

# **Report of the Committee for Environmental Protection**

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Report from the Committee's second meeting (CEP II)  
May 24 - 28, 1999  
Lima, Peru

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### **Item 1: Opening of the Meeting**

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(1) The Chairman, Dr. Olav Orheim (Norway), opened the second meeting of the Committee for Environmental Protection (CEP II).

### **Item 2: Election of Officers**

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(2) In accordance with Rule 16 of the Rules of Procedure of the CEP, Dr. Jorge Berguño (Chile) was elected as First Vice-Chair and Ms. Gillian Wratt (New Zealand) was elected as Second Vice-Chair by acclamation. Both Vice-Chairs were elected for a two-year period.

### **Item 3: Adoption of Agenda**

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(3) The draft Agenda, previously circulated by Peru, was adopted by the Meeting. The list of documents for each Agenda Item was agreed with the provision that changes could be made during the Meeting.

(4) The Agenda and the final list of documents considered are attached in **Annex 1**.

### **Item 4: Operation of the Committee for Environmental Protection**

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a) The CEP's web site.

(5) Norway presented Working Paper (XXIII ATCM/WP26), which discussed operational aspects of the CEP web site, established on a provisional basis by Norway as the country of the current Chair of the CEP. In this regard it was noted that ideally the web site should be operated by the Antarctic Treaty Secretariat, should it be established. Many Members commended Norway and the Norwegian Polar Institute on their efforts in initiating and running the CEP web site.

(6) Members noted the need for a close link between the ATCM web site and the CEP web site, and that there should be no inconsistencies between the two. The present situation of the CEP web site not carrying its material in all four official languages of the Antarctic Treaty System should be considered an interim arrangement.

(7) Delegations supported the need for an official contact point to be appointed in each country to regulate access, and the submission of information and documents, to the CEP web site. A list of official CEP contacts is attached as **Annex 2** to the CEP report.

(8) The CEP agreed on the need for some sections of the CEP web site to be password protected including, for example, those sections containing documents not yet considered by the CEP. It was also noted that confidential information should not be put on the web site.

(9) Members emphasised the need to include links between the CEP web site and web sites of other components of the Antarctic Treaty System.

(10) With regard to the costs associated with managing the web site, Norway indicated that these should in the future be relatively low, bearing in mind that the structure of the web site was already in place and the only requirement was periodic updating.

(11) The Chairman of the Scientific Committee of CCAMLR suggested that there may be a need to include a disclaimer clause on CEP documents made available to the public via the web site.

(12) The Committee established an open-ended contact group chaired by Norway to develop the draft decision contained in XXIII ATCM/WP26. Following consideration of this, the Committee recommended that Decision 1(1999) be approved by XXIII ATCM. (**Appendix 1**)

b) The operation of the CEP and its relationship with the other components of the Antarctic Treaty System.

(13) The Chairman of the Scientific Committee of CCAMLR expressed his gratitude for the invitation to attend the present meeting of the CEP as an Observer, and offered the Scientific Committee's support to the work of the CEP. He proposed a reciprocal arrangement whereby a representative of the CEP would attend meetings of the Scientific Committee of CCAMLR as an observer. It was acknowledged that this could be done through an expert who participated in both the CEP and the Scientific Committee, thus fostering good interaction without entailing any additional cost.

(14) The Committee asked Dr. Tony Press (Australia) (*tony.press@antdiv.gov.au*) to be the representative of the CEP at the next meeting of the Scientific Committee of CCAMLR if such an invitation should be extended to CEP. Dr. Press kindly agreed.

(15) SCAR and COMNAP offered to continue lending advisory and other support to the CEP, as they had been doing in the past.

(16) The Committee emphasized the importance of receiving advice and support from the various components of the Antarctic Treaty System as appropriate whilst the CEP continues to develop and evolve its own mechanisms of working.

(17) In this regard, the Committee also recognized the importance of maintaining competency and continuity amongst the membership of the CEP.

(18) To assist communication amongst members, the Committee agreed to produce a list of CEP II participants including addresses (**Annex 3**), in addition to the national contact points designated for the web site and other Committee matters.

c) CEP Consideration of Draft CEEs.

(19) New Zealand and the United Kingdom proposed guidelines to assist the CEP in handling draft CEEs and in developing its advice to the ATCM on draft CEEs in accordance with paragraphs 3 and 4 of Article 3 of Annex I to the Protocol (XXIII ATCM/WP2 and XXIII ATCM/WP38). Both papers proposed procedures for establishing open-ended contact groups to facilitate development of advice on issues possibly meriting the CEP's consideration.

(20) It was noted that, while Annex I of the Protocol requires that draft CEEs be provided to both the Parties and the CEP at least 120 days before the ATCM at which they may be considered, there are differing interpretations as to whether the CEP is required to consider and provide advice on all draft CEEs. To overcome this problem, it was agreed that the agenda of each meeting of the CEP should include an item entitled "Consideration of Draft CEEs Forwarded to the CEP in accordance with Paragraph 4 of Article 3 of Annex I to the Protocol." It was also agreed that what constitutes appropriate consideration of draft CEEs shall be determined by the CEP through practice and on a case by case basis.

(21) It was also noted that the provisions for establishing intersessional contact groups set forth in paragraph 9 of the report of the first CEP meeting specify that the coordinators of intersessional contact groups are to be agreed by the CEP during a meeting and that the terms of reference of such groups are to be agreed by the CEP and included in the meeting report.

(22) It was agreed, however, that it would be desirable for the CEP to be able to agree on the terms of reference and coordinators for intersessional contact groups during intersessional periods.

(23) The Committee set up an open-ended contact group chaired by the United States to prepare a draft procedure for the consideration of CEEs by the Committee.

(24) The attached Guidelines for CEP Consideration of Draft CEEs (**Annex 4**) were agreed to provide a practical basis for assisting the CEP in developing its advice to the ATCM on any scientific, technical or related matters identified by Parties during consideration of draft CEEs.

d) Operations of the CEP should the ATCM move to meetings every other year.

(25) The CEP considered how it might carry out its responsibilities should the ATCM decide to meet every other year, and if it then would be necessary for the CEP to meet every year.

(26) It was noted that draft CEEs, circulated in accordance with Article 3 of Annex I of the Protocol, may require consideration in the year between such biennial ATCMs. It was noted that this could be overcome by holding Special Consultative Meetings in conjunction with a scheduled CEP meeting.

(27) Several members thought that the CEP should continue to meet annually at least until its working procedures had been well established. Others thought that there would be advantage in the CEP meeting in the year between ATCMs so that its advice could be provided well in advance. In this instance a special meeting of the CEP could be held in conjunction with the ATCM to provide the opportunity for draft CEEs to be considered.

(28) Several Delegations noted that, if the CEP were to meet in alternate years, subsidiary bodies might be usefully established and meet in intervening years to assist the CEP in addressing key issues. It was emphasised that the CEP in carrying out its responsibilities must continue to concentrate on scientific, technical and environmental issues.

### **Item 5: Compliance with the Protocol on Environmental Protection**

(29) Information papers giving the following annual reports were submitted to the Committee, in accordance with Article 17 of the Protocol: (XXIII ATCM/IP6), (Germany); (XXIII ATCM/IP7), (Norway); (XXIII ATCM/IP11), (Italy); (XXIII ATCM/IP17), (United Kingdom); (XXIII ATCM/IP18), (Uruguay); (XXIII ATCM/IP29), (Spain); (XXIII ATCM/IP71), (South Africa); and (XXIII ATCM/IP93), (Brasil). The reports were not introduced, but members were given the opportunity to raise questions on technical aspects.

(30) This was the first time that the Committee had received reports of this nature, and Members acknowledged the value of the reports.

(31) France suggested that a model be prepared to standardize the format of the information to be provided under Article 17 of the Protocol.

(32) The Committee also recognized the obligations for information exchange within other elements of the Antarctic Treaty System and the need to avoid duplication of information and proliferation of reports. The Committee agreed it would be advisable to examine this matter further under Agenda Item 9, Data and Exchange of Information.

#### **5a) Matters covered by Annex I (Environment Impact Assessment)**

##### **i) Guidelines for Environmental Impact Assessments (EIAs)**

(33) Argentina introduced Working Paper (XXIII ATCM/WP7), which included the report of an open-ended intersessional contact group established by the CEP at its meeting in Tromsø in 1998 to draft guidelines on the preparation of EIAs for proposed activities in Antarctica.

(34) Many members commended Argentina, the convenor and the participants in the contact group for their very valuable work.

(35) The Committee acknowledged that these guidelines are not mandatory in nature, but that they are extremely useful and important as a guide for Parties and operators in

the preparation of EIAs. Some members suggested changes to the text which were incorporated into a revised version of the Guidelines (XXIII ATCM/WP7 Rev.2).

(36) The Committee recommended that Resolution 1(1999), to which the Guidelines are appended, be approved by the ATCM. (**Appendix 2**)

(37) COMNAP offered to post the Guidelines on its web site to allow wider access to the document by Parties and national operators, and to print the Guidelines in the form of a practical guide.

ii) Individual Environmental Impact Assessments (EIAs)

(38) New Zealand presented Information Paper (XXIII ATCM/IP2) on stratigraphic drilling east of Cape Roberts in Antarctica. Italy presented Information Paper (XXIII ATCM/IP16) containing a preliminary environmental evaluation for the APE-GAIA Campaign. ASOC presented Information Paper (XXIII ATCM/IP33) containing an Initial Environmental Evaluation of a planned Greenpeace expedition to the Southern Ocean. The IEE had been submitted to New Zealand which concluded that the planned activity was not likely to have more than a minor and transitory impact on the Antarctic environment. Uruguay presented Information Paper (XXIII ATCM/IP36) containing an Initial Environmental Evaluation of the rehabilitation of facilities at the Teniente de Navío Ruperto Elechiribehety Scientific Station (ECARE). The information in these papers was noted by the Committee.

(39) The Secretariat presented Information Paper (XXIII ATCM/IP9) on the circulation of information on EIAs in accordance with Resolution 6, 1995, and Information Paper (XXIII ATCM/IP10), which contained a table summarizing EIAs and environmental audits since 1987. Some members had additional information for inclusion in the aforementioned documents which were noted by the Secretariat and included in the revision of the papers (XXIII ATCM/IP9 Rev.1 and XXIII ATCM/IP10 Rev.1).

(40) Norway presented Information Paper (XXIII ATCM/IP58), which summarised an EIA of the Ny-Alesund International Research and Monitoring Station in the Arctic, which could serve as a model for multinational EIAs, and as a useful reference for Antarctic EIA processes.

(41) Russia asked to make a brief presentation on Information Paper (XXIII ATCM/IP78), in order to provide members with a better idea of the Russian legal framework for the granting of permits to authorize individuals and legal entities to engage in activities in Antarctica. The basic requirement of such permits is that those engaged in such activities observe the Protocol and the EIA for the activity that is to be conducted.

(42) Russia presented Information Paper (XXIII ATCM/IP73), on the current and projected environmental situation at deep borehole 5G1, at the Vostok Station. Russia is proceeding with great care and in full compliance with the Protocol, and there has been cooperation with SCAR to ensure such compliance. The paper noted that a CEE would be prepared before any penetration into Lake Vostok, but that at the moment adequate technology was not available and therefore the CEE could not be completed.

(43) The Committee took note of the report and commended Russia on the care with which it was protecting the environment of Lake Vostok. The Committee also acknowledged that this activity raised a series of environmental, scientific, and technical concerns, and accordingly Russia should continue to proceed with great care. The Committee acknowledged the concern expressed that the testing of new technologies could affect the unique conditions at Lake Vostok and that such testing should preferably take place at less sensitive sites. SCAR informed the Meeting that it will hold the next workshop in a continuing series, to develop science and logistic plans for Lake Vostok, on 26 – 28 September 1999 in Cambridge, UK.

(44) Russia presented Information Paper (XXIII ATCM/IP79 Rev.2), containing an IEE for the project to build a compacted-snow runway in the Larsemann Hills. Russia explained that this IEE was to be submitted for a decision by its national authorities and as yet no decision had been made as to whether this project should go ahead.

(45) Several members thanked Russia for its presentation. It was noted that this was a proposed activity, the potential impacts of which could be considered to be on the borderline between an IEE and a CEE. The Committee recognised that developing practice should provide a better understanding of this distinction.

(46) Several members indicated that further evaluation addressing the long-term effects as well as the indirect and cumulative impacts would be required if the level of activity increased beyond that assessed in the IEE (e.g. more activity at the runway by Russia or by other Parties).

(47) Germany presented Information Paper (XXIII ATCM/IP95), which contained information on the European Project for Ice Coring in Antarctica (EPICA) and announced that a draft CEE will be prepared by Germany on behalf of the countries which are members of EPICA. This draft CEE will be presented to the next meeting of the Committee.

iii) Reports on ongoing activities in accordance with Resolution 2 (1997)

(48) Argentina presented Information Paper (XXIII ATCM/IP90), containing an update of environmental management at Marambio Station and the surrounding area, underscoring the usefulness of environmental reviews as dynamic tools in environmental management in Antarctica. New Zealand presented Information Paper (XXIII ATCM/IP94), on stratigraphic scientific drilling east of Cape Roberts in the southwestern Ross Sea. The Committee welcomed these reports.

**5b) Matters covered by Annex II (Conservation of Antarctic Flora and Fauna)**

(49) The United Kingdom presented Working Paper (XXIII ATCM/WP24), which dealt with Specially Protected Species in Antarctica and contained a Draft Resolution on the list of these species. The draft resolution called upon SCAR to undertake a review of the list of Specially Protected Species attached at Appendix A to Annex II of the Protocol on Environmental Protection to the Antarctic Treaty.

(50) Several members expressed general support for the United Kingdom proposal and suggested changes to the draft Resolution. The Committee agreed that a review would be valuable and should be initiated.

(51) CCAMLR, SCAR, and IUCN indicated their availability and willingness to help in the review of the list and to provide scientific advice which the CEP could use in formulating recommendations to the ATCM on updating the list.

(52) The ensuing discussions clarified that there should be no presumption in suggesting which species should be included in, or removed from, the list.

(53) An open-ended contact group chaired by the United Kingdom examined the draft Resolution contained in document XXIII ATCM/WP24, and the Committee thereafter agreed to recommend that XXIII ATCM approve Resolution 2(1999). (**Appendix 3**)

(54) Australia presented Working Paper XXIII ATCM/WP32 containing a report on the outcomes of the Workshop on Diseases of Antarctic Wildlife, which had been held in Hobart, Australia, on 25-28 August 1998.

(55) The Committee thanked Australia for its presentation and acknowledged the importance of the document, noting that it included several items on which little was known but which could be particularly relevant for the CEP. At the same time there was uncertainty in how far the CEP should proceed with the proposals made by the Workshop.

(56) Some Delegations suggested establishing an intersessional contact group to address this issue, using document XXIII ATCM/WP32 as a guide.

(57) It was also suggested that SCAR and COMNAP be asked to consider the full report of the Workshop, once available, and report back to the next CEP meeting.

(58) The United Kingdom considered that the CEP needed to examine the full report of the Workshop, taking into account the outcome of SCAR's and COMNAP's considerations, before making any decision about the formation of an intersessional contact group.

(59) The Committee agreed that an open-ended contact group be formed to present to CEP III an initial report on matters arising from the Workshop on Diseases on Antarctic Wildlife.

(60) The group will be formed when all Parties, SCAR and COMNAP have had the opportunity to consider the full report of the Workshop, and will operate under the following Terms of Reference:

Prepare an initial report for presentation to CEP III outlining practical measures that might be implemented to:

a) diminish the risk of the introduction and spread of diseases to Antarctic wildlife; and

b) detect, determine the cause, and minimise the adverse effects of unusual wildlife mortality and morbidity events in Antarctica.

(61) The Committee accepted Australia's offer to convene the group under the leadership of Dr. Martin Riddle (Australia) (*martin.riddle@antdiv.gov.au*)

(62) IUCN noted that worldwide it is considered that introduced organisms, including those causing disease, account for more loss of species than does loss of habitat. It suggested that the Global Invasive Species Programme (GISP) coordinated by the Scientific Committee on Problems in the Environment (SCOPE), and IUCN could provide valuable input.

### **5c) Matters covered by Annex III (Waste Disposal and Waste Management)**

(63) Germany presented Information Paper (XXIII ATCM/IP31) containing an inventory of locations of its past scientific activities in Antarctica.

(64) Sweden suggested this paper could have been a Working Paper, since it contained much important information and suggestions for further progress.

(65) Several members thanked Germany for its valuable work on identifying common practices and criteria that may make it possible to set up a database and foster exchange of information.

(66) SCAR recalled that the Joint Committee on Antarctic Data Management might be an appropriate body for providing advice on database management. SCAR's Geodesy and Geographical Information Working Group could also assist in adding geographical material to the Antarctic Data Directory (ADD). The Committee agreed that this was a good way forward.

(67) Japan presented Information Paper (XXIII ATCM/IP60), which dealt with waste management at the Syowa Station.

### **5d) Matters covered by Annex IV (Prevention of Marine Pollution)**

(68) The Chairman of the CCAMLR Scientific Committee reported that CCAMLR undertakes an annual review of the impact of marine debris on marine life in Antarctic waters. Information for this review is collected from a number of sources. CCAMLR has recently published two information pamphlets on minimizing marine debris from fishing vessels. Copies of the pamphlets in all four Treaty languages were made available to the CEP.

**5e) Matters covered by Annex V (Area Protection and Management)**

(69) Norway presented Working Paper (XXIII ATCM/WP8/Rev.1) containing a revised management plan for Site of Special Scientific Interest No. 23, Svarthamaren. Delegations had various drafting comments, which were incorporated by Norway. The Committee recommended that Measure 1(1999) be approved by XXIII ATCM to adopt the revised plan. **(Appendix 4)**

(70) Australia presented Working Paper (XXIII ATCM/WP19) containing a revised management plan for Site of Special Scientific Interest No. 17, Clark Peninsula.

(71) The Committee noted that this management plan had not been considered by SCAR, and requested that Australia pass the revised management plan with maps to SCAR for examination. Following SCAR's consideration, the CEP will consider the revised plan at its next meeting. Australia agreed with this procedure. SCAR noted that it will need any plans by the end of June 1999 if they are to be considered during 1999 by SCAR.

(72) Norway introduced Working Paper (XXIII ATCM/WP20) proposing a mechanism for the automatic protection of undiscovered and unrecorded historic remains in Antarctica. The Working Paper contained a draft Measure.

(73) Several members noted the importance of finding mechanisms for the protection of undiscovered and unrecorded historic remains, and endorsed the proposal in principle. However, several members also noted concerns regarding the legal aspects of implementing such a mechanism, and saw the need to consider further the proposal. It was suggested that protection could be provided in a non-mandatory manner (e.g. through a Resolution or through a Code of Conduct).

(74) IAATO noted that Recommendation XVIII-1 had, at least in part, already elaborated guidelines for visitors to Antarctica with respect to protecting historic remains, and preventing the collection and taking away of man-made artefacts and parts or contents of buildings as souvenirs.

(75) It was suggested that further work is needed to define the term 'historic objects' in the Norwegian paper to ensure clarity over what is being considered. It was also suggested that the cut-off date for automatic protection should be 1958 so as to include historic remains from the International Geophysical Year in such a protection regime.

(76) The Meeting agreed that the issue would be placed on the Agenda of the next meeting of the Committee (CEP III) to consider further the matter.

(77) New Zealand introduced Working Paper (XXIII ATCM/WP31) outlining a proposal for the expansion of SPA No. 4, Sabrina Island, to include all of the Balleny Islands and a surrounding marine area. A conceptual summary of the management plan for this area was provided. New Zealand noted its intention further to develop the proposal and sought comments from members. New Zealand announced that it intends to put forward a management plan to SCAR, CCAMLR, and the Parties in due course. Several members offered to provide further feedback to New Zealand.

(78) Peru presented Working Paper (XXIII ATCM/WP37), containing the report of the Second Workshop on Antarctic Protected Areas. New Zealand presented Working Paper (XXIII ATCM/WP36) which contained suggestions that built on the Workshop Report.

(79) The Committee thanked Peru and New Zealand and commended Peru for having hosted the workshop and for all the support provided. The Committee also extended its thanks to Dr. Ronald Woodman, who chaired the workshop, to Dr José Valencia, Chair of the Steering Committee, and to the rest of the Steering Committee, the Heads of the working groups and all participants. The Committee agreed that information on the results of the workshop should be included in the CEP's report to XXIII ATCM.

(80) The Committee agreed that the Workshop had provided much valuable information, but at the same time it represented the views of the individuals present and not necessarily the CEP or Parties. It was agreed to establish an open-ended intersessional contact group to report back to CEP III on how to use and build on the outcomes and recommendations of the second Protected Areas Workshop in the implementation of Annex V of the Protocol. The Report and recommendations from the first Protected Areas Workshop in Tromsø should also be taken into account. The contact group will be lead by Emma Waterhouse (New Zealand) (*e.waterhouse@antarcticanz.govt.nz*) working under the following Terms of Reference:

a) To develop guidelines for:

- implementation of the framework for protected areas set forth in Article 3 of Annex V of the Protocol, drawing on the conceptual scheme in Recommendation 1 of Working Paper 37; and
- ways to apply the concepts of environmental risk, quality and feasibility for identifying, selecting and proposing protected areas.

b) To consider further ways that the CEP might most effectively develop advice on proposed and revised management plans for specially protected areas and the means by which they could be monitored.

c) To consider the need for further elaboration of an Antarctic conservation strategy.

(81) New Zealand presented Information Paper (XXIII ATCM/IP12) on historic resources in Antarctica.

(82) According to Resolution 1 (1998), the Committee took note of the following information papers giving timetables for revision of Management Plans for Protected Areas: (XXIII ATCM/IP25), (Australia); (XXIII ATCM/IP61), (Japan); (XXIII ATCM/IP96), (United States); and (XXIII ATCM/IP117), (United Kingdom).

(83) Germany presented Information Paper (XXIII ATCM/IP30), concerning basic environmental data and indicators for the development of management plans for frequently visited landing sites in Antarctica.

(84) The United Kingdom presented Information Paper (XXIII ATCM/IP35), which supplemented Working Paper (XXII ATCM/WP21). This Working Paper had been presented at the first meeting of the CEP and concerned the wreckage of a wooden

sailing vessel located on the south-western coast of Elephant Island. Since it had not yet been possible for the United Kingdom to determine the exact identity of the vessel, the Committee looked forward to receiving further information from the United Kingdom on this subject.

(85) New Zealand presented Information Paper (XXIII ATCM/IP80) on additional protection for Antarctic wilderness areas.

(86) Chile presented Information Paper (XXIII ATCM/IP107) which provided information on historic sites and monuments at Deception Island.

(87) The Committee took note of the positive statements made by the four Parties that had not yet ratified Annex V to the Protocol (Recommendation XVI-10), namely that all four had launched internal processes that were expected to lead to ratification of Annex V before the next ATCM.

## **Item 6: Environmental Monitoring**

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(88) COMNAP presented Working Paper (XXIII ATCM/WP4), which had been prepared jointly by COMNAP and SCAR, on the monitoring of environmental impacts of scientific activities and operations in Antarctica.

(89) The Committee endorsed the work of COMNAP and SCAR on the comparability of environmental monitoring data. The Committee asked COMNAP and SCAR to submit a document to CEP III on the status of this work, including the outcome of the Antarctic Environment Officers Network (AEON) workshop to be held in September 1999.

(90) The Committee welcomed the announcement by COMNAP that a technical manual on environmental monitoring would be ready by March 2000.

(91) Peru presented Working Paper (XXIII ATCM/WP29), on the establishment of a working group on radiological monitoring in Antarctica, and Working Paper (XXIII ATCM/WP30), on the establishment of a working group on environmental biomonitoring in Antarctica. Taking note of the presentations made by Peru, the Committee asked SCAR to examine these matters in the context of its present work on environmental monitoring, and report to the next meeting of the Committee.

## **Item 7: State of the Antarctic Environment Report**

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(92) Sweden presented Working Paper (XXIII ATCM/WP5), containing the report of the State of the Antarctic Environment Report (SAER) intersessional contact group. A number of Delegations thanked Sweden and the convenor and the members for the very valuable work of the contact group, which had clarified some questions related to the SAER and indicated where progress could be made.

(93) SCAR presented Working Paper (XXIII ATCM/WP6), which indicated SCAR's willingness to assist in assessing the availability of data which might be required if the CEP were to proceed with the production of a SAER.

(94) The Committee noted the progress that had been made on this matter and indicated that work should continue, building on the efforts of the intersessional group. The Committee gratefully accepted SCAR's offer to prepare a scoping study for presentation at CEP III that would include: describing the key environmental variables that should be considered in assessing the status of the Antarctic environment; identifying present and future threats to that environment; and indicating how these link with state of the environment reports for other parts of the world.

(95) CCAMLR, COMNAP and WMO offered to lend support for the work that SCAR was to carry out, and this was acknowledged with appreciation.

(96) New Zealand presented Information Paper (XXIII ATCM/IP1), containing an update to the Ross Sea Region State of the Environment Report. The Committee thanked New Zealand for its presentation.

## **Item 8: Emergency Response and Contingency Planning**

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(97) COMNAP presented Working Paper (XXIII ATCM/WP16), containing an assessment of environmental emergencies arising from scientific and logistical support activities in Antarctica. The document indicated that fuel spills (diesel fuel and other petroleum products) accounted for most of the emergencies and that the majority of spills occurred on land.

(98) COMNAP further presented Working Paper (XXIII ATCM/WP3), on contingency planning and emergency response. The paper recommended that, in addition to contingency planning for oil spills, plans also be developed for other incidents or disasters.

(99) Noting ATCM Resolution 6 (1998) paragraph 3 and ATCM Resolution 1 (1997) paragraph 1 which urged Parties to prepare contingency plans, the Committee emphasised the responsibility of Parties to undertake such work.

(100) The Committee supported COMNAP's work and the recommendations contained in XXIII ATCM/WP3 and XXIII ATCM/WP16. The Committee requested COMNAP to provide it with complete information on environmental emergencies from national operators, and IAATO, and urged Parties to support this. COMNAP confirmed that they would provide this for CEP III, and IAATO also confirmed that they would provide requested information to COMNAP. The Committee noted that there were other types of emergencies (e.g. introduction of diseases and pests) that were not addressed by COMNAP but might merit further consideration by the CEP.

## **Item 9: Data and Exchange of Information**

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(101) Three working papers on the annual exchange of information were submitted.

(102) (XXIII ATCM/WP17), submitted by COMNAP, noted that COMNAP has begun using electronic mail for its advanced operational information and is currently centralizing some operational information on its redeveloped web site (*www.comnap.aq*).

(103) (XXIII ATCM/WP22), submitted by the United States, noted that in 1998 at least three Parties had posted their annual information exchange reports under the Antarctic Treaty on the world wide web. The United States noted that it had begun the process of establishing links between the various web sites on which their various information exchange reports were posted. The end result is e.g. to see a SCAR report format even though the information is on a different web site and was originally posted as a Treaty report. The U.S. further proposed that information that must be exchanged under the Protocol be included in the annual exchange of information under the Treaty.

(104) (XXIII ATCM/WP33), submitted by Australia, discussed its web site which Australia used to post its exchange of information. Australia encouraged all Parties to establish information exchange web sites.

(105) The Committee agreed with the conclusions in these three papers. It was agreed that reporting requirements under Article 17 of the Protocol could be included in the annual Antarctic Treaty reporting.

(106) There was agreement that Parties could use modern technology to simplify the exchange of information. There was also agreement that links from the ATCM web site to other web sites containing exchange of information could be useful. There was concern, however, that information to be exchanged in this way under Article 17 of the Protocol would not be readily available to the CEP during its annual meetings. It was also noted that any Working Papers to be discussed at the CEP meeting would need to be made available in all the official Treaty languages.

(107) It was agreed that there would be value in the formation of a contact group to further consider the issue of information exchange. The contact group could provide advice on matters such as the development of a model or framework for integrating the various information exchange requirements under the Treaty and the Protocol as well as the information exchanged within SCAR and COMNAP. It was also agreed that such a contact group was a matter more appropriately taken up by Working Group II as information exchange requirements go beyond those considered by the CEP. The Committee agreed that CEP representation on such a contact group, if it were to be formed, could be appropriate.

## **Item 10: Preparation for CEP III**

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(108) The Draft Agenda for CEP III was approved. (**Appendix 5**)

### **Item 11: Adoption of the Report**

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(109) The Draft Report was adopted by the members.

### **Item 12: Closing of the Meeting**

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(110) The Chairperson Dr. Olav Orheim closed the meeting, at the same time expressing the Committee's great gratitude to the work of the Rapporteurs, the Secretariat, and the interpreters. He further thanked the Peruvian Government for the excellent facilities and support that had been provided.

**Annex 1****Committee for Environmental Protection  
Agenda and Documents****Item 1: Opening of the Meeting****Item 2: Election of Officers****Item 3: Adoption of Agenda****4) Operation of the CEP**

Paper No.	Title	Submitted by
WP 2	Consideration of the Comprehensive Environmental Evaluations by the Committee for Environmental Protection.	New Zealand
WP 26	CEP Home Page	Norway
WP 38	CEEs and the CEP	United Kingdom

**5) Compliance with the Protocol on Environmental Protection**

Paper No.	Title	Submitted by
IP 5	Protocol Implementation Checklist	ASOC
IP 6	Annual Report of the Federal Republic of Germany Pursuant to Article 17 of the Protocol on Environmental Protection to the Antarctic Treaty (1998)	Germany
IP 7	Annual Report Pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	Norway
IP 11	Annual Report Pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	Italy
IP 17	Implementation of the Protocol on Environmental Protection to the Antarctic Treaty	United Kingdom
IP 18	Measures adopted in compliance with the Protocol on Environmental Protection to the Antarctic Treaty	Uruguay
IP 29	Actuaciones españolas relacionadas con el cumplimiento del Protocolo al Tratado sobre Protección del Medio Ambiente y de las Resoluciones del Tratado Antártico	España
IP 71	Annual Report pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	South Africa
IP 93	Annual Report on the Implementation of the Protocol on Environmental Protection to the Antarctic Treaty	Brasil

**5a) Matters covered by Annex I (Environmental Impact Assessments)**

Paper No.	Title	Submitted by
WP 7	Guideline on Environmental Impact Assessment Procedures in Antarctica Lineamientos para los Procedimientos de evaluación de impacto ambiental en la Antártida	Argentina
IP 2	Antarctic Stratigraphic Drilling East of Cape Roberts in Southwest Ross Sea, Antarctica 1998/99 Activities	New Zealand
IP 9	Environmental Impact Assessment Circulation of Information (Res.6, 1995)	Secretariat
IP 10	A Summary of Environmental Impact Assessments (EIAs)	Secretariat
IP 16	Preliminary Environmental Evaluation of the AP-GAIA Campaign	Italy
IP 33	Greenpeace 1998/99 Southern Ocean Expedition Initial Environmental Evaluation	ASOC
IP 36	Evaluación Medioambiental Inicial (EMI) Rehabilitación de las instalaciones de la Estación Científica Antártica Teniente de Navío Ruperto Elechiribehety (ECARE)	Uruguay
IP 58	Environmental Impact Assessment of Ny – Alesund International Research and Monitoring Station Svalbard	Norway
IP 73	Deep Borehole 5G1 Current Environmental State and Perspectives (Vostok Station, East Antarctica)	Russia
IP 79	Initial Environmental Evaluation Compacted Show Runway at the Lassermaun Hills	Russia
IP 90	Environmental Review of the Argentine Activities at Marambio Station Update 1999	Argentina
IP 94	Antarctic Stratigraphic Drilling East of Cape Roberts in Southwest Ross Sea A review of the Project against its CEE	New Zealand
IP 95	European Project for ice coring in Dronning Maud Land – Information on forthcoming CEE	Germany

**5b) Matters covered by Annex II (Conservation of Antarctic Flora and Fauna)**

Paper No.	Title	Submitted by
WP 24	Specially Protected Species in Antarctica	United Kingdom
WP 32	Report to ATCM XXIII on outcomes from the Workshop on Diseases of Antarctic Wildlife	Australia

**5c) Matters covered by Annex III (Waste Disposal and Waste Management)**

Paper No.	Title	Submitted by
IP 31	Inventory of Locations of Past Scientific Activities of Germany in Antarctica	Germany
IP 60	Waste Management of Syowa Station	Japan

**5d) Matters covered by Annex IV (Prevention of Marine Pollution)****5e) Matters covered by Annex V (Area protection and management)**

Paper No.	Title	Submitted by
WP 8	Management Plan Site of Special Scientific Interest (SSSI) N° 23, SVARTHAMAREN	Norway
WP 19	Protected Areas: Revision of Management Plan for Clark Peninsula, Site of Special Scientific Interest 17	Australia
WP 20	Proposal for a System of Automatic Protection of Undiscovered and Unrecorded Historical Remains in Antarctica	Norway
WP 31	Proposed Balleny Island Specially Protected Area	New Zealand
WP 36	Development of Guidelines for the Protected Area Designation Process	New Zealand
WP 37	Report of the Second Workshop of Antarctic Protected Areas	Peru
IP 12	Antarctic Historic Resources	New Zealand
IP 25	Protected Areas: Timetable for the Preparation or Revision of Management Plans	Australia
IP 30	Basic data and environmental indicators for the development of management plans for landing sites in Antarctica that are particularly heavily frequented by visitors	Germany
IP 35	Historic Sites and Monuments	United Kingdom
IP 61	Protected Areas: Timetable for the Preparation or Revision of Management Plans	Japan
IP 80	Towards additional protection for Antarctic Wilderness Areas.	New Zealand
IP 96	Schedule for Revised Management Plans of Antarctic Protected Areas in accordance with Resolution 1 (1998)	United States
IP 107	Progress Report on the Development of HSM No. 71	Chile
IP 117	Revision of Management Plans for Antarctic Protected Areas originally proposed by the United Kingdom	United Kingdom

**6) Environmental Monitoring**

Paper No.	Title	Submitted by
WP 4	The Monitoring of Environmental Impacts of Scientific Activities and Operation in Antarctica	COMNAP/SCAR
WP 29	Working Group on Radiological Monitoring in Antarctica	Perú
WP 30	Working Group on Environmental Monitoring in Antarctica	Perú

### 7) State of the Environmental Report

Paper No.	Title	Submitted by
WP 5	Report on the Work of the Intersessional Contact Group on SAER	Sweden
WP 6	Reporting on the State of the Antarctic Environment: The SCAR view	SCAR
IP 1	Ross Sea Region State of the Environment Report- An Update on progress	New Zealand

### 8) Emergency Response and Contingency Planning

Paper No.	Title	Submitted by
WP 3	Contingency Planning and Emergency Response	COMNAP
WP 16	An Assessment of Environmental Emergencies Arising from Activities in Antarctica	COMNAP

### 9) Data and Exchange of Information

Paper No.	Title	Submitted by
WP 17	The Rationalisation of Information Exchanged through the Antarctic Treaty System	COMNAP
WP 22	Annual Exchange of Information	United States
WP 33	Annual Exchange of Information	Australia

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## Annex 3

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## **Annex 4**

### **Guidelines for CEP Consideration of Draft CEEs**

1. The agenda of each meeting of the CEP shall include an item entitled “Consideration of Draft CEEs Forwarded to the CEP in Accordance with Paragraph 4 of Article 3 of Annex I to the Protocol.”
2. If any Party so requests, the CEP shall, under this agenda item, consider any draft CEE and provide advice to the ATCM on such drafts in accordance with Article 12 and Annex I of the Protocol.
3. If, during a Party’s examination of a draft CEE, it identifies a matter or matters it believes merits consideration by the CEP and that could be facilitated by an open-ended intersessional contact group, it shall so advise the Chair of the CEP and propose terms of reference for the group.
4. The Chair of the CEP shall immediately convey the proposed terms of reference and the name of a proposed coordinator for the contact group to the designated CEP contact points for consideration.
5. If Members agree to the proposed terms of reference and coordinator for the contact group, the Chair of the CEP shall advise the CEP contact points, SCAR, COMNAP, CCAMLR, and other observers, of the terms of reference, coordinator, and e-mail address of the coordinator of the group.
6. Representatives who wish to participate in any such group shall register their interest with the coordinator of the group by e-mail.
7. A list of the representatives indicating interest in participating in the group, including their e-mail addresses, shall be prepared and circulated by the coordinator to all representatives indicating interest in participating in the group. Representatives shall be advised immediately of any subsequent additions to the list.
8. All correspondence shall be circulated to all representatives.
9. When providing comments to the coordinator, representatives shall indicate for whom they are speaking.
10. The outcome of the contact group’s deliberations shall be reported to the next CEP meeting by the coordinator.

## Appendix 1

### Decision 1(1999)

#### CEP Web site

#### The Representatives,

*Recognising* the usefulness of a World Wide Web site on the Internet in the operation of the CEP;

*Noting* that the operation of such a web site ideally would be the responsibility of a Secretariat established under the Antarctic Treaty;

*Decide:*

1. That the home country of the Chair of the Committee for Environmental Protection (CEP) shall, within the resources available to it, and only for as long as it provides the CEP Chair, operate a CEP web site on the World Wide Web on an interim basis.
2. The CEP web site will be operated in close co-operation with the Host Country of the ATCM operating the ATCM Home Page.
3. The CEP web site shall *inter alia* contain:
  - a) in an area freely accessible to the general public:
    - general information about the Committee on Environmental Protection and environmental issues in Antarctica;
    - an archive of official documentation from the previous meetings of the Committee, containing Working and Information Papers submitted to its meetings, as well as the final reports of its meetings;
    - links to related web sites (e.g. SCAR, COMNAP, CCAMLR)
  - b) in a password protected area accessible only to the Members of the CEP, Observers to the CEP, and other experts as appropriate that the Committee decides should have such access:
    - official documents submitted electronically to the Host Country and the CEP Chair in advance of a CEP Meeting;
    - any other documents that have been provided to the CEP Chair for consideration at the Meeting
4. All official documents from each CEP meeting shall be made freely available on the CEP web site from the closure of that CEP Meeting if no member has indicated its intention to the contrary when submitting a document.

5. Meeting documents of the CEP are to be posted in all available translations. Any other input from Members shall be posted in the official Treaty language or languages in which it is submitted.
6. Documents for consideration by the CEP are to be submitted to the CEP web site only by identified CEP contact points. These contact points will be nominated by their respective Parties and Observers and will be listed on the CEP web site.
7. Password and username information for the protected area of the web site shall be made available only to the CEP contact point, for distribution to relevant individuals within the Member country or Observer Organisation as appropriate.

## Appendix 2

Resolution 1(1999)

Guidelines for EIA in Antarctica

### **The Representatives,**

*Noting* the requirements under Article 8 and Annex I of the Environmental Protocol to prepare Environmental Impact Assessments (EIAs) for proposed activities in the Antarctic Treaty Area;

*Recognising* that all EIAs need to conform to the requirements of Annex I of the Protocol;

*Recognising* also that Parties should already have in place national legislation which includes procedures and guidelines for the preparation of EIAs in Antarctica;

*Conscious* of the need for general guidance for the preparation of EIAs to achieve effectiveness in fulfilling the obligations of the Protocol;

*Recommend* that:

The Guidelines for Environmental Impact Assessment in Antarctica appended to this Resolution be made available to be used by those engaged in the preparation of Environmental Impact Assessments for proposed activities in Antarctica, to the extent that such use does not conflict with the national legislative regime and other obligations of the Party or Parties concerned.

**GUIDELINES FOR  
ENVIRONMENTAL IMPACT ASSESSMENT  
IN ANTARCTICA**

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## 1. Introduction

The Madrid Protocol, in Article 3, establishes a number of environmental principles which can be considered a guide to environmental protection in Antarctica and its dependent and associated ecosystems. Among such principles, those stated under paragraph C express the necessity of collecting sufficient information “to allow prior assessments of, and informed judgements about, their possible impacts on the Antarctic environment and dependent and associated ecosystems and on the value of Antarctica for the conduct of scientific research”. In addition, it states that “such judgements shall take account of:

- i) the scope of the activity, including its area, duration and intensity;
- ii) the cumulative impacts of the activity, both by itself and in combination with other activities in the Antarctic Treaty Area;
- iii) whether the activity will detrimentally affect any other activity in the Antarctic Treaty Area;
- iv) whether technology and procedures are available to provide for environmentally safe operations;
- v) whether there exists the capacity to monitor key environmental parameters and ecosystem components so as to identify and provide early warning of any adverse effects of the activity and to provide for such modification of operating procedures as may be necessary in the light of the results of monitoring or increased knowledge of the Antarctic environment and dependent and associated ecosystems; and
- vi) whether there exists the capacity to respond promptly and effectively to accidents, particularly those with potential environmental effects”

Article 8 of the Protocol introduces the term *Environmental Impact Assessment* and provides three categories of environmental impacts (*less than, equal to and more than minor or transitory*), according to their significance. The Article also requires that assessment of planned activities to be undertaken in Antarctica, subject to the procedures set out in Annex I.

Annex I of the Protocol provides a more comprehensive explanation of the different impact categories and establishes a set of basic principles to conduct an EIA for planned activities in Antarctica.

In addition, it sets up a preliminary stage for assessing the environmental impact of Antarctic activities, which is intended to determine if an impact produced by a certain activity is less than minor or transitory or not. Such determination must be accomplished through the appropriate national procedures.

According to the results of the preliminary stage, the activity can either:

- proceed (if the predicted impacts of the activity are likely to be less than minor or transitory), or
- be preceded by a an Initial Environmental Evaluation (IEE), if predicted impacts are likely to be minor or transitory; or
- be preceded by a Comprehensive Environmental Evaluation (CEE), if the predicted impacts are to be more than minor or transitory.

Although the key to decide whether an activity shall be preceded by an IEE or a CEE is the concept of “*minor or transitory impact*”, no agreement on this term has so far been reached (contributions to this subject can be found in XX ATCM/IP 2, New Zealand; XXI ATCM/WP 35, New Zealand; XXI ATCM/IP 55, Argentina, XXII ATCM/IP 66 , Russia and XXII ATCM/WP 19, Australia, among others). The difficulty with defining “*minor and transitory impact*” thus far appear to be due to the dependence of a number of variables associated with each activity and each environmental context. Therefore the interpretation of this term will need to be made on a case by case site specific basis. As a consequence, this document does not focus on seeking a clear definition of “*minor or transitory impact*”, but rather is an attempt to provide basic elements for the development of the EIA *process*.

Article 8 and Annex I of the Protocol on Environmental Protection to the Antarctic Treaty set out the requirements for Environmental Impact Assessments (EIAs) for proposed activities in Antarctica. These Guidelines to EIA in Antarctica do not amend, modify or interpret the requirements set out in Article 8 and Annex I of the Environmental Protocol, or the requirements of national legislation which may include procedures and guidelines for the preparation of EIAs in Antarctica. These Guidelines have been produced to assist those preparing EIAs for proposed activities in Antarctica.

## **2. Objectives**

The general objective of these guidelines is to achieve transparency and effectiveness in assessing environmental impacts during the planning stages of possible activities in Antarctica, as well as consistency of approach in fulfilling the obligations of the Protocol.

Specifically, the guidelines aim to

- assist proponents of activities who may have little experience of EIA in Antarctica;
- assist in determining the proper level of EIA document (according to the Protocol) to be prepared;
- facilitate co-operation and co-ordination in EIA for joint activities ;
- facilitate comparison of EIAs for similar activities and/or environmental conditions;
- provide advice to operators other than ATCPs;
- assist in the retrospective analysis of cumulative impacts for specific sites;
- initiate a process of continuous improvement of EIA.

## **3. The EIA Process**

The EIA is a process having the ultimate objective of providing decision makers with an indication of the likely environmental consequences of a proposed activity (figure 1).

The *process* of predicting the environmental impacts of an activity and assessing their significance is the same regardless of the apparent magnitude of the activity. Some activities require no more than a cursory examination to determine impacts, although it must be remembered that the level of assessment is relative to the significance of the environmental impacts, not to the scale or complexity of the activity. Thus, the picture

that emerges with respect to the impacts of the activity will determine how much further the EIA process needs to be taken, and how complex it should be.

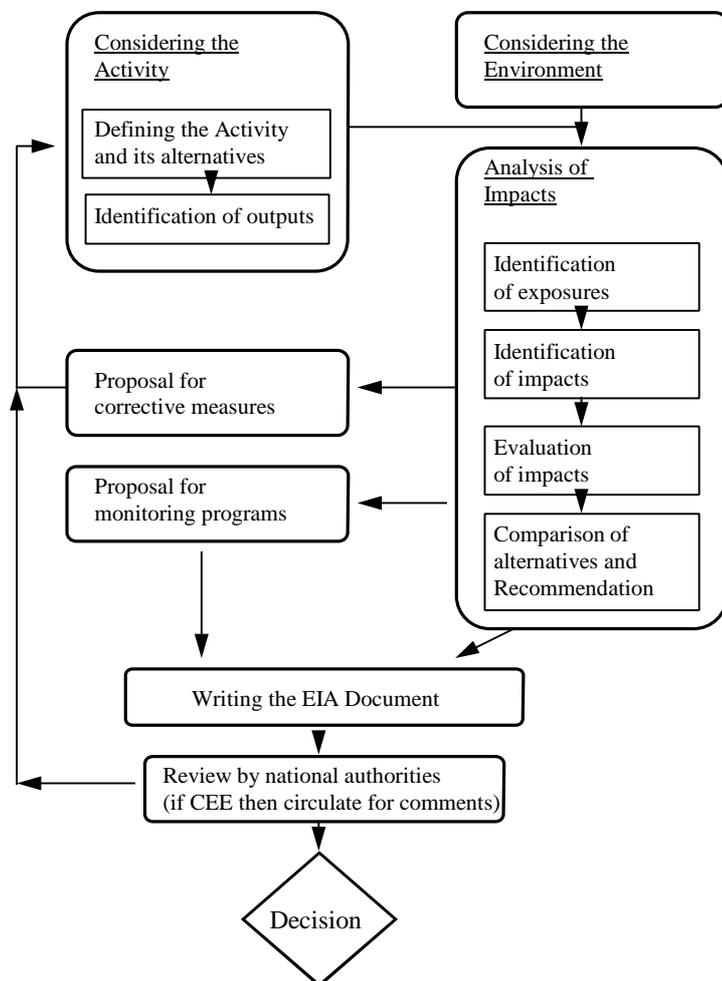


Figure 1: Steps of the EIA process for Antarctic activities

Those persons responsible for an Environmental Impact Assessment Process need to ensure that they consult as widely as is reasonably necessary and possible in order that the best available information and professional advice contribute to the outcome. A number of different participants may be involved throughout this process, ranging from those who are involved in the details of nearly all parts of the process (e.g. environmental officer, proponent of the activity) to those who are the technical experts who provide input in particular subjects of the process (e.g. researchers, logistic personnel, others with experience at the location or in a particular activity). In addition, EIAs undertaken in Antarctica for planned activities may represent a valuable source of information. At this respect, it should be pointed out that an updated list of EIAs is presented every ATCM, according to Resolution XIX-6. The Antarctic Data Directory System (ADDS) can also represent an helpful source of metadata.

### 3.1. Considering the activity

#### 3.1.1. Defining the activity

An activity is an event or process resulting from (or associated with) the presence of humans in the Antarctic, and/or which may lead to the presence of humans in Antarctica. An activity may consist of several *actions*, e.g. an ice drilling *activity* may require *actions* such as the transport of equipment, establishment of a field camp, power generation for drilling, fuel management, drilling operation, waste management, etc. An activity should be analysed by considering all phases involved (e.g. construction, operation and potential dismantling or decommissioning phases).

The activity and the individual actions should be defined through a planning process which considers the physical, technical and economic aspects of the proposed project and its alternatives. Consultation with relevant experts to identify all these aspects is an important part of this initial scoping process. It is important to accurately define all aspects of the activity which could have environmental impacts. The rest of the EIA process relies on this initial description, which should occur during the planning process. The following aspects of the proposed activity and its alternatives should be clearly identified:

- the purpose of and the need for the activity;
- the principal characteristics of the activity that might cause impact on the environment; for instance: design characteristics; construction requirements (types of material, technologies, energy, size of any installation, personnel, temporary constructions, etc.); transportation requirements (e.g. types, numbers and frequency of use of vehicles, fuel types); type (according to Annex III of the Protocol) and volume of wastes generated through different phases of the activity and their final disposition; dismantling of temporary constructions; decommissioning the activity if necessary; as well as those aspects that will result from the operational phase of the activity.
- the relationship of the proposed activity to relevant previous or current activities;
- a description of the activity's location and geographical area, indicating access roads, etc. Using maps will ease the evaluation process and, therefore, will be useful in the EIA documentation.
- timing of the activity (including range of calendar dates for construction time, as well as overall duration, periods of operation of the activity and decommissioning. This may be significant with respect to wildlife breeding cycles, for example.);
- location of the activity with regard to areas with special management requirements (SPA, SSSI, HSM, CCAMLR CEMP sites, already proposed ASPAs and/or ASMAs, etc.).
- precautionary measures that are integral to the project including during the construction, operational and decommissioning phases.

Careful consideration is required to determine the full scope of the activity so that the impacts can be properly assessed. This is necessary to avoid preparing a number of separate EIAs on actions which indicate an apparent low impact, when in fact, taken in its entirety, the activity actually has potential for impacts of much greater significance.

This particularly common where a number of activities take place at the same site either spatially and/or temporally.

When defining an Antarctic activity, experience gained in similar projects undertaken within and outside the Antarctic Treaty System Area (e.g. the Arctic) may be an additional and valuable source of information.

Once the activity is defined, any subsequent changes to the activity must be clearly identified and addressed according to when they occur in the EIA process (e.g. if the change occurs once the EIA document is completed, then an amendment to the EIA or a rewrite of the document may be necessary depending on how significant the change is). In every case it is important that the change and its implications (in terms of impacts) is assessed in the same manner as other impacts previously identified in the EIA process.

Alternatives to the activity

Both the proposed activity and possible alternatives should be examined in concert so that a decision maker can more easily compare the potential impacts. Both the environmental and scientific consequences should be considered during the evaluation.

Examples of alternatives for consideration include:

- use of different locations or sites for the activity,
- use of different technologies, in order to reduce the outputs (or the intensity of the outputs) of the activity.
- use of pre-existing facilities, and
- different timing for the activity.

The alternative of not proceeding with the proposed activity (i.e. the “no-action” alternative) should always be included in any analysis of environmental impacts of the proposed activity.

### **3.1.3. Identification of outputs of the activity**

An *output* is a physical change (e.g. movement of sediments by vehicle passage, noise) or an entity (e.g. emissions, an introduced species) imposed on or released to the environment as the result of an *action* or an *activity*. Outputs can also be defined as by-products of the activity (or action) and can include emissions, dust, mechanical action on substrate, fuel spills, noise, light, electromagnetic radiation, wastes, heat, introductions of alien species, etc.

Note that a single action may generate several different outputs (for example the use of vehicles may cause soil compaction, emissions, noise, visual interference etc.) and that the same type of output may be generated by different actions of a single activity, (for example in an ice drilling activity emissions may come from the use of vehicles, drilling operations, power generation, etc.).

Output levels may play a relevant role especially if several activities take place at the same time. Therefore, potential for additive, synergistic or antagonistic interactions between outputs (thus resulting in possible significant environmental impacts) has to be considered.

Systematising outputs and actions in a matrix format may be helpful in this process. The example below, taken from “*Monitoring of Environmental Impacts from Science and Operations in Antarctica*”(SCAR/COMNAP, 1996), illustrates a potential situation (e.g. actions and outputs associated with a station complex).

ACTIONS	OUTPUTS					
	Air emissions (incl. Dust)	Wastes	Noise	Fuel spills	Mechanical action	Heat
Vehicles	X	-	X	X	X	X
Power generation	X	-	X	X	-	X
Building	X	X	X	X	X	-
Fuel storage	-	-	-	X	-	-

Outputs may vary across different alternatives. That is there may not be a single set of outputs, but rather multiple sets if the alternatives are significantly different from one another.

The geographical spread of an output has to be accurately estimated in order to determine to what extent the environment is exposed.

### 3.2. Considering the environment

Consideration of the environment requires the characterisation of all relevant physical, biological, chemical and anthropic elements or values in a given area, where and when an activity is proposed. Relevant means all those aspects of the environment that the proposed activity might influence or which might influence the activity.

Such information should be quantitative (e.g., heavy metal concentration on organisms or on river flows, a bird population size) where available and appropriate. In many cases qualitative descriptions (e.g., aesthetic value of a landscape) may have to be used. Maps, publications, research results and researchers are different sources of information to be identified and taken into account.

Consideration of the existing environment should include:

- recognition of the special status accorded to Antarctica by the ATS, including its status as a natural reserve devoted to peace and science
- the physical and biological features that could be affected directly or indirectly, including:
- the physical characteristics (topography, bathymetry, geology, geomorphology, soils, hydrology, meteorology, glaciology etc.)
- the biota (e.g. inventories of plant and animal species, populations and communities, and other important features such as the presence of breeding grounds.) and
- any dependent and related populations (e.g. bird nesting areas related to feeding areas);
- natural variations in environmental conditions that could occur on a diurnal, seasonal, annual and/or interannual timescale;
- information about the spatial and temporal variability of the environmental sensitivity (e.g. differences in impacts when an area is snow covered compared to when it is not);
- current trends in natural processes such as population growth or spread of particular species, geological or hydrological phenomena;

- the reliability of the data (e.g. anecdotal, historical, scientific, etc.);
- aspects of the environment which have been changed, or may be changing as the result of other current or previous activities;
- special values of the area (if previously identified);
- the existence of areas potentially subject to indirect and cumulative impacts;
- the influence that the activity may exert on dependent and associated ecosystems;
- existing activities being carried out in the area or at the site, particularly scientific activities, given their intrinsic importance as a value to be protected in Antarctica
- specific parameters against which predicted changes are to be monitored, including:

A thorough consideration of the environment before starting the activity (baseline information) is essential to ensure a valid prediction of impacts and to define monitoring parameters, if required. If such a baseline information is not available, field research may be necessary to obtain reliable data about the state of the environment before beginning the activity.

It is also important to clearly identify gaps in knowledge and uncertainties encountered in compiling the information.

### 3.3. Analysis of Impacts

#### 3.3.1. Identification of exposures

Exposure is the process of interaction between an identified potential output and an environmental element or value. Identifying exposure means determining which component of the environment is susceptible to be affected by the outputs of an activity or action. Overlaying spatial information (e.g. use of a GIS) is a valuable tool to assist in this determination

Determination of exposures may be summarised using a matrix of outputs and environmental elements or values, taking into account that matrices can only give information about the existence of exposures but not on their intensity .

The table below provides an example of the interaction of various outputs with environmental elements to identify relevant exposures resulting from the activity.

OUTPUTS	ENVIRONMENTAL ELEMENTS OR VALUES				
	Flora	Fauna	Freshwater / Seawater	Soil	Air
Emissions	X	X	X	X	X
Noise		X			
Fuel spills	X	X	X	X	
Wastes	X	X	X	X	
Introduced species	X	X			

When the box is crossed (X) it means that the environmental element is exposed to the considered output. This is a random example for a given environment and may, therefore, vary in another context. For example, a noise may occur when a breeding site

is unoccupied, or a breeding site may be protected from noise by a topographic feature. From the examples above it can be inferred that the occurrence of an output does not necessarily lead to exposure of environmental element or value and hence potential for environmental effects.

Correct identification of the intensity of exposure is a crucial step in making a reliable prediction of impacts. Some elements contributing to that identification are:

- Temporal variation. The exposure of an environmental element or value may change with the season in which the activity takes place, as climate cycles, breeding patterns, etc. may change over time.
- Cause-effect relationships between outputs and environmental elements or values must be determined, especially in cases where the relationships are indirect, or an element or value is exposed to outputs from numerous sources, or repeatedly from the same source.

### 3.3.2. Impact identification

An **impact** ( Synonym: **effect** ) is a change in the values or resources attributable to a human activity. It is the consequence (e.g. reduced plant cover) of an agent of change, not the agent itself (e.g. increase of trampling). Impact may also be defined as the result of the interaction between an output and an environmental value or resource.

The identification of environmental impacts consists of the characterisation of all changes in environmental elements or values exposed to the outputs of a given set of activities. The identification task requires that evaluators are able to determine the important cause-effect relationships between the activities and the environmental elements or values. Only when the impact is identified can an evaluation be made of its **significance**.

An impact may be identified by its nature, spatial extent, intensity, duration, reversibility and lag time.

***Nature:** type of change imposed on the environment due to the activity (e.g. contamination, erosion, mortality).*

***Spatial extent:** area or volume where changes are likely to be detectable.*

***Intensity:** a measure of the amount of change imposed on the environment due to the activity.(it can be measured, or estimated, through, e.g. number of species or individuals effected, concentration of a given pollutant in a waterbody, rates of erosion, rates of mortality, etc.)*

***Duration:** period of time during which changes in the environment are likely to occur.*

***Reversibility:** possibility of the system to return to its initial environmental conditions once an impact is produced.*

***Lag time:** time span between the moment outputs are released to or imposed on the environment and the moment impacts occur.*

In addition, a proper impact identification should also enable a distinction between direct, indirect and cumulative impacts.

A **direct impact** is a change in environmental components that results from direct cause-effect consequences of interaction between the exposed environment and outputs (e.g. decrease of a limpet population due to an oil spill). An **indirect impact** is a change in environmental components that results from interactions between the environment and other impacts -direct or indirect- (e.g. alteration in seagull population due to a decrease in limpet population which, in turn, was caused by an oil spill).

A **cumulative impact** is the combined impact of past, present, and reasonably foreseeable activities. These activities may occur over time and space and can be additive or interactive/synergistic (e.g. decrease of limpet population due to the combined effect of oil discharges by base and ship operations). Cumulative impacts can often be one of the hardest impact categories to adequately identify in the EIA process. When attempting to identify cumulative impacts it is important to consider both spatial and temporal aspects and to identify other activities which have and could occur at the same site or within the same area.

Several methods exist to identify impacts such as: overlay maps, checklists, matrices, etc. The choice of the methodology will depend on the character of the activity and the environment that is likely to be affected.

### 3.3.3. Impact Evaluation

The purpose of impact evaluation is to assign relative significance to predicted impacts associated with an activity (and the various identified alternatives).

**Significance:** *It is a value judgement about the severity and importance of a change in a given environment or environmental value.*

According to the Madrid Protocol, impacts shall be evaluated by taking into account three levels of significance:

- less than minor or transitory impact;
- minor or transitory impact; or
- more than minor or transitory impact.

The interpretation of these terms should be made on a case by case site specific basis. However it may be useful to consider how similar impacts have been judged in earlier EIAs at similar sites and/or for similar types of activities.

An inherent consideration to judging significance is that it may have a rather subjective component and this fact should be acknowledged. Where an impact has the possibility of being significant, several experts should be consulted to achieve a view as objective as possible.. This is particularly important either if there is a reliance on incomplete data or if there are gaps in the knowledge.

Judging significance should not be based solely on direct impacts, but must also take account of possible indirect and cumulative impacts.

The significance of the unavoidable impacts (those impacts for which no further mitigation is possible) represents an important consideration for the decision maker in deciding whether, on balance, an activity is justified.

Some problems can arise when evaluating impacts, due to misunderstanding or overlooking some aspects of the process of evaluating impacts. These can include for example:

- confusing duration of the impact with duration of the activity;
- confusing outputs of activities with impacts;
- limiting the analysis to direct impacts, without consideration of indirect and cumulative impacts.

### **3.4. Comparison of impacts**

When the project has been assessed with respect to environmental impacts it is necessary to summarise and aggregate the significant impacts for the various alternatives in a form suitable for communication to the decision makers. From such an aggregation of information a comparison among alternatives can be easily made.

### **3.5. Proposal for corrective measures**

Corrective measures are composed of all steps conducted to decrease, avoid, or eliminate any of the components of an impact. It can be considered a process of feedback, and should occur throughout the EIA process, not simply as a final step. Corrective measures include mitigation and remediation actions.

**Mitigation** is the use of practice, procedure or technology to minimise or to prevent impacts associated with proposed activities. The modification of any aspect of the activity (and hence the consideration of outputs and the environmental exposure) as well as the establishment of supervision procedures represent effective ways of mitigation.

Mitigation measures will vary according to the activity and the characteristics of the environment, and may include:

- developing on site control procedures (e.g. recommended methods for waste disposal)
- establishing the best time for the activity (e.g. to avoid the breeding season of penguins)
- providing environmental education and training to personnel, or contractors, involved in the activity.
- ensuring adequate on site supervision of the activity by senior project staff or environmental specialists.

**Remediation** consists of the steps taken after impacts have occurred to promote, as much as possible, the return of the environment to its original condition.

The final version of the activity to be assessed must incorporate all corrective measures, including those associated with mitigation and remediation actions. Impact avoidance, as a form of mitigation, may contribute to minimising monitoring, reducing remediation costs and generally contribute also to maintaining the existing state of the environment. When considering mitigation and remediation measures, the following issues should be addressed:

- making a clear distinction between mitigation and remediation measures;

- clearly defining the state of the environment that is being aimed for through such measures;
- considering that new, unforeseen impacts may appear as a result of inadequate implementation of proposed mitigation measures;
- noting that the environment may not always be capable of returning to its original condition, even when remediation actions are implemented;
- considering that a given corrective measure may interact antagonistically or synergically with other corrective measures.

### **3.6. Proposal for Monitoring Programs**

Monitoring consists of standardised measurements or observations of key parameters (outputs and environmental variables) over time, their statistical evaluation and reporting on the state of the environment in order to define quality and trends. For the EIA process, monitoring should be oriented towards confirming the accuracy of predictions about environmental impacts of the activity, and to detect unforeseen impacts or impacts more significant than expected. Given this, it may be useful to set environmental thresholds or standards for an activity that monitoring results are assessed against. If these thresholds are exceeded, then a review or re-analysis would be required of assumptions made regarding the environmental impacts or of management systems related to the activity.

Monitoring may also include any other procedures that can be used to assess and verify the predicted impacts of the activity. Where measurement of specific parameters is not necessary or appropriate, assessment and verification procedures could include maintaining a log of the activity that actually occurred, and of changes in the nature of the activity where they were significantly different from those described in the EIA. This information can be useful for further minimising or mitigating impacts, and, where appropriate, for modifying, suspending or even cancelling all or part of the activity.

Monitoring is not about the measurement of everything in a haphazard approach to detect change but about precise measurement of a few target species, processes, or other indicators, carefully selected on the basis of scientifically sound predetermined criteria.

The process of selecting key indicators should be accomplished during the activity's planning stage, once outputs have been identified, the environment has been considered and associated impacts have been assessed, while monitoring environmental parameters generally should start before the commencement of the activity if adequate baseline information is not available.

Planning or undertaking monitoring activities may be hindered by a number of situations:

- leaving the planning of monitoring programs until the activity is in progress;
- monitoring activities can be costly, especially for multi-year projects and activities;

- some assumptions about the environmental impacts of an activity cannot be tested;
- failure to follow through with monitoring;
- failure to distinguish between natural and human-induced variability in environmental parameters;

#### **4. Writing the EIA Document**

The outcome of an EIA is a formal document, which presents all the relevant information about the EIA process. The EIA document represents a fundamental link between the EIA process and decision makers seeing that conclusions stemming from the EIA process will assist decision makers to consider the environmental aspects of the proposed activity.

Four bodies of information arise from an EIA process: *methodology*, *data*, *results* and *conclusions* derived from them. Since *results* and *conclusions* are of particular interest for decision makers, these chapters should be written in an accessible language, avoiding very technical terms. The use of graphical information, such as maps, tables and graphs, is an effective way of improving communication.

The size and level of detail in the document will depend on the significance of the environmental impacts that have been identified throughout the EIA process. Thus, Annex I to the Protocol establishes two formats to document it: Initial Environmental Evaluation (IEE) and Comprehensive Environmental Evaluation (CEE), for which the Protocol requires the presentation of different volumes of information (Annex I, Articles 2 and 3).

Unless it has been determined that an activity will have less than a minor or transitory impact or it has already been determined that a Comprehensive Environmental Evaluation is needed, an Initial Environmental Evaluation (IEE) shall be prepared. If the EIA process indicates that a proposed activity is likely to have more than a minor or transitory impact a Comprehensive Environmental Evaluation must be prepared. According to Annex I requirements a draft CEE shall be prepared first, which shall be circulated to all Parties as well as to CEP for comments. Once comments and suggestions have been incorporated, a final CEE is circulated to all Parties.

The following table summarises the steps to be considered throughout the EIA process (which are explained in Section 3 of the present guidelines). It also lists the requirements stemming from Annex I that should be included in an EIA document. In the case of IEE, some of the marked items are not specifically mentioned in Annex I, Article 2. However, their inclusion in the IEE document is often useful to communicate the results of the process in a transparent manner. These items were distinguished in the table with an X.

EIA Contents and Annex I Requirements	IEE	CEE
Description of the purpose and need of the activity	✓	✓
Description of the proposed activity and possible alternatives and the consequences of those alternatives	✓	✓
Alternative of not proceeding with the activity	X	✓
Description of the initial environmental reference state and prediction of the environmental state in absence of the activity	X	✓
Description of methods and data used to forecast the impacts	X	✓
Estimation of nature, extent, duration and intensity of direct impacts	✓	✓
Consideration of cumulative impacts	✓	✓
Consideration of possible indirect impacts	X	✓
Monitoring programs	X	✓
Mitigation and remediation measures	X	✓
Identification of unavoidable impacts	X	✓
Effects of the activity on scientific research and other uses or values	X	✓
Identification of gaps in the knowledge	X	✓
Preparers and advisors	X	✓
References	X	X
Non-technical summary	X	✓
Index	X	X
Glossary		X
Cover sheet		X

✓ required by Annex I

X often useful

The following text focuses briefly on how the items listed above should be referred to in the text of any EIA. Further technical information is already described in previous chapters.

### ***Description of the Purpose and Need for the Proposed Activity***

This section should include a brief description of the proposed activity and an explanation of the intent of the activity. It should include sufficient detail to make it clear why the activity is being proposed including the need for the activity to proceed. It should also provide details on the process by which the scope of the activity was defined. This will help ensure that the full scope of the activity has been included so that impacts can be properly assessed. If a formal process was used to accomplish this (a formal meeting or solicitation of input from the public or other groups), that process and its results should be discussed here.

### ***Description of the proposed activity and possible alternatives and the consequences of those alternatives***

This section should include a detailed description of the proposed activity as well as reasonable alternatives. The first alternative to be described would be the proposed activity. The description should be as comprehensive and detailed as possible (see section 3.1).

It may be useful to provide a comparison of alternatives in this section. For instance, for a new research station, alternatives might include differences in the size of the station and the number of persons that could be accommodated. These differences would mean different quantities of materials required, fuels consumed and emissions or wastes

generated. Tables showing appropriate comparisons can be very helpful to the reader of the document.

***Alternative of not proceeding with the activity***

The alternative of not proceeding with the proposed activity (i.e. the “no-action” alternative) should be described to highlight the pros and cons of not conducting the activity. Although the Protocol only requires its inclusion in CEEs, it is useful to also include the “no-action” alternative in the text of IEEs in order to better justify the need for proceeding with the activity.

***Description of the initial environmental reference state and prediction of the environmental state in absence of the activity***

Such a description should not be limited to a characterisation of the relevant physical, biological, chemical and anthropic elements of the environment, but should also take into account the existence and behaviour of dynamic trends and processes in order to predict the state of the environment in absence of the activity. A proper description of the initial environmental reference state provides elements against which changes are to be compared.

***Description of methods and data used to forecast the impacts***

The purpose of this section is to explain and, if necessary, defend the design of the assessment and then provide enough detail that a further evaluator can understand and reproduce the procedure. Careful writing of the methodology is critically important because it determines that results can be reproducible and/or comparable.

***Estimation of nature, extent, duration and intensity of impacts (including consideration of possible indirect and cumulative impacts).***

This section contains the results of analyses of impacts, which includes a clear description of identified exposures as well as the identification of impact aspects, in terms of their nature, spatial extent, intensity, duration, reversibility and lag time. It must clearly establish the significance assigned to each impact and the justification for such assignment. In addition, and to summarise this section, the inclusion of a table showing the environmental impacts on each environmental component can be very helpful.

Special attention must be paid to the consideration of possible indirect and cumulative impacts, since cause-effect relationship determining the existence of such impacts usually exhibit a higher degree of complexity.

***Monitoring programs***

When necessary, this section should clearly define monitoring objectives, set testable hypotheses, choose key parameters to be monitored, assess data collection methods, design statistical sampling program, and decide on frequency and timing of data collection/recording. Implementation of such monitoring programs is a further step that may begin after the planning of the activity has been completed, even though the activity has not actually been initiated.

### ***Mitigation and remediation measures***

Since mitigation and remediation measures usually aim to correct some aspects of the activity, communication of these measures must be concrete, pointing out the proposed actions and their timing, as well as the benefits associated to each individual measure. It is often useful to include this section in the text of IEEs.

### ***Identification of unavoidable impacts***

Recognition of the existence of unavoidable impacts should be included within any impact analysis. Consideration of such impacts is of great importance given that the occurrence of unavoidable impacts may affect the decision on whether to proceed with the proposed activity.

### ***Effects of the activity on scientific research and other uses or values***

Taking into account that the Protocol designates Antarctica as an area devoted to peace and science, the effects of the proposed activity on ongoing scientific research, or on the potential of a site to future scientific research, must be a fundamental consideration when the impact analysis is carried out.

### ***Identification of gaps in the knowledge***

Existing bodies of knowledge (i.e., empirical, theoretical, or anecdotal data and information) are used to support the assessment process. Nonetheless, these bodies of knowledge may be incomplete or may be surrounded by varying degrees of uncertainty. It is critical to identify explicitly in the assessment where such incompleteness or uncertainty exists; and how this has been factored into the assessment process. This disclosure can be useful in assessment by clearly identifying where more knowledge is needed.

### ***Preparers and Advisors***

This section provides a list of those experts who were consulted in preparing the assessment, their areas of expertise, and appropriate contact information. It should also list the persons who were responsible for the actual preparation of the document. This information is useful to reviewers and decision makers to ensure that the appropriate expertise was brought to bear on the analyses needed to assess the type and degree of impact from the proposed activity. It is also useful information for future assessments on similar activities or issues.

### ***References***

This section should list any references used in preparing the evaluation. They may include research or other scientific papers used in the analysis of impacts or monitoring data used to establish baseline conditions in the area where the activity is proposed. They may also include other environmental assessments of similar activities at other or similar locations.

### ***Index***

As an EIA document may be fairly large, an index is a very helpful aid to the reader.

## ***Glossary***

This section provides a list of terms and definitions as well as abbreviations that are helpful to the reader, especially if the terms are not commonly understood .

## ***Cover Sheet***

The CEE should contain a title page or cover sheet that lists the name and address of the person or organization who prepared the CEE and the address to which comments should be sent (for the draft document only).

## ***Non-Technical Summary***

The CEE must contain a non-technical summary of the contents of the document. This summary should be written in an accessible language and include pertinent information on the purpose and need for the proposed activity, the issues and alternatives considered, the existing environment, and the impacts associated with each alternative. A non-technical summary might also be useful for an IEE.

Finally, in either case (IEE or CEE) a number of considerations about writing the EIA document should be taken into account, such as:

- avoidance of including irrelevant descriptive information;
- documenting all relevant steps of the process;
- clearly describing the impact identification methodology;
- clearly distinguishing between results (identification of impacts, mitigation measures, etc.) and final value judgement of significance;
- properly connecting results and conclusions.

## **5. Annex I Requirements for Circulation**

### **5.1. Public circulation of an EIA**

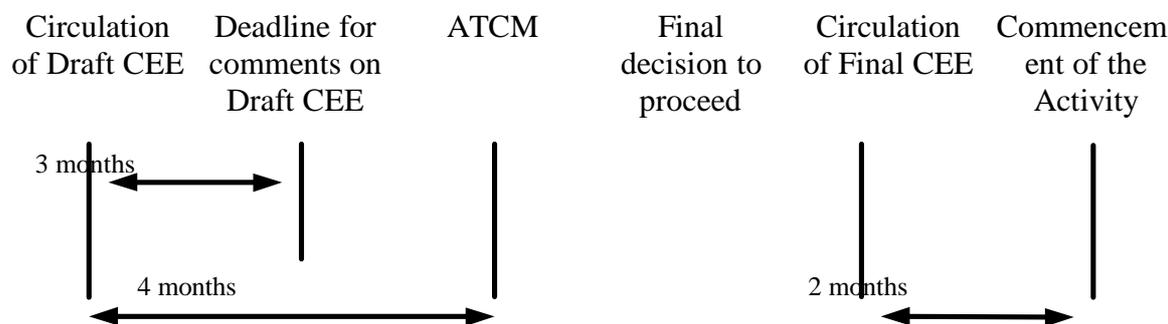
Under Annex I, public circulation is only required for CEEs. The draft CEE shall be made publicly available and shall be circulated to all Parties, which shall also make it publicly available, for comment. A period of 90 days shall be allowed for the receipt of comments. It shall be forwarded to the CEP at the same time as it is circulated to the Parties, and at least 120 days before the next ATCM, for consideration as appropriate.

### **5.2. Receipt and incorporation of comments**

No final decision shall be taken to proceed with the proposed activity in the Antarctic Treaty area unless there has been an opportunity for consideration of the draft CEE by the ATCM on the advice of the CEP, provided that no decision to proceed with a proposed activity shall be delayed for longer than fifteen months from the day of circulation of the draft CEE. A final CEE shall address and shall include or summarise comments received on the draft CEE. The final CEE, notice of any decision relating thereto, and any evaluation of the significance of the predicted impacts in relation to the advantages of the proposed activity, shall be circulated to all Parties, which shall also

make them publicly available, at least sixty days before the commencement of the proposed activity in the Antarctic Treaty area.

The following diagram illustrates this schedule for CEEs, as defined in Annex I:



## 6. Definition of terms in the EIA process

**Action:** any step taken as a part of an activity.

**Activity:** an event or process resulting from (or associated with) the presence of humans in the Antarctic, and/or which may lead to the presence of humans in Antarctica. (adapted from *SCAR/COMNAP Monitoring Workshop*)

**Comprehensive Environmental Evaluation (CEE):** an environmental impact document required for proposed activities that may have more than a minor or transitory impact on the Antarctic environment (from *Madrid Protocol, Annex I, Article 3*).

**Cumulative Impact:** the combined impact of past, present, and reasonably foreseeable activities. These activities may occur over time and space and can be additive or interactive/synergistic (adapted from *IUCN Cumulative Impacts Workshop*).

**Direct Impact:** a change in environmental components that results from direct cause-effect consequences of interaction between the exposed environment and outputs. (from *Guidelines for EIA in the Arctic*)

**Environmental Impact Assessment (EIA):** a process for identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of proposed projects and physical activities prior to major decisions and commitments being made (from *Guidelines EIA in the Arctic*)

**Exposure:** the process of interaction between an identified potential output and an environmental element or value. (adapted from *SCAR/COMNAP Monitoring Workshop*)

**Impact:** a change in the values or resources attributable to a human activity. It is the consequence (e.g. reduced plant cover) of an agent of change, not the agent itself (e.g. increase of trampling). Synonym: effect. (from *SCAR/COMNAP Monitoring Workshop*).

**Indirect Impact:** a change in environmental components that results from interactions between the environment and other impacts (direct or indirect). (from *Guidelines for EIA in the Arctic*)

**Initial Environmental Evaluation (IEE):** an environmental impact document required for proposed activities that may have a minor or transitory impact on the Antarctic environment (from *Madrid Protocol, Annex I, Article 2*).

**Mitigation:** the use of practice, procedure or technology to minimise or to prevent impacts associated with proposed activities. (*COMNAP Practical Guidelines*)

**Monitoring:** consists of standardised measurements or observations of key parameters (outputs and environmental variables) over time, their statistical evaluation and reporting on the state of the environment in order to define quality and trends. (adapted from *SCAR/COMNAP Monitoring Workshop*)

**Output:** a physical change (e.g. movement of sediments by vehicle passage, noise) or an entity (e.g. emissions, an introduced species) imposed on or released to the environment as the result of an *action* or an *activity*. (*SCAR/COMNAP Monitoring Workshop*)

**Preliminary Stage (PS):** a process that considers the level of environmental impacts of proposed activities -before their commencement- referred to in Article 8 of the Protocol, in accordance with appropriate national procedures. (from *Madrid Protocol, Annex I, Article 1*)

**Remediation:** consists of the steps taken after impacts have occurred to promote, as much as possible, the return of the environment to its original condition

**Unavoidable Impact:** an impact for which no further mitigation is possible.

## 7. References

ARCTIC ENVIRONMENTAL PROTECTION STRATEGY. 1997. Guidelines for Environmental Impacts Assessment (EIA) in the Arctic. Sustainable Development and Utilisation. Finnish Ministry of the Environment, Finland, 50 pp.

ATCPs. 1991. Protocol on Environmental Protection to the Antarctic Treaty (plus annexes). 11<sup>th</sup>. Antarctic Treaty Special Consultative Meeting. Madrid, 22-30 April, 17-23 June 1991.

COMNAP. 1992. The Antarctic Environmental Assessment Process, Practical Guidelines. Bologna (Italy) June 20, 1991, revised Washington D.C. (USA), March 4, 1992.

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SCAR/COMNAP . 1996. Monitoring of Environmental Impacts from Science and Operations in Antarctica. Workshop report. 43 pp and Annexes, .1996 Workshops

XX ATCM/IP 2, Developing and Understanding of Minor or Transitory, submitted by New Zealand.

XXI ATCM/IP 55, Elementos para la Interpretación de los Procedimientos de Evaluación de Impacto Ambiental contenidos en el Anexo I del Protocolo de Madrid, submitted by Argentina.

XXI ATCM/WP 35, Further understanding of the term Minor or Transitory, submitted by New Zealand.

XXII ATCM/IP 66, Application of the “ minor or transitory impacts” criterion of EIA in different regions of Antarctica, submitted by Russian Federation.

XXII ATCM/WP 19, Environmental Impact Assessment. The role of EIA Guidelines in understanding “ Minor or Transitory”, submitted by Australia.

## **8. Acronyms**

ASMA: Antarctic Specially Managed Area

ASPA: Antarctic Specially Protected Area

ASOC: Antarctic and Southern Ocean Coalition

ATCM: Antarctic Treaty Consultative Meeting

ATCP: Antarctic Treaty Consultative Party

ATS: Antarctic Treaty System

CCAMLR: Commission for the Conservation of Antarctic Marine Living Resources

CEE: Comprehensive Environmental Evaluation

CEMP: CCAMLR Ecosystem Monitoring Program

CEP: Committee of Environmental Protection

COMNAP: Council of Managers of National Antarctic Programmes

EIA: Environmental Impact Assessment

GIS: Geographical Information System

GOSEAC: SCAR Group of Specialists on Environmental Affairs and Conservation

HSM: Historic Sites and Monuments

IEE: Initial Environmental Evaluation

IUCN: International Union for the Conservation of Nature (World Conservation Union)

SCAR: Scientific Committee of Antarctic Research

SPA: Specially Protected Area

SSSI: Site of Special Scientific Interest

## Appendix 3

### Resolution 2(1999)

#### List of Specially Protected Species: Annex II to the Environmental Protocol

##### The Representatives,

*Noting* that the provisions of Article 8 of the Annex II to the Environmental Protocol require that the Consultative Parties keep under continuing review measures for the conservation of Antarctic fauna and flora, taking into account any recommendations from the Committee for Environmental Protection;

*Aware* that there has been no review of the list of Specially Protected Species in Appendix A to Annex II since the list was originally adopted by the consultative Parties in the 1964 Agreed Measures (Recommendation III-8);

*Aware* also that consideration needs to be given to including other species of fauna and flora on the list of Specially Protected Species as appropriate;

*Recommend* that:

1. SCAR be requested, in consultation with Consultative Parties, CCAMLR and other expert bodies as appropriate, to review the list of Specially Protected Species referred to in Article 3(4) of Annex II and listed in Appendix A to the Environmental Protocol.
2. The following Terms of Reference should be used by SCAR:
  - i) Examine the status of those species which:
    - are native to the Antarctic Treaty Area or occur there seasonally through natural migration; and
    - whose status might be of concern.
  - ii) With the assistance of IUCN, use the information contained in the IUCN Red Lists to help determine the conservation status of native Antarctic fauna and flora;
  - iii) Provide expert scientific advice to the Committee on Environmental Protection as to which species should remain, or be designated as Specially Protected Species.
3. The review should be completed by 2001, and submitted to the Committee for Environmental Protection for discussion at its next meeting thereafter.

## **Appendix 4**

### **Measure 1(1999)**

#### **Antarctic protected Areas System: Revised Management Plan for Site of Special Scientific Interest N° 23 Svarthamaren**

##### **The Representatives,**

*Recommend* to their Governments the following Measure for approval in accordance with paragraph 4 of Article IX of the Antarctic Treaty:

1. That the Management Plan for SSSI N° 23, attached to this Measure, be inserted in the Annex to Recommendation XIII-8 to replace the plan previously annexed to that Recommendation.
2. That the Consultative Parties ensure that their nationals comply with the mandatory provisions of the revised management plan.

## **Management Plan Site of Special Scientific Interest (SSSI) No. 23 SVARTHAMAREN**

### **1. Description of values to be protected**

The Area was originally designated in Recommendation XIV-5 (1987, SSSI No. 23) after a proposal by Norway based on the following factors, which still give relevant grounds for designation:

- the fact that the colony of Antarctic petrel (*Thalassoica antarctica*) is the largest known inland seabird colony on the Antarctic continent
- the fact that the colony constitutes a large proportion of the known world population of Antarctic petrel
- the fact that the colony is an exceptional “natural research laboratory” providing for research on the Antarctic petrel, snow petrel (*Pagodroma nivea*) and south polar skua (*Catharacta maccormicki*), and their adaptation to breeding in the inland/interior of Antarctica

### **2. Aim and objectives**

The aim of managing Svarthamaren is to:

- avoid human induced changes to the population structure, composition and size of the seabird colonies present at the site
- prevent unnecessary disturbance to the seabird colonies, as well as to the surrounding environment
- allow for undisturbed research on the adaptations of the Antarctic petrel, snow petrel and south polar skua to the inland conditions in Antarctica (*Primary Research*)
- allow access for other scientific reasons where the investigations will not damage the objectives of the bird research

The focus of the *Primary Research* in Svarthamaren SSSI is as follows:

- Monitoring of the population size
- Monitoring of the annual variation in hatching success and adult survival rates in the petrel colonies in order to estimate changes in the size and structure of the colony.
- Experimental studies in order to increase the understanding of the mechanisms that regulate nesting success and survival rates, and the adaptation of the Antarctic petrel to the extreme environmental conditions in Antarctica.

### **3. Management activities**

Management activities at Svarthamaren shall:

- ensure that the seabird colonies are adequately monitored, to the maximum extent possible by non-invasive methods.

- allow erection of signs/posters, border markers, etc. in connection to the site, and ensure that these are serviced and maintained in good condition
- include visits as necessary to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate

Any direct intervention management activity in the area must be subject to an environmental impact assessment before any decision to proceed is taken.

#### **4. Period of Designation**

Designated for an indefinite period.

#### **5. Maps and Illustrations**

*Map A:* Dronning Maud Land (showing location of Map B). Map specifications:

Projection: Lambert Conformal Conic;  
Standard parallels: SP1 70° S, SP2 73°S  
Central Meridian: 5°E  
Latitude of origin: 71°30'S  
Spheroid: WGS84

*Map B:* Svarthamaren and surroundings (showing location of Svarthamaren SSSI).

Map specifications are the same as for Map A.

*Map C:* Site of Special Scientific Interest No. 23, protected area topographic map. Map specifications are the same as for Map A.

#### **6. Description of Area**

##### *6 (i). Geographic co-ordinates, boundary markers and natural features*

The Svarthamaren SSSI is situated in Mühlig-Hoffmannfjella, Dronning Maud Land, stretching from approx. 71° 33' 17" S, 5°09' 12" E the north-west to approx. 71°55' 58" S, 5°15' 12" E in the south-east. The distance from the ice front is about 200 km. The Area covers approximately 6.4 km<sup>2</sup>, and consists of the ice-free areas of the Svarthamaren nunatak, including the areas in the immediate vicinity of the ice-free areas naturally belonging to the nunatak (i.e. rocks). The Area is shown in Map B and C.

The Norwegian field station Tor is located in the Svarthamaren nunatak at lat. 71°53'S, long. 5°10'E. The station, including a 10 metre buffer zone around the station buildings, is excluded from the Svarthamaren Site of Special Scientific Interest. Access to the station is by the shortest route from the ice.

The main rock types in the Area are coarse and medium grained charnockites with small amounts of xenoliths. Included in the charnockitoids are banded gneisses, amphibolites and granites of the amphibolite facies mineralogy. The slopes are covered by decomposed feldspathic sand. The north-eastern side of the Svart-hamaren nunatak is dominated by scree slopes (slope 31°-34°), extending 240 metres upwards from the base

of the mountain at about 1600 metres above sea level. The major features of this area are two rock amphitheatres inhabited by breeding Antarctic petrels. It is this area which makes up the core of the protected site.

No continuous weather observations have been carried through in the Area, but prevalent air temperature has been observed to range between  $-5^{\circ}$  and  $-15^{\circ}\text{C}$  in January, with somewhat lower minimum temperatures in February.

The flora and vegetation at Svarthamaren are sparse compared with other areas in Mühlig-Hofmannfjella and Gjelsvikfjella to the west of the site. The only plant species occurring in abundance, but peripherally to the most manured areas, is the foliose green alga, *Prasiola crispa*. There are a few lichen species on glacier-borne erratics 1-2 km away from the bird colonies: *Candelariella hallettensis* (= *C. antarctica*), *Rhizoplaca* (= *Lecanora*) *melanophthalma*, *Umbilicaria* spp. and *Xanthoria* spp. Areas covered with *Prasiola* are inhabited by collembola (*Cryptopygus sverdrupi*) and a rich fauna of mites (*Eupodes anghardi*, *Tydeus erebus*) protozoan, nematodes and rotifers. A shallow pond measuring about 20 x 30 m, lying below the middle and largest bird sub-colony at Svarthamaren, is heavily polluted by petrel carcasses, and supports a strong growth of a yellowish-green unicellular algae, *Chlamydomonas*, sp. No aquatic invertebrates have yet been recorded.

The colonies of breeding seabirds are the most conspicuous biological element in the Area. The north-eastern slopes of Svarthamaren are occupied by a densely populated colony of Antarctic petrels (*Thalassoica antarctica*) divided into three separate sub-colonies. The total number of breeding pairs is estimated to be approximately 250,000 pairs. In addition, 500-1000 pairs of snow petrels (*Pagodroma nivea*) and approximately 80 pairs of south polar skuas (*Catharacta maccormicki*) breed in the area. The two main colonies of Antarctic petrels are situated in the two rocky amphitheatres. The main colonies of snow petrels are located in separate parts of the scree-slope that are characterised by larger rocks. The south polar skuas nest on the narrow strip of flat, snow-free ground below the scree-slopes.

The main concentrations of seabirds are indicated on Map C. Readers should, however, be aware that birds are also found in other areas than these densely populated areas.

6 (ii). *Restricted zones within the Area*

None

6 (iii). *Location of structures within the Area*

There are no structures within the Area.

The Norwegian field station Tor is located on the Svarthamaren nunatak, at  $71^{\circ}53.4'S$ ,  $5^{\circ}09.6'E$ . The station, including a 10 meter buffer zone around the station buildings, is excluded from the Area. Access to the station is by the shortest route from the ice.

6 (iv). *Location of other Protected Areas within close proximity*

None

## 7. Permit Conditions

Permits may be issued only by appropriate national authorities as designated under Annex V, Article 7 of the Protocol on Environmental Protection to the Antarctic Treaty. Conditions for issuing a permit to enter the Area are that:

- the actions permitted are in accordance with this Management Plan
- the permit, or a copy, shall be carried within the area
- any permit issued shall be valid for a stated period
- a visit report is supplied to the authority named in the permit

### *7 (i) Access to and movement within the Area*

Access to the area is restricted by the following conditions:

- No pedestrian routes are designated, but persons on foot shall at all times avoid disturbances to birds, and as far as possible also to the sparse vegetation cover in the Area.
- Vehicles should not enter the site.
- No flying of helicopters or other aircraft over the Area is allowed.
- Helicopter landings are not allowed within the boundaries of the SSSI. Landings associated with activities at the field station Tor should preferably take place at the north-eastern tip of the Svarthamaren nunatak (as marked on map C).

### *7 (ii). Activities that are or may be conducted within the Area, including restrictions on time and place*

The following activities may be conducted within the Area in accordance with permit:

- Primary biological research programs for which the area was designated.
- Other research programs of a compelling scientific nature that will not interfere with the bird research in the Area.

### *7 (iii) Installation, modification or removal of structures*

No structures are to be erected in the Area, or scientific equipment installed, except for equipment essential for scientific or management activities as specified in a permit, or for modification of the field station, also as specified in a permit.

### *7 (iv) Location of field camps*

No field camps should be established in the Area. The field station Tor should only be used with permission from the Norwegian Polar Institute.

### *7 (v) Restrictions on materials and organisms which may be brought into the Area*

- No living animals or plant material shall be deliberately introduced into the Area.
- No poultry products, including food products containing uncooked dried eggs, shall be taken into the Area.
- No herbicides or pesticides shall be brought into the Area.

- Any other chemicals (including fuel), which may be introduced for a compelling scientific purpose specified in the permit, shall be removed from the Area before or at the conclusion of the activity for which the permit was granted.
- All materials introduced shall be for a stated period, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimised.

*7 (vi). Taking or harmful interference with native flora and fauna*

Taking or harmful interference with native flora and fauna is prohibited, except in accordance with a permit issued in accordance with Annex II to the Protocol of Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, *SCAR Code of Conduct for Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

It is recommended that those responsible for the primary research in the Area should be consulted before a permit is granted for taking of birds for purposes not associated with the primary research. Studies requiring taking of birds for other purposes should be planned and carried through in such a manner that it will not interfere with the objectives of the bird research in the Area.

*7 (vii). Collection and removal of anything not brought into the Area by the Permit holder*

Material may be collected or removed from the Area only in accordance with a permit, except that debris of man-made origin should be removed and that dead specimens of fauna may be removed for laboratory examination.

*7 (viii) Disposal of waste*

All wastes is to be removed from the area.

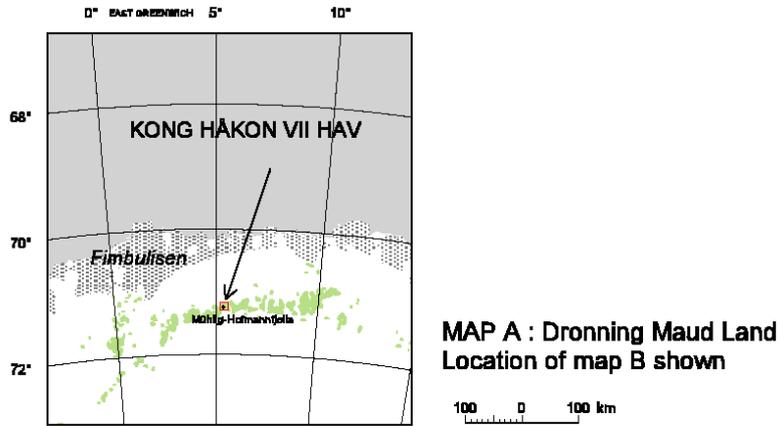
*7 (ix) Measures that may be necessary to ensure that the aims and objectives of the Management Plan continue to be met*

Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities which may involve the collection of small amounts of plant material or small numbers of animals for analysis or audit, to erect or maintain notice boards, to maintain the field station, or to undertake protective measures.

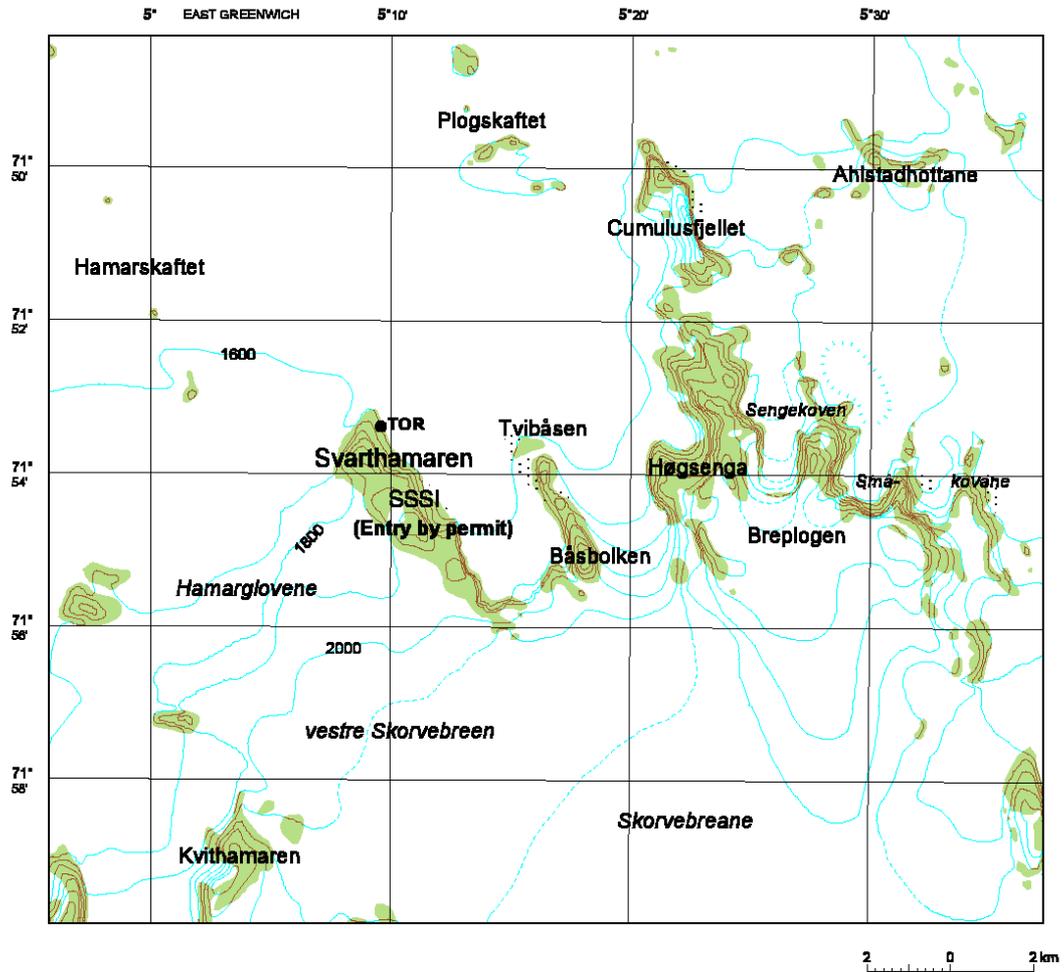
*7 (x) Requirements for reports*

Parties should ensure that the principal holder of each permit issued submit to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever

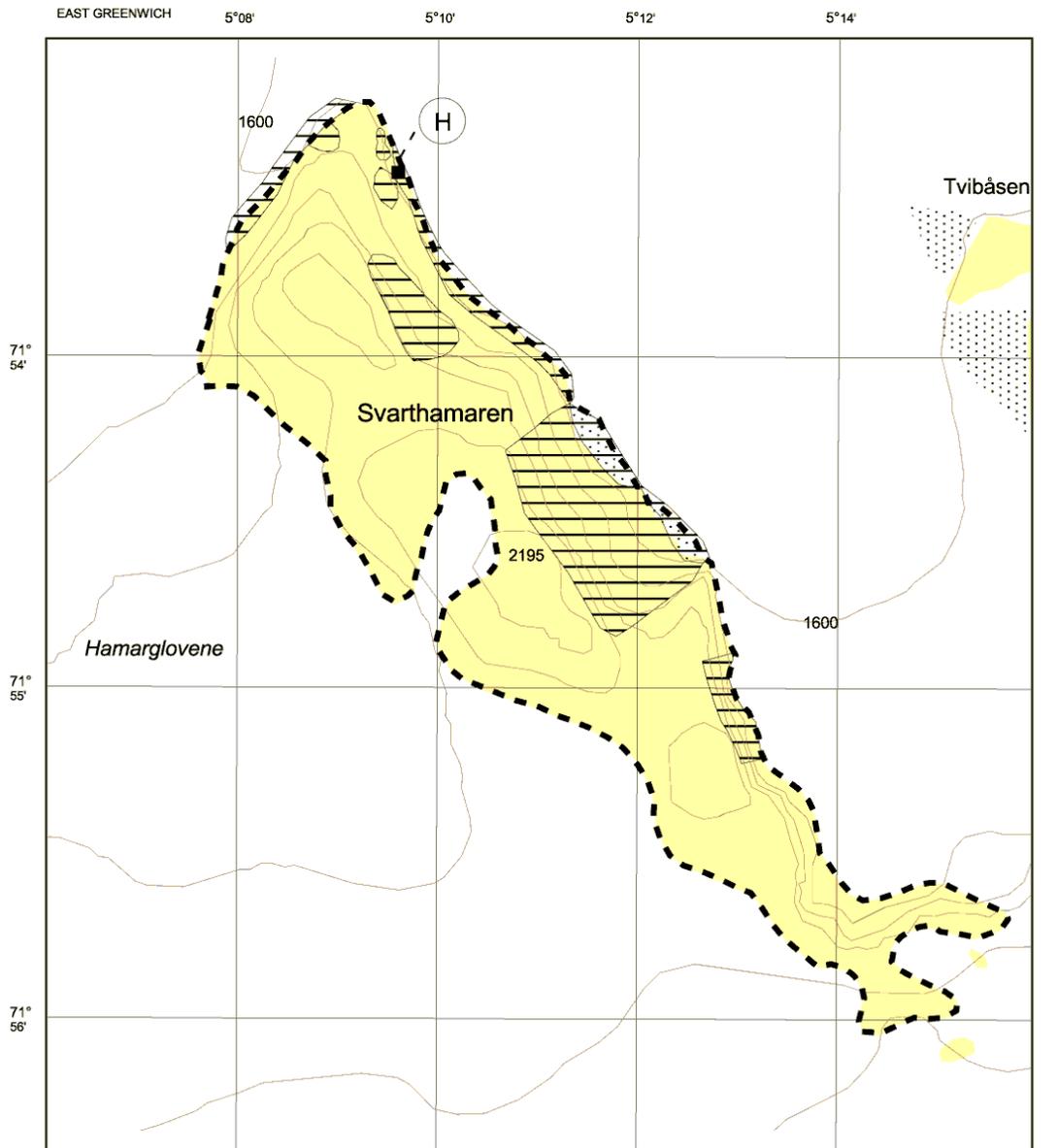
possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.



**MAP B : Svarthamaren and surroundings**  
 Svarthamaren, SSSI No. 23 slightly left of centre



MAP C: Svarthamaren - Site of Special Scientific Interest No. 23



- Field station Tor 71° 53,4' S 5°09,6' E
- ⊙ (H) Helicopter landing
- - - Vehicle movement
- - - SSSI Boundary
- ▬▬▬ Main seabird concentrations
- Rock
- ⋯ Moraine

500 0 500 meter

Contour interval: 100 m

Projection: Lambert Conformal Conic  
 Spheroid: WGS84  
 Source: Norsk Polarinstitutt



## Appendix 5

### **DRAFT AGENDA FOR CEP III (ATCM XXIV)**

**Item 1: Opening of the Meeting**

**Item 2: Adoption of Agenda**

**Item 3: Operation of the CEP**

**Item 4: Compliance with the Protocol on Environmental Protection**

4a) General Matters

4b) Consideration of Draft CEEs forwarded to the CEP in accordance with paragraph 4 of Article 3 of Annex I of the Protocol.

4c) Others Matters covered by Annex I (Environmental Impact Assessments)

4d) Matters covered by Annex II (Conservation of Antarctic Flora and Fauna)

4e) Matters covered by Annex III (Waste Disposal and waste management)

4f) Matters covered by Annex IV (Prevention of Marine Pollution)

4g) Matters covered by Annex V (Area protection and management)

**Item 5: Environmental Monitoring**

**Item 6: State of the Antarctic Environment Report**

**Item 7: Emergency Response and Contingency Planning**

**Item 8: Data and Exchange of Information**

**Item 9: Election of Officers**

**Item 10: Preparation for CEP IV**

**Item 11: Adoption of the Report**

**Item 12: Closing of the Meeting**