The first is issue-based and the second is sort of area-based (scientific and/or geographic area). It was expressed that aligning the focus of a SAER with the AMAP Assessment report could facilitate the assessment of the impacts of global changes in both polar regions. It was also pointed out that aligning the focus of a SAER with the second suggestion for issues (Scar's suggestion) would be appropriate. It should be noted that the contact group was not asked to and did not provide explicit comments on these possibilities. Formatted: Bullets and Numbering
- | 41. Possible issues for the State of Knowledge Report is presented in Appendix 3. Formatted: Bullets and Numbering

THE ROLE OF SCAR AND EXPERTS

- | 42. It was expressed that the participation of expert groups, like SCAR, is essential in order to produce a respectable State of Knowledge Report/SAER. However, another position was that SCAR should not be asked to take on this work, but should certainly be invited to review and comment on any product. The ATCM/CEP should not be overburdening SCAR with this work, particularly in view of the fact that it has not been clearly established that such work will be of scientific value or done on a scientific basis. Formatted: Bullets and Numbering
- | 43. A number of organisations could be invited to provide specialist input to the document. For a list on this matter, see WP 19 submitted by SCAR to ATCM XXI. This topic was discussed only briefly in the contact group. Formatted: Bullets and Numbering
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FUNDING AND RESOURCES

- | 44. The implications of resources for a potential Summary SAER were discussed. It was concluded that the resources have to be based on voluntary contributions. One remark was that parties should not be *asked* for voluntary contributions, since countries know that they are always welcome to provide voluntary contributions. Furthermore, it was expressed that seeking funding from international organisations was not agreeable, since this could threaten the very basis on which the Antarctic Treaty System is built. Formatted: Bullets and Numbering
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- | 45. It was suggested that one and a half man-year for the production *per se* of a potential Summary SAER seem reasonable. This includes a preparation phase, collection phase, writing up phase and a rounding up phase (including the work with presenting SAER on Internet). Based on a cost for one man-month being US\$ 6 000, this gives an approximate cost of US\$ 108 000. Including costs for material, production of figures, and printing, a total budget of US\$ 200 000 seems reasonable. Formatted: Bullets and Numbering

Suggested costs for a potential State of Knowledge Report:

46. It was expressed that the production of a potential State of Knowledge Report as an interim step should be based on in-kind contributions and therefore implies no costs. However, it was pointed out that it is not clear that SCAR's members would be able to provide the in-kind contributions, and that SCAR presumably would have to constitute a specialists group to collate and summarise information provided by members or task its Executive Secretary with responsibility for doing so.

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TIME SCHEDULE

47. It was expressed that completion of a potential State of Knowledge Report could be in year 2001. A first version of a potential SAER depends of the outcome of the State of Knowledge Report and the decisions of ATCM/CEP, but could possibly be completed around year 2003-2004.

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CONCLUSION

48. The intersessional contact group on SAER attempted to find a possible way forward in further clarifying the framework conditions for a SAER. The range of possibilities and the relative costs and benefits of each alternative have not been discussed of reasons described in para. 17 above. The discussion at ATCM XXII/CEP I indicated that different points of view exist regarding the production of a SAER. Therefore, the contact group first concentrated on finding the "lowest common denominator" among the wide spectrum of opinions. Hence, a discussion paper was introduced with a proposal for a feasible way forward (including the State of Knowledge Report-suggestion). In the process, however, it become clear that there is no common ground or general agreement on several fundamental issues pertaining to the development of a SAER.

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RECOMMENDATIONS

49. Since the intersessional contact group on SAER did not reach consensus on the various framework issues, it is not possible to present a recommendation that includes a detailed suggestion as to whether or how to proceed with a SAER. Therefore, the intersessional contact group recommends CEP to:

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- discuss how and if CEP should continue to discuss matters of SAER or a State of Knowledge Report¹. The discussion should take the results from the work of the contact group into consideration.

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- further examine the ideas that were suggested during the discussions in the contact group and now contained in this working paper.

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In Appendix 3 to this WP recommendations for a continuation of the production process are presented. These recommendations are based on thoughts expressed in the intersessional contact group on SAER.¶

¹Appendix 3 provides suggestions for how the production process could be continued. These suggestions are based on thoughts that have been expressed in the intersessional contact group on SAER.

Appendix 1

From Final Report ATCM XXI

139-150

Item 14: Environmental Monitoring and State of the Antarctic Environment

(139) New Zealand and SCAR presented Working Papers (XXI ATCM/WP 32 and 19 respectively) on the need for, and suggested structure of, a State of the Antarctic Environment Report (SAER). Discussion then focused on the potential benefits and concerns facing Parties in the production of such a report, and ways in which it might be taken forward.

(140) Parties acknowledged that a SAER could provide a valuable benchmark against which environmental change might be monitored and impacts measured, and that it might provide a valuable synthesis of the large and diverse amount of scientific information available. The discussions noted that such a report could be done in several ways, each with a differing focus and level of detail.

(141) The Meeting raised concerns about the potential scope, focus, cost and production of an SAER, noting that while there are numerous models for State of the Environment reporting elsewhere, an Antarctic report was likely to be a comprehensive undertaking. Existing world experience of SOE reporting suggests that the more comprehensive a report, the greater the time and financial resources required.

(142) Parties noted New Zealand's intention to prepare a framework for a Ross Sea Region State of the Environment Report (SOE-RSR) by the year 2000 in consultation with other Parties active in the region. While it was acknowledged that this regionalised report could be used as a pilot for a larger, continent-wide report, it was felt that commencement of work on the SAER should not be tied to the timing or the completion of the SOE-RSR.

(143) The Parties agreed that the objectives for the SAER needed clarification to take into account different audiences and, consequently, foci for the Report. Uses to which the Report might be put include:

- i) as an archival benchmark/baseline document of global relevance;
- ii) as a basis for the provision of policy guidance; and
- iii) as a basis for the provision of trend analysis in environmental monitoring.

(144) The Meeting agreed that any one, or combination, of these uses might be appropriate and the approach should be clearly established by the ATCM before work on the SAER began.

(145) It was suggested that it could be useful for the SAER to distinguish the process of data collection, validation, and compilation, in which SCAR would play a major role, from the process of providing advice and formulating recommendations, which would have to be done by the TEWG/CEP.

(146) The Meeting noted that the Antarctic scientific community could be expected to play a major role in the preparation of the report. It expressed its appreciation for the

work that SCAR had already done in preparing draft guidelines and a schema for the Report. SCAR had identified a number of organisations with the relevant specialist capabilities, which might usefully be consulted in the development of the SAER.

(147) The Meeting agreed to form an open-ended contact group facilitated by New Zealand to consider intersessionally how uncertainties about the focus of a SAER and the methodology of production might be resolved, and report back to ATCM XXII. The contact group would be tasked with:

- i) developing clear objectives for the Report;
- ii) recommending whether the Report should be comprehensive or summary in nature;
- iii) proposing a time-frame for the Report;
- iv) considering the financial and human resources required to meet the proposed time-frame and scope of the Report; and
- v) considering what progress might be made on the Report framework.

(148) The Meeting noted that there was likely to be a range of options involving possible financial commitment from Parties. The contact group should consider preparing indicative cost estimates based on different options, investigate possible sources of funding and potential outlets for publication.

(149) New Zealand's offer to coordinate the work of the contact group prior to ATCM XXII was gratefully accepted by the Meeting. New Zealand was asked to facilitate the intersessional work of the contact group by correspondence, including email, and to report back to ATCM XXII. The Meeting noted that such intersessional work should take account of the financial, technical and other resource implications for participants in the production of a SAER.

(150) The Meeting agreed that the project should be open to the widest participation by Parties, observers and experts, and that interested Parties, observers and experts should notify the New Zealand national contact point by the end of June 1997 of their interest in participating in the intersessional work to be carried out by the contact group.

Appendix 2

Issues for a SAER

One focus is presented in AMAP Assessment Report: Arctic Pollution Issues/A state of the Arctic Environment Report (both comprehensive and summary version). Following suggestion is based on that report. (See Information Paper 40, ATCM XXII, *Development of "State of the Environment" Reports in the North – Experiences with the EEA and AMAP processes*, for further details).

1. Preface
2. Executive summary
3. Introduction
4. The Antarctic
5. Physical pathways
6. Polar ecology
7. Persistent Organic Pollutants
8. Petroleum hydrocarbons
9. Heavy metals
10. The ozone problem
11. Radioactivity
12. Current state of flora and fauna
13. Climate change (*including ice sheet balance*)
14. Pressures on the environment
 - Science and support activities
 - Fishing
 - Tourism
 - Long range pollutants
 - Cumulative pressures
 - Other potential threats (minerals?)
15. Conclusions, outlook and responses
 - Key environmental pressures and impacts
 - Status of scientific values
 - Status of aesthetic and wilderness
 - (Future research and monitoring, identification of key indicators)
 - (Policy implications and recommendations)
16. Pollution and human health
17. Appendices
 - Text of the Antarctic Treaty
 - Text of Convention for the Conservation of Antarctic Seals
 - Text of Convention for the Conservation of Antarctic Marine Living Resources
 - Text of Protocol on Environmental Protection to the Antarctic Treaty and its annexes

SCAR have suggested the following structure of a SAER (ATCM XXI/WP19):

1. Introduction
 - 1.1 Development of SAER
 - 1.2 Goals
 - 1.3 Institutional framework
 - 1.4 Current research, monitoring and management activities
2. Status and trends
 - 2.1 Terrestrial and aquatic ecosystems
 - 2.1.1 Ice sheets and ice shelves
 - 2.1.2 Ice-free areas
 - 2.1.3 Lakes and streams
 - 2.2 Marine
 - 2.2.1 Physical oceanography
 - 2.2.2 Sea ice
 - 2.2.3 Marine chemistry
 - 2.2.4 Marine ecosystem and biology
 - 2.3 Atmosphere
 - 2.3.1 Atmosphere dynamics – features and circulation
 - 2.3.2 Chemistry – trace gases
 - 2.3.3 Radiation and effects on the biosphere
3. Pressures on the environment
 - 3.1 Science and support activities
 - 3.2 Fishing
 - 3.3 Tourism
 - 3.4 Long range pollutants
 - 3.5 Cumulative pressures
 - 3.6 Other potential threats (minerals?)
4. Conclusions, outlook and responses
 - 4.1 Key environmental pressures and impacts
 - 4.2 Status of scientific values
 - 4.3 Status of aesthetic and wilderness
 - 4.4 (Future research and monitoring, identification of key indicators)
 - 4.5 (Policy implications and recommendations)
5. Appendices
 - 5.1 Text of the Antarctic Treaty
 - 5.2 Text of Convention for the Conservation of Antarctic Seals
 - 5.3 Text of Convention for the Conservation of Antarctic Marine Living Resources
 - 5.4 Text of Protocol on Environmental Protection to the Antarctic Treaty and its annexes

Appendix 3 is included in order to illustrate possible future actions and not as a proposal for how to proceed.

Appendix 3

One possible way of conducting a State of Knowledge Report is as follows:

- 1) that the Treaty Parties request SCAR, through their National Committees, to coordinate the development of a State of Knowledge Report on the Antarctic environment, that could serve as the basis for an Antarctic wide state of the environment report;
- 2) that an open ended contact group is established to liaise with SCAR through the development of the State of Knowledge Report, reporting to CEP III jointly with SCAR, on progress with the State of Knowledge Report;
- 3) that the State of Knowledge Report be based on the following terms of reference:

Suggested Terms of Reference for the work with the State of Knowledge Report:

- SCAR will be asked to use their permanent network, i.e. working groups, groups of specialists, etc.;
- all Parties/organisations interested in participating in the contact group, and contribution to the State of Knowledge Report of existing information, inform the Chair of the contact group at ATCM XXIII/CEP II;
- SCAR/the contact group will work in a close co-operation with expert groups (see WP 19, submitted by SCAR, ATCM XXI);
- all contribution to the process will be in-kind contributions;
- the State of Knowledge Report should state how good the information is (an indication of quality, is it comprehensive, incomplete etc);
- the State of Knowledge Report should identify where information is inadequate or lacking and comment on the importance of it;
- the State of Knowledge Report should make judgements about what is key information, identify where there are critical information/knowledge gaps and saying why they are critical;
- issues: Focus on existing information and pinpointing gaps in knowledge relating to state, trends and effects of the following areas of concern:

1. Terrestrial and aquatic
 - 1.1 Ice sheets and ice shelves
 - 1.2 Ice-free areas
 - 1.3 Lakes and streams

2. Marine
 - 2.1 Physical oceanography
 - 2.2 Sea ice
 - 2.3 Marine chemistry
 - 2.4 Marine ecosystem and biology

3. Atmosphere
 - 3.1 Atmosphere dynamics – features and circulation
 - 3.2 Chemistry – trace gases
 - 3.3 Radiation and effects on the biosphere

4. Others (partly covered by 1-3 above)
 - 4.1 Local pollution
 - 4.2 Long Range Pollutants
 - 4.3 Climate change
 - 4.4 Ozone depletion
 - 4.5 Harvesting of resources
 - 4.6 Introduction of alien species

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