



## Working Paper Submitted by COMNAP & SCAR on Recent Monitoring and EIA Initiatives

### INTRODUCTION

1. Environmental monitoring and environmental impact assessment (EIA) have been important focuses of COMNAP work over the last decade. Recent initiatives within the Antarctic Treaty System and within SCAR and COMNAP as well as ongoing experience in the practical implementation of the Environmental Protocol have advanced the understanding of both issues.

2. Two workshops, organised by SCAR and COMNAP, on environmental monitoring were held in 1995 and 1996. The outcomes of the workshops were published in the workshop report *Monitoring of Environmental Impacts from Science and Operations in Antarctica*. In 1997 SCAR and COMNAP reported on the outcomes of the workshops to ATCM XXI and identified four specific recommendations for further work that were subsequently endorsed by the meeting. The recommendations included:

- development of a technical handbook for standardised monitoring techniques;
- a review of existing data and key research areas;
- development of a process for data management; and
- methods of coordination of monitoring activities.

3. In addition, a summary of existing monitoring activities from 15 countries was also published by COMNAP in May 1998. COMNAP reported back on progress with the four above-listed recommendations at ATCM XXIII (1999). The Committee for Environmental Protection (CEP) subsequently endorsed the monitoring work and requested that COMNAP report back to CEP III on further progress. At the same meeting, the CEP endorsed a set of guidelines for the EIA process. COMNAP has subsequently made these available in both hard copy and on its web site.

4. This paper reports on progress with two recent initiatives - the development of a handbook for standardised monitoring techniques and the outcomes of a workshop for national program environmental officers held during the COMNAP meeting in Goa, India in September 1999.

### ANTARCTIC ENVIRONMENTAL MONITORING HANDBOOK

5. One of the key recommendations to come out of the COMNAP/SCAR work on monitoring was the development of a technical handbook that would be used as a guide on the scientific protocols for environmental monitoring programs. In June 2000 the Antarctic Environmental Monitoring Handbook, detailing standard techniques for monitoring in Antarctica, was posted on the COMNAP web site.

6. The handbook was developed through a joint COMNAP/SCAR project team including members of the Antarctic Environmental Officers Network (AEON). It provides guidance on standard techniques and methodologies for a first tier of indicators for monitoring programs in Antarctica. Descriptions are provided of standard methodologies for field collection, storage and analysis for physical and chemical measurement in freshwater, seawater, wastewater, soil, marine sediments and snow. In addition, an approach to quantify and record the type, areal extent and level of activities that occur at stations is provided.

7. Biological measurements are not addressed in this version of the handbook as many challenges still remain in perfecting biology-based indicators. Methods are provided for the following indicators:

***Freshwater/seawater***

Suspended solids, BOD, COD, DO, pH, conductivity, nutrients, temperature, coliform bacteria and phytoplankton.

***Wastewater***

Suspended solids, BOD, COD, DO, pH, conductivity, nutrients, temperature and coliform bacteria.

***Soils***

TOC, TIC, Cu, Pb, Zn, Cd, Hg, total petroleum hydrocarbons, and PAH.

***Sediments***

TOC, TIC, Cu, Pb, Zn, Cd, Hg, total petroleum hydrocarbons and PAH.

***Snow***

Cu, Pb, Zn, Cd, Hg, total petroleum hydrocarbons

***Station activities***

Wastewater production/emission, fuel consumption, waste incineration, spills and station area.

8. The handbook provides guidance on quality assurance and control, data management and sample collection, handling and preservation that is intended to encourage greater comparability of monitoring results across national programs. It is intended that the handbook be updated, amended and expanded on an as needed basis

9. The handbook has been provided to all COMNAP members in hard copy form. A CD-ROM version will be provided to each CEP delegation. It is also available for downloading off the COMNAP web site ([www.comnap.aq](http://www.comnap.aq)).

## **AEON WORKSHOP ON ENVIRONMENTAL MONITORING AND EIA**

### **Overview**

10. COMNAP XI in September 1999 provided a timely opportunity for members of AEON (who are often responsible for the practical implementation of monitoring and EIA) to come together to follow up on recent initiatives and to facilitate discussion on the issues of environmental monitoring and EIA. Consequently Environmental Officers from 10 countries participated in the workshop (this represents over half the current membership of AEON). Other experts and observers also participated in the meeting.

11. The workshop aimed to facilitate discussions on the issues of environmental monitoring and EIA, taking advantage of the combined experience and expertise of Environmental Officers. The focus was on increasing awareness and understanding of the current issues surrounding Antarctic environmental monitoring and EIA, and to identify ways to improve coordination within the context of these two issues. The workshop discussed the following:

- Ways in which monitoring activities and information at multiple operator sites can be effectively coordinated.
- How to decide what monitoring activities should be initiated.
- Practical implementation of the EIA guidelines agreed at the Lima ATCM including the issues of:
  - EIA for joint activities
  - comparison of EIAs for similar activities in different programs
  - use of EIA to assist in analysis of cumulative impacts, and
  - improvements in the process of developing EIAs

12. The outcomes of the workshop are presented in a workshop report available on COMNAP's website.

### **Summary of Workshop Outcomes**

#### *Environmental Monitoring*

13. Two key outstanding issues with respect to monitoring were identified:

- how to decide what monitoring should be initiated; and
- monitoring issues at multiple operator sites.

The Workshop identified that there are several steps in the process of developing, designing and implementing environmental monitoring programs and noted that these have been identified and elaborated on in the report of the SCAR/COMNAP workshops. However, the SCAR/COMNAP report did identify some gaps in the process, in particular the need for standard technical methods for monitoring in Antarctica (which the technical handbook now addresses).

14. The Workshop looked at other areas where there may be gaps in the documentation and information available to operators. The issue of how to develop and design a monitoring program, in particular the process for deciding what monitoring to carry out, was a focus for discussion. The workshop subsequently recommended to COMNAP that practical guidelines for developing and designing an environmental monitoring program be prepared. This recommendation was accepted by COMNAP and terms of reference for this work have since been developed by AEON.

15. Another gap identified by the Workshop in the overall monitoring regime was coordination of monitoring data, including current information on what monitoring is done and the actual results or data arising from monitoring programs. The Workshop also noted that there are several groups of experts considering Antarctic data management issues, where this issue could be taken up.

16. The Workshop also discussed a number of issues related to monitoring at multiple operator sites and identified some ways in which issues at multiple operator sites could be addressed. These include:

- exchange of basic information about the activities at the same site;
- improved coordination of activities to minimise concerns, in particular minimise interference or potential cumulative impacts. In some cases establishing an Antarctic

Specially Managed Area (ASMA) might provide a suitable framework for achieving this (monitoring might be included as part of an ASMA management plan in particular to assist in reviewing the effectiveness of the plan); and

- initiating joint monitoring programs, including approved monitoring designs, methods and implementation phase.

#### *Environmental Impact Assessments*

17. The workshop considered two issues related to EIA:

- Coordination and planning EIA at multiple operator sites; and
- The value of comparison of EIAs for the same activities

It was noted that EIA processes at sites where more than one operator was carrying out activities were not always coordinated. Two examples of this were discussed; research on Weddell seals in McMurdo Sound and multiple tourist visits to the same site. It was agreed that the first essential step in the coordination of EIAs in these situations was timely and targeted exchange of information between operators.

18. Any exchange of information needed to be available in advance of an activity taking place to enable potential impacts to be considered in the EIA process of each country. As minimum information on the project title, contact point, locations and dates could be exchanged which would allow for assessment of whether multiple activities are occurring on a site.

19. The Workshop also considered the value of comparing EIAs for similar activities in similar types of environments, and noted that such a comparison could probably only be done for IEEs due to the low number of CEEs so far prepared. It was recommended that a number of IEEs for similar activities could be compared to enable a better understanding of how the EIA process is being implemented. This could include a comparison of the impacts identified, the methodologies used, the level of information and detail about activities provided, and the conclusions reached.

20. Types of activities that this could be based on include station rebuilds, decommissioning or clean up activities and research activities. Such analysis will be carried out through e-mail in the AEON network.

## **SUMMARY AND CONCLUSIONS**

21. The following activities related to environmental monitoring and EIA have been completed under the auspices of COMNAP during the last year:

- Completion of the first version of the COMNAP/SCAR Antarctic Environmental Monitoring Handbook
- The COMNAP/SCAR Summary of Environmental Monitoring Activities in Antarctica has been made available on COMNAP's website in a format that enables on-line continuous updating of the document.
- The EIA guidelines adopted by CEP II have been made available on COMNAP's website.
- A workshop on Environmental Monitoring and Environmental Impact Assessments was held.

22. COMNAP is currently looking at the following activity related to environmental monitoring and EIA:

- Development of practical guidelines for developing and designing an environmental monitoring program

23. The following monitoring and EIA related activities have been identified as important to follow up, but are currently not being investigated:

- Consideration of how the issue of coordination of EIA might be advanced, in particular mechanisms for advance exchange of information on existing and proposed scientific, operational and tourist activities at a site.
- Initiation of an analysis of existing IEEs for two or three specified types of activities with the aim to achieve a better understanding of how the EIA process is being implemented by different operators.

24. COMNAP would welcome CEP guidance as to priorities for future operational priorities related to environmental monitoring and environmental impact assessments.