Station Sharing in Antarctica
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Information Paper
Submitted by ASOC to the XXIX ATCM
(CEP Agenda Items 5, 6 and 9, ATCM Agenda Items 7, 10, 11 and 14)

I. Introduction and overview

As of 2005 there were at least 45 permanent stations in the Antarctic being operated by 18 countries, of which 37 were used as year-round stations. Although there are a few examples of states sharing scientific facilities (see Appendix 1), for the most part the practice of individual states building and operating their own facilities, under their own flags, persists. This seems to be rooted in the idea that in order to become a full Antarctic Treaty Consultative Party (ATCP), one has to build a station to show seriousness of scientific purpose, although formally the ATCPs have clarified that this is not the case. The scientific mission and international scientific cooperation is nominally at the heart of the ATS, and through SCAR the region has a long-established scientific coordination body. It therefore seems surprising that half a century after the adoption of this remarkable Antarctic regime, we still see no truly international stations. The ‘national sovereign approach’ continues to be the principal driver of new stations. Because new stations are likely to involve relatively large impacts in areas that most likely to be near pristine, ASOC submits that this approach should be changed.

In considering environmental impact analyses of proposed new station construction, the Committee on Environmental Protection (CEP) presently does not have a mandate to take into account opportunities for sharing facilities (as an alternative that would reduce impacts). As currently applied, the Environmental Impact Assessment (EIA) process related to the Environmental Protocol, including that taking place at national level among Treaty Parties, does little to help guide decision makers in the direction of considering station-sharing options. Similarly, cumulative impacts associated with building or upgrading stations are not considered very effectively at present, although they are required under Articles 3 and 8 and Annex I of the Protocol. Intersessional work over the past few years has resulted in some progress in improving the understanding cumulative impacts, although the assessment and monitoring of cumulative impacts still is not emphasized by most member states regarding their own programmes. The planned new stations and upgrades of existing stations, in combination with other proposed developments such as maintained roads, raise several important cumulative impact issues:

- At a local scale there is the cumulative effect of the proposed activities on the sites in which they occur, when combined with past, present and foreseeable future activities at those sites.
- At a regional level there are both site-specific and cumulative impacts from such activities as developing the DROMLAN air network, which is significantly altering accessibility to the polar plateau in that area.
- At an Antarctic-wide scale, especially for those developments taking place in remote areas, the progressive encroachment on the vast but finite Antarctic wilderness significantly impacts the intrinsic values of Antarctica.

In this overall context, ASOC notes that neither the CEP nor SCAR have analyzed how many scientific research stations might actually be needed in the Antarctic, nor are they evaluating priorities for the scientific research that arguably should be carried out in the Antarctic and relating these priorities to the existing scientific research being done now. A step in this direction was recommended in the joint inspection report tabled last year by the UK, Australia and Peru, which among other things suggested that SCAR undertake on-site audits of scientific research being done. ASOC recommends that the ATCM should ask SCAR to conduct such an audit, and that Parties help with the logistic aspects needed, given SCAR’s limited logistics capability.
A discussion of limiting the “human footprint in Antarctica” and of not exceeding the “carrying capacity” of the region has finally started in the CEP. Such discussions, which are crucial to the future of the Antarctic environment, are long overdue and should be encouraged and accelerated.

ASOC contends that the IPY, running from March 1, 2007 through March 1, 2009, offers an opportunity to open a new period of Antarctic operations, where shared facilities and logistics are focused on carrying out scientific research of the highest caliber. Such a shift in approach would:

- Promote the underlying values of the Antarctic Treaty System (ATS),
- Improve the coverage and quality of Antarctic science,
- Reduce environmental pressures and impacts,
- Help protect wilderness values in the Antarctic, as articulated in the Protocol, and
- Save costs for AT parties conducting science in Antarctica.

II. Current Situation Regarding Station Expansion

Currently a number of states are planning to build, re-build or upgrade stations, including Belgium (Sør Rondane), China (Dome A), Estonia (Edmonson Point), France and Italy (upgrade of Concordia, Dome C), India (Larsemann Hills), Germany (Neumayer III, Ekstrom Ice Shelf in Atka Bay), Korea (several locations being considered), Norway (upgrade of Troll, Jutulsussen in Dronning Maud Land) and United Kingdom (Halley VI, Brunt Ice Shelf, Caird Coast). In this section we discuss two of these proposed new stations to illustrate opportunities to share facilities and to discuss particular issues associated with the proposals.

Case Study 1: South Korea

South Korea operates one station – King Sejong – on Barton Peninsula, King George Island (62°13.40’S, 058°47.35’W). It is planning to construct a second station, called for the time being the ‘continent base’. The Minister of Marine Affairs and Fisheries (MOMAF), Geo-Don OH, confirmed at a press conference on October 18, 2005 that the Korean government intends to invest USD70 million for the second station by 2011. MOMAF has revealed three possible locations:

- Queen Maud Land, by the Atlantic Ocean in the southern part of Antarctica
- Marie Byrd Land, by the Ross Sea in the Western part of Antarctica
- Wilks Land, by the Indian Ocean in the Southern part of Antarctica.

The proposed timetable for the project is:
- 2006: inform the ATCM and decide to do a CEE
- 2006/2007: visit candidate locations, consider what basic scientific research will be done.
- 2007: begin to draft CEE
- 2007/2008: decide on the location
- 2009 (January): distribute draft CEE to all ATCPs
- 2009 (May/June): review the CEE at ATCM; if approved, construction would start in 2009/2010
- 2010 May/June: if revision is requested, the final CEE will be re-reviewed at the ATCM.

Map showing 3 candidates for Korea’s 2nd Antarctic station

To our knowledge there are few public details and justifications available about this project. The following are some of the issues regarding the proposal for the second station:

- Civil society organizations have questioned the proposal for a second Antarctic station. Their arguments are three-fold:
  - the project is too expensive,
  - the justifications given for the project are too vague, and
  - no attempts have been made to work with partner countries to share a station.\textsuperscript{x}
- On July 22, 2002, the President of Korea, Dae-Jung KIM, moderated a cabinet meeting to discuss the construction of a second Antarctica station and an ice-breaker. The title of the meeting was “Polar scientific technology plan for the cultivation of oceanic national territory in the 21\textsuperscript{st} Century”.
- An interim government report in November 2005 regarding construction of a second station indicates that ‘mineral- and bio-prospecting’ are among the justifications for the facility. The report states that it has not been possible to carry out high-quality research at the current King Sejong station because of the location, however there is no detailed analysis, including what attempts have been made to overcome limitations of the King Sejong station.\textsuperscript{x}

Case Study II: India

India currently has one permanent station – Maitri – in the Schirmacher range (70°45.95'S, 011°44.15'E). In order to expand its scientific pursuits India has decided to establish a new station in the Larsemann Hills. The Larsemann Hills site, identified by a task force constituted by the Department of Ocean Development during the 2003-04 Antarctic summer season after extensive traverses in the various coastal oases of East Antarctica, is an ice-free rocky promontory as yet unnamed, situated between Quilty Bay and Thala Fjord, at latitude 69°24'-69°25'S and longitude 76°01'-76°14'E. The site is relatively easy to access from the ocean, has a number of fresh water lakes, and provides a relatively flat terrain for building living and laboratory complexes. In addition, the site would provide the scientists an area where frontier research in several scientific disciplines can be undertaken, complementing the studies presently being carried out from the Maitri station.\textsuperscript{x} The new station is approximately 600 km from Maitri, will require an expenditure of approximately 20 crores, equivalent to about USD 4.4million, and will take about 2 years to build.\textsuperscript{x}

Thus far there has not been a public debate in India similar to what is occurring in Korea concerning the plan for the new station. This seems surprising given that the station is to be located in a place that already has three stations (Australia, China and Russia), and where there is a proposed Antarctic Specially Managed
Area (ASMA) to protect the area, which has been under development since 2000. The proposed station would be in the middle of the ASMA.

If India continues to move toward building a base in the Larsemann Hills, its CEE should consider, among other things, the cumulative impacts and possible risks to the area as a result of the base being built, how it would affect the ASMA and the values it is designed to protect, and alternatives such as base sharing. The CEE should also consider the alternatives as to whether India could achieve its scientific goals by sharing an existing facility, or whether the recent upgrades to Maitri would have sufficiently enhanced its scientific capacity that a new station may not be needed.

III. Opportunities for Sharing Facilities

At the 2004 ATCM ASOC tabled IP 94 (Are new stations justified?), which considered the recent activity in new station construction and its alternatives:

Enhanced international co-operation between States could fairly easily result in the sharing of expertise and infrastructure for new scientific programs, and reducing the footprint (and costs) of research stations. Scientific cooperation is a central tenet of the 1959 Antarctic Treaty (cf. Preamble, Art. II, Art. III). Cooperation requirements under the Protocol are described in Art. 6, which refers specifically to the establishment of new stations and alternatives in sub-clauses (d) and (e). Art. 6 (d) requires consultation among Parties with regard to the choice of sites for prospective stations and other facilities in order to avoid the cumulative impacts caused by their “excessive concentration in any location.” Art. 6 (e) requires Parties, where appropriate, to undertake joint expeditions and share the use of stations and other facilities. We argue that such cooperation would also reinforce the bases of the ATS, whereas commercial interests would tend to have the opposite effect.

These arguments remain fully relevant today. In this context, it is worth noting the discussion in recent Inspection Reports tabled at ATCMs about excess scientific station capacity, and the desirability of minimizing construction of new stations at previously unoccupied sites. The joint UK-Australia-Peru inspection report focused on this most clearly, with a recommendation last year to minimize construction of new stations in areas where there are not already stations.xiii

ASOC suggests that promoting the sharing of scientific stations in the Antarctic should be part of the regular mandate of the CEP, because of the environmental implications of new bases. One example of station-sharing potential for the meeting to consider, as a model of how the modus operandi can shift, is the South African offer to other National Program Operators to share SANAE IV. South Africa has built a modern facility that is suitable for sharing, and on several occasionsxvii, the Government has publicly offered the use of the spare capacity at SANAE IV, as well as promoting it as an international scientific platform, to other
member states with similar research objectives. SANAE IV is situated in Dronning Maud Land (71°40.42'S 002°49.73'W), 170 kilometres inland from Blaskimen Mutka. It consists of three double-storey insulated units that are joined by interlinking passages, and is raised four metres above the ground. It can accommodate 18 people over winter and up to 80 people during summer.

ASOC notes that India has launched its annual Antarctic expedition over the last seven years from South Africa, and the Indian and South African governments have signed a Memorandum of Understanding that has led to South African and Indian scientists working on joint research projects. In the context of the planned new Indian station, ASOC wonders whether SANE IV could be shared between the two states? This would be especially appropriate in view of the upcoming IPY’s emphasis on international collaboration and optimal “exploitation of available polar observing systems, logistical assets and infrastructure”. Other options might include sharing the Australian base at Mawson given the scientific cooperation between the two states, or the Chinese Station, Zhong Shan in the Larsemann Hills.

IV. Conclusions and Recommendations

ASOC submits that the Antarctic Treaty System should use the IPY period and the years following it to emphasize globally significant science that can best be carried out in the Antarctic, and that it should take steps to ensure that priority is given to research carried out on an international basis, using shared facilities and logistics to the maximum extent possible.

ASOC recommends that the CEP, in consultation with COMNAP, should play a more proactive role in facilitating how various facilities could be shared in order to maximize their value and lower environmental impacts on the Antarctic wilderness. This could include maintaining a list of spare capacity at all stations, and developing a prioritized list of new scientific research needed. New permanent stations should not be justified purely on the grounds of technical feasibility or national interests. Rather, the added value to scientific research, as well as the total economic and environmental costs and impacts, should be taken into account, and all alternatives should be carefully considered before deciding whether a new station is necessary or desirable.

States already operating national stations could helpfully be more open-minded about sharing their facilities and offer potential partners a fair arrangement in terms of cost sharing and facilitating research opportunities. States intending to build new stations should consider sharing other stations as part of the alternatives for any proposal. This option should also be reflected in the EIA process.

ASOC suggests that the ATS should recognize that what was acceptable in the past requires additional justification in the 21st century regarding a proposed station’s objectives, necessity, desirability, and impacts. This approach is required because of the environmental impacts already incurred as a result of existing infrastructure and associated support systems, and in light of the high environmental standards and obligations established by the Environmental Protocol.

V. References


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Appendix 1. Current Examples of Sharing Stations

The following current examples of sharing stations show some of the various modalities employed by Antarctic Treaty States as alternatives to building a new, single-state station:

- **No station** – The Netherlands has been the most consistent about following a “shared facilities” approach during the past fifteen years.
- **Joint station** – Since signing a cooperation agreement in 1993 to build a station at Dome C, France and Italy have jointly built and are now operating the Concordia station along with the European Space Agency.
- **Joint logistics** – Finland’s Aboa station is located near Sweden’s Wasa station, with the two stations sharing some logistics facilities.
- **New partnership** – The Law-Racovita station of Australia and Romania (formerly Australia’s Law station) provides another positive example, which was noted in the Final Report from ATCM XXVIII (paragraph 208).
- **Annexes** – Germany has set up two annexes at another country’s station: Dallman Laboratory at Argentina’s Jubany, and a Geodetic Observatory at Chile’s O’Higgins.
- **Station transfers** – There have been four instances in which British stations that were no longer in use were transferred to other states: These include Chile’s Carvajal (transferred 1984; formerly Station T, Adelaide); Ukraine’s Verdnaskiy (transferred 1996 – formerly Station F, Faraday); Chile’s Canas Montalva (transferred 1986; formerly Station V, View Point); and Uruguay’s Elichiribehety (transferred 1997 - formerly Station D, Hope Bay).

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1 See Appendix 2 to COMNAP report to ATCM XXVIII, which lists the location, date opened, average populations winter and summer, and the country operating the station, for all year-round stations operating in 2005.
2 See inter alia: Antarctic Treaty Art II, Art III; Protocol Art 6.1.e.
3 “Guidelines for Monitoring” and “Amended Guidelines for Environmental Impact Assessment in Antarctica” were agreed to last year. See Final Report, ATCM XXVIII, Resolutions 2 and 4 (2005).
4 ASOC notes that the Dronning Maud Land Air Network (DROMLAN), which shares aerial logistics to several stations including Cape Town to Novo and Troll, has not been the subject of a CEE.
5 ASOC 2005a.
6 WP 32, ATCM XXVIII, recommendations (a), (b) and (c), quoted in the Final Report, paragraph 183, p. 47. Regarding the proposal for SCAR to conduct science audits, Argentina noted that this “should be carefully considered in the ATCM if it is intended to make a change in the Inspection System.” Final Report, paragraph 189, p. 48.
7 See ATCM XXVIII Final Report, paragraph 192: “SCAR noted with interest the recommendation in the inspection report as well as the various comments by the Parties, that it should carry out an in-situ audit. The recommendation and the various views expressed, will be considered carefully by SCAR. However, SCAR noted that such an audit would be virtually impossible to carry out given the large number of stations in Antarctica and their widely dispersed location.”
9 Korean Federation for Environmental Movement (Friends of the Earth Korea), March 27, 2006 meeting with officials in the Ministry of Maritime Affairs and Fisheries who are in charge of the project.
10 Korean Ministry of Maritime Affairs and Fisheries and KOPRI, “Project research for the construction of the continent station in Antarctica”, November 25, 2005.
12 “India to set up third station at Antarctica,” The Hindu Business Line, 10/02/2005.
13 WP 32, ATCM XXVIII, covering inspection of the Peninsula region.