



QUANTIFYING FACTORS LIMITING IMPLEMENTATION OF ANNEX III OF THE PROTOCOL ON ENVIRONMENTAL PROTECTION TO THE ANTARCTIC TREATY

COMNAP FELLOWSHIP REPORT
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Overview

COMNAP Fellowships provide for researchers from countries that are COMNAP member national Antarctic programs, to undertake short-term visits to international laboratories, field facilities, and home institutions in or operated by other COMNAP member programs.

In 2014, a COMNAP Fellowship was awarded to Sandra Potter to further her research into the nature and significance of Antarctic Treaty Parties' difficulties in implementing the waste disposal and waste management provisions of the Protocol on Environmental Protection to the Antarctic Treaty.

While the research undertaken identified a diverse range of barriers to some countries' full implementation of Annex III, it also established that there remains scope to address some of these challenges through, for example, multi-lateral initiatives. Further action on clean up might well be progressed under the umbrella of a 10-year clean up campaign championed by the COMNAP community.¹

Background

It would seem important to understand the nature and significance of the barriers to Antarctic Treaty parties fully implementing Annex III of the Protocol on Environmental Protection to the Antarctic Treaty, as the legacy of Antarctic science and its supporting activities is thought to include 1-10 million m³ of abandoned, unconfined materials and a similarly large volume of contaminated soils.² Indeed waste attributed to national Antarctic program activity, and from sources and activities beyond the Antarctic continent, can even be found in some Antarctic Specially Protected Areas – sites afforded the highest level of protection under the Antarctic

¹ Such a clean-up campaign could be progressed as a COMNAP project and involve, for example:

- i. managers of national Antarctic programs undertaking to draw this initiative to the attention of their funding bodies or parent departments
- ii. national Antarctic programs identifying sites of past activity and/or stockpiled materials that they can give attention to in the clean up decade
- iii. national Antarctic programs making use of regional sessions at COMNAP to scope undertaking multi-lateral clean-up actions
- iv. COMNAP's Environment Expert Group acting as a focal point for recording and promoting programs' collective efforts and progress
- v. the national Antarctic programs of countries with ports that are used by multiple programs helping to facilitate, wherever possible, the acceptance and processing of waste from Antarctica; and
- vi. national Antarctic programs sharing their clean-up plans, developments and expertise at a workshop to be held ~3 years into the decade.

For some and mostly newer Antarctic programs, a contribution to the campaign could be as simple as a targeted collection of debris washed up on Antarctica's shorelines. For long-established programs, the dismantling and removal of redundant infrastructure may be an appropriate goal.

² Snape et al. in *Polar Record* (2001).

Treaty System.³ Wherever found and whatever the sources, such materials can impact on Antarctica's intrinsic, scientific, aesthetic and/or wilderness values.⁴

While the responses of some parties to their Madrid Protocol obligations may be exemplary, and there have been some notable clean-up efforts,⁵ recent media reports⁶ – accurate or sensationalised – remain critical of Antarctic Treaty parties' practices and indicate that there is ongoing and broader community concern.

Over and above the aforementioned legacy issues, there is evidence to suggest that infrastructure that is rarely used or not actively maintained, and materials stockpiled between shipping seasons, are emerging/new sources of environmental contamination and, sometimes, health and safety issues.⁷

Annex III of the Madrid Protocol requires the removal of specific wastes and clean-up action except where structures are designated as historic sites or monuments, or where the removal of materials by any practical option would result in greater adverse environmental impact than leaving the structure or waste material in its existing location. Although the Committee for Environmental Protection acknowledges that clean-up may not be achievable,⁸ it is now more than two decades since the Protocol came into existence, and it would seem timely to reflect on what has been achieved, and the action that can still be taken.

Research methods and findings

Data on the challenges faced in implementing Annex III of the Madrid Protocol was obtained using research techniques that place emphasis on understanding through analyses of words and actions. Such techniques suit research into policy issues and questions of human organisation because they provide for the examination of issues in detail and in depth and in a manner unconstrained by predetermined categories of analysis.⁹

³ For example in certain sites in the Windmill Islands in East Antarctica and the South Shetland Islands in the Antarctic Peninsula.

⁴ E.g. Frederickson 1971, Parker 1971, Cameron 1972, Schofield 1972, ICSU 1989, Hemmings 1990, Harris 1991, Kerry 1993, SCAR/COMNAP 1996, Anderson 1998, Waterhouse 2001, Hughes 2003, Tin et al. 2008, Fryiers et al. 2013.

⁵ Refer the Antarctic Treaty Secretariat EIA database and/or actions reported at various ATCMs.

⁶ This is indicated by adverse media attention, e.g.

'Waste dump at the end of the world'

(http://www.terradaily.com/reports/Waste_Dump_at_the_End_of_the_World_999.html); 11 February 2013)

'Antarctic island heavily trashed'

(<http://news.discovery.com/earth/antarctic-island-heavily-trashed-130328.htm>); 28 March 2013)

'The old Wilkes Base in Antarctica is now a toxic waste dump'

(<http://www.smh.com.au/national/the-old-wilkes-base-in-antarctica-is-now-a-toxic-waste-dump-20140216-32tuz.html>); 17 February 2014)

'Antarctic research bases spew toxic wastes into environment'

(<http://news.nationalgeographic.com/news/2014/03/140304-antarctica-research-toxic-adelie-penguins-mcmurdo-station-science/>); 4 March 2014)

⁷ Some East Antarctic examples being some of the buildings at Mawson that have been unoccupied since the station was rebuilt in the 1980s, and Wilkes station.

⁸ See *CEP Clean-up Manual* (2013)

⁹ Patton 1990, Rist 1994, Yin 2014

Information sources included the 'grey' and published literature, national Antarctic program personnel, and first hand exposure to some of the institutional arrangements and or Antarctic field practices of nine countries.

Reasons relevant to one or more parties/programs' current position in relation to their Annex III obligations were found to be diverse. They included:

- the sheer complexity of the clean-up task
- waste retrograde issues (e.g. quarantine controls, and the lack of appropriate waste reception facilities)
- the view that the presence of abandoned materials/sites has become an acknowledged and accepted part of Antarctica's history
- the view that structures, even when unoccupied, evidence territory; building removal would be detrimental to the country's national interests
- concern about potential criticism and/or potential liability issues should well-intended clean-up efforts result in greater environmental damage
- the conclusion that the costs of clean-up out weigh the potential benefits
- ambiguity around the country that carries the clean-up obligation for sites that have been occupied by more than one party
- the site that is an issue having been established by an institution that is no longer responsible for the party's Antarctic program
- the time that has lapsed – there are now significant human health and safety risks and/or clean-up has become a practical impossibility (e.g. through severe snow and ice accumulation)
- the view that the (minimal) approach taken to date is comparable with or no worse than the approach of others, manifesting in a lack of pressure to act
- the view that a dynamic equilibrium in interaction with the environment has been established in the impacted area and the impacts are not reversible
- 'problem transfer' – waste from Antarctica will become, as problematically, landfill elsewhere
- budgetary issues and questions of priority

Notably, not all of the reasons identified preclude taking prompt, heightened action. Thus the identified issues of 'a lack of appropriate clean up techniques' and 'uncertainty as to how clean is clean enough' (in the treatment of sediments) – need not be a barrier to dismantling abandoned buildings and collecting windblown debris from landscapes; the protection of the aesthetic values of Antarctica is one of the Protocol's basic environmental principles and obligations.

It is expected that the outcomes of this research will be submitted for journal publication.

Acknowledgments

I thank COMNAP – its Fellowship selection committee and Executive Secretary – for providing me with funding to research this potentially sensitive subject matter, and the Arctic and Antarctic Research Institute (AARI) in St Petersburg for hosting me in May 2015. The AARI was identified as a potentially rich source of information as:

- AARI's operational expertise is vast, spanning the use of shipping and aviation assets, the operation of coastal and inland stations, and the use of multiple 'gateways' to the continent.
- AARI has greater experience of multi-lateral activities than many national Antarctic programs.
- Russia is one of few countries that has experience of working collaboratively with non-government organisations on clean-up projects.¹⁰
- Russia is among countries with substantial infrastructure and environmental legacies in Antarctica and has already seen fit to commit to removing ~200 tonnes of accumulated waste from Antarctica each year.

The Institute's staff were unfailingly generous in their time, patience and insights.

I also thank my other national program colleagues for their invaluable contributions in recent years, and Associate Professor Elaine Stratford of the University of Tasmania, and Dr Rob Wooding of the Australian Antarctic Division, for their unwavering support.

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¹⁰ See, for example *CEP V (2002) IP 16* with respect to clean-up projects in concert with the Alfred Wegener Institute View Foundation and Mission Antarctica).