



ANTARCTICA NEW ZEALAND INFORMATION SHEET

ENVIRONMENTAL ISSUES AND **MANAGEMENT**

Antarctica is not completely untouched but it is certainly the least altered large landmass in the world, with many unique ecosystems, animals and landscapes. It is the last opportunity we have to preserve a whole continent in a natural condition.

In the past Antarctica has been used with little regard to the consequences for the environment. Whales in the Southern Ocean and seals on the sub-Antarctic islands and the Antarctic Peninsula were hunted almost to extinction in the 1800s and early 1900s. On the continent - where only two percent of the land is ice-free - scientific bases, runways and dumps have competed for space with penguin rookeries, seal colonies and moss fields.

Until the 1970s it was a common perception that there was so much "empty" space that human activities would have no impact on Antarctica.

Since then, people have realised that Antarctica is not isolated from the rest of the world and has an impact on ocean currents, weather patterns and migratory animals that extends well beyond the Antarctic Circle.

Similarly, there has been a realisation that the rest of the world can affect Antarctica. Researchers have discovered the ozone hole, which occurs above Antarctica each spring, and its links with the use of CFCs (chlorofluorocarbons). Global warming also has its origins in industrialised countries and could have major consequences for Antarctica (see "Science in Antarctica" sheet).

The protection of the Antarctic environment had its foundations in the Antarctic Treaty in 1959 (see "The Antarctic Treaty" sheet). The treaty established Antarctica as a region of co-operative scientific effort where military and nuclear activity is banned.

The Treaty also aimed to avoid international disputes - the sort which might arise over economically important mineral resources. Although New Zealand suggested in 1975 that Antarctica be declared a world park, many countries considered mineral exploitation in Antarctica inevitable and wanted to establish guidelines that would minimise environmental damage when it occurred.

Discussions on rules to guide mineral development began in 1982 and lasted six years. The result was the development of a Convention on the Regulation of Antarctic Mineral Resource Activity (CRAMRA). Many countries began research in Antarctica during this period so they could have their say on the convention.

During the period of the discussions, public opinion was turning against allowing Antarctica to be used for mining. Environmental groups were promoting the idea of an Antarctic world park and the United Nations voted overwhelmingly for this concept. When it came to the signing of the convention, Australia

and then France refused to do so, setting the stage for a document with more emphasis on environmental protection for Antarctica.

The Protocol on Environmental Protection

Instead of the minerals convention, the Protocol on Environmental Protection to the Antarctic Treaty (also known as the Madrid Protocol) was developed. The Protocol introduces an indefinite ban on mining activities in Antarctica, other than for scientific research, and designated Antarctica as a "natural reserve devoted to peace and science". It gives comprehensive protection to the Antarctic environment and its ecosystems and maintains the value of the continent as an area for scientific research.

The Protocol emphasises responsible environmental management by requiring prior environmental impact assessments of all activities, and brings together existing environmental recommendations adopted through the Antarctic Treaty system. The key article in the Protocol states that all activities in the treaty area "shall be planned and conducted so as to limit the adverse impacts on the environment and its dependent and associated ecosystems".

The Protocol has 27 articles and five technical annexes. The annexes outline specific rules for the protection of the Antarctic environment. They deal with environmental impact assessment, conservation of flora and fauna, waste disposal, prevention of marine pollution and protected areas.

The environmental impact assessment annex outlines in detail the steps for assessment and provides for public review and comment, the identification and description of predicted impacts and the consideration of alternatives.

Areas of special natural or physical values, historic sites and monuments or special management areas may be designated under the annex on protected areas. Antarctic Specially Protected Areas (ASPAs) have been designated to preserve unique natural ecosystems or historic sites or monuments. Management plans are required for ASPAs, which may restrict access or the types of activities that can be conducted in the area, eg. plant collecting and driving a vehicle. Permits are required to enter all ASPAs.

Antarctic Specially Managed Areas (ASMAs) cover sites where additional planning and co-ordination of activities is required, such as at popular tourist landing sites or around Antarctic stations.

The waste disposal annex prohibits some materials from being sent to Antarctica. These include polychlorinated biphenyls (PCBs), non-sterile soil, polystyrene beads used in packaging, and pesticides (except for scientific, medical or hygiene purposes). Wastes such as radioactive material, electrical batteries, liquid or solid fuels and plastics must be removed from Antarctica.

The annex on conservation of flora and fauna controls harmful interference with native animals or plants and prohibits the introduction of any non-native species to Antarctica.

The prevention of marine pollution annex aims to reduce the impact of ship operations on Antarctic ecosystems by prohibiting discharge of oil, noxious substances, plastics and all other garbage in the Antarctic Treaty area. Food wastes can only be discharged after maceration (grinding) and must be discharged at least 12 nautical miles from land or ice shelves. Release of untreated sewage is also prohibited near the shore.

Annual reports are required on implementation of the protocols requirements and inspections between parties are encouraged. If a country does not comply with the Protocol, a dispute settlement procedure has been established.

The Environmental Protocol did not enter into force until all 26 Antarctic Treaty Consultative Parties had ratified it (made it law in their own country). This was finally achieved in January 1998. New Zealand's legislation came into force in February 1995.

Several other freestanding conventions that have been negotiated by the Antarctic Treaty Parties are also concerned with environmental protection (see the sheet on the Antarctic Treaty). The Southern Ocean Whale Sanctuary is discussed in the sheet on penguins, whales and seals.

New Zealand and Environmental Management

By ratifying the Protocol, New Zealand has signalled its commitment to ensuring activities comply with its standards. Environmental protection measures are now an integral part of all activities coordinated by Antarctica New Zealand.

An independent environmental audit of Antarctica New Zealand activities was undertaken to assess the level of compliance with the Protocol and to identify areas, which could be improved. An Environmental Management System was then implemented to systematically minimise the potential and actual impacts of the activities. New Zealand was the first country to have this done and the process has attracted much international interest. Since the first audit improvements have been made in fuel handling and storage, liquid waste management, monitoring and environmental training of staff.

Antarctica New Zealand's Environmental Manager makes sure that all visitors to Scott Base are given a copy of the environmental code of conduct and a handbook containing summaries of the Antarctic Treaty, the Protocol, protected areas and other environmental requirements.

Waste Management

Antarctica New Zealand has also developed a waste management policy, which outlines ways to minimise waste and how specific materials should be disposed of. Wastes are separated into four categories for handling and disposal. The categories are:

- General waste - non-recyclable paper, cardboard, untreated timber scraps, fabric scraps and miscellaneous items.
- Hazardous - oil products, batteries, asbestos, aerosols, explosives, paint, detergents, chemicals, food waste, food contaminated material, medical waste, human field waste, sanitary waste and sharps.
- Recyclable - glass, metal, aluminium and metal cans, corrugated cardboard, office and newsprint paper.
- Domestic liquids - sewage, domestic liquid waste, final rinse photographic water and hydroponics water.

Domestic liquids at Scott Base are biologically and UV treated before release into the sea. All other waste is returned to New Zealand.

Oil Spills

Oil spills probably pose the greatest single environmental risk in Antarctica. Despite great care being taken, accidents can occur, such as the grounding of the Argentinian ship *Bahia Paraiso* that caused oil pollution of a part of the Antarctic Peninsula coastline.

Antarctica New Zealand trains everyone to avoid spills and field parties are issued with absorbent mats in "spill kits" to be used when re-filling vehicles or kerosene stoves. Should an accident occur, a spill contingency plan has been developed for Scott Base and field activities, including a cooperative arrangement with nearby McMurdo Station operated by the United States.

Tourism

There is concern that the increasing number of tourists visiting Antarctica might damage the environment. For further information see the "Tourism in Antarctica" information sheet.

FURTHER READING

Berkman, P.A. 2002. *Science into Policy: Global Lessons from Antarctica*. Academic Press, San Diego, USA.

Hansom, J.D. and Gordon J.E. 1998. *Antarctic Environments and Resources: A Geographical Perspective*. Addison Wesley Longman Ltd, United Kingdom.

Waterhouse, E.J. (ed). 2001. *Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica*. Antarctica New Zealand, Christchurch.