



GCAS Syndicate Project

A Big Commitment for a Small Country: Is Scott Base Necessary ?

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1 Introduction

‘A Big Commitment for a Small Country – Is Scott Base Necessary?’

This is an important and perhaps fundamental question for New Zealand and its role in the Antarctic.

The Oxford dictionary defines ‘necessary’ as follows: ‘that which is indispensable, an essential, ... cannot be done without.’¹

We think the question needs to be re-phrased or at least explained. We are not trying to decide whether Antarctica matters to New Zealand. Nor are we asking whether New Zealand should be involved in Antarctic matters.

What we are concerned with however is whether, or not, New Zealand must have its own ‘national base’ in order to fulfil its objectives in the Antarctic?

We have examined this question from a number of perspectives and have attempted to produce a fair evaluation of the arguments both ‘for’ and ‘against’ the continuation of Scott Base in its present form.

We begin our report with background information about Scott Base. This is followed by a discussion around each of six dimensions or ‘issues’ that we believe are most pertinent to the question.

These dimensions are:

1. Sovereignty and the political dimension
2. The dependence of New Zealand on the United States
3. Science in Antarctica
4. The spirit of the Antarctic Treaty System
5. The resources that New Zealand has available
6. Costs – What can New Zealand afford?

After the dimensions have been discussed we present our conclusions and recommendation.

2 Historical Perspective

In 1923 New Zealand was “instructed by Great Britain through an Order in Council to take responsibility for the area to be known as the Ross Dependency.”² In the 1930’s the New Zealand Antarctic Society brought pressure upon the government to become more involved in the Antarctic.² The Second World War interrupted all discussions for the duration of the war.

In 1953 world attention was focussed on the Antarctic with the announcement of the International Geophysical Year (IGY) and the British - Commonwealth plan to cross the Continent.²

The polar crossing plan required support bases in both the Weddell Sea and the Ross Sea. Sir Edmund Hillary, with huge worldwide fame after being the first to climb Mt Everest, was selected by the Ross Sea Committee to lead the New Zealand portion with Dr Vivian Fuchs acting as overall leader of the Expedition.^{2,3,4} This involved building a support base in the Ross Sea and laying supply dumps on the portion of the route from Ross Sea to the South Pole.

In 1955 then Prime Minister Sidney Holland officially announced that the New Zealand government approved in principle the country’s involvement in the Antarctic crossing now called the Trans Antarctic Expedition (TAE).² The government provided £50 000 and the Ministry of Works (MOW) under Frank Ponder was given the task to design and construct the buildings for the base in a short ten month time frame.²

The design comprised six separate buildings, each being at least 7.6 m away from other buildings on the site, and connected by a covered archway.⁶ Four of the buildings were similar to those at Australia’s Mawson Base and used interlocking standard size 2.4m x 1.2m panels secured by steel rods and finally Denso tape was used to seal the joins.⁶ Once the materials were assembled the prefabricated buildings were erected by eight men led by Randell Heke, of the MOW, at Rongatai near Wellington, where every component was fitted, numbered and coded with stencils, and then packed in reverse order for ease of construction in the Antarctic.² The material was transported south by *HMNZ Endeavour* and the United States Navy’s *Private John R Towle*.⁶

The original site to be selected by the advance party was at Butter Point.⁷ This gave clear radio ‘line of sight’ through to New Zealand. However, it was not suitable for aircraft operation and also did not offer easy access for the unloading of ships.⁷ As a result the Ross Sea Party sought an alternate location for the base. With the aid of the Americans the decision was made to move over to Ross Island and the site was changed to Pram Point, a low rocky promontory on the SE tip of Hut Point Peninsula.

On 10 January 1957 a D8 bulldozer from McMurdo station levelled the site.⁶ Construction on the first building, A Hut, began on 12 January 1957 where the whole outer shell, roof, walls and floor were completed in one day by the same team.² A Hut was officially opened on 20 January 1957.² They used a flagpole which had been salvaged from Discovery Hut by the Americans and the ensign was raised by AB Tito a young Maori from *HMNZ Endeavour*.³ The flagpole, with some portion replaced, is still in use today.

A Hut consisted of the kitchen, mess, library and leaders office.
B Hut was a science observation hut
C and D huts were sleeping huts
E Hut was for the generator and ablutions
F was a generator and workshop hut.³

Two small magnetic huts and a hangar were added. It was intended that the base would last from 3 to 6 years but they served New Zealand well for about 20 years.⁵ The government decided to continue with Antarctic research and further buildings were required to meet the needs of these increased activities. In 1976 a rebuilding programme was begun and overseen by Murray Mitchell.⁵ The present day buildings included many design features including different cladding for warmth, connected buildings, raising all buildings 800 mm above ground level on timber foundations to avoid snow build up, ability for amendment of some internal partitioning and the Hillary Field Centre, which is the latest addition to the present day Scott Base.⁵

In 1989 a decision was made to retain A Hut as a “recent history museum” and rename it as TAE Hut and this was done in 2001 as part of a paper to the Antarctic Treaty Consultative Meeting recognising it as a historic monument.^{2,3}

3 Political Perspective

Seven countries have laid claim to different parts of Antarctica. New Zealand’s claim covers the portion called the Ross Dependency. The Antarctic Treaty has put these claims into abeyance. However, nationalism remains alive and well in Antarctica as evidenced by the maps produced by several of the claimant countries.

Let us review the situation by examining two aspects.

The Antarctic Treaty (see appendix one) and the United Nations

The Treaty has been signed by 45 nations. These include the twelve founding states which, in turn, include the seven claimant states. The Treaty was open for group review after thirty years had elapsed which occurred in 1989.⁸ No review was held and the consultative parties decided to maintain the status quo. At this point there has been no indication that the ATS (Antarctic Treaty System) feels any urgency to bring the sovereignty issue to the fore. In fact, the case is quite the opposite.

In the early eighties, when minerals exploitation was being negotiated with the CRAMRA discussions, a group of non-Treaty nations pursued ‘the Antarctic Question’ through the United Nations. Malaysia was the leader in this initiative.⁹ These efforts led to the opening up of the ATS and to a significant increase in the number of countries that are now participants. As a result the pressure to bring the ATS under the United Nations has reduced somewhat. One thing remains clear however and that is that although the United Nations may reluctantly accept the fact of the ATS, it would be most unlikely to ever accept the territorial claims that have been made.

Bases in Antarctica (see appendix two)

There are over eighty stations in the Antarctic. Several nations operate multiple bases. Argentina has five, Chile four, the United States and Russia three and the UK two.

Some countries such as the Netherlands have no base of their own and utilise the bases of other countries to carry out their Antarctic science.

The recently developed Concordia base is jointly operated by Italy and France.

These examples illustrate that different models exist, for different reasons, and that there are perhaps several options worth considering.

4 Operational Perspective of Scott Base

4.1 Function & Operations

Throughout the year Antarctica New Zealand employs a team of around 35 people to work in Scott Base, at any one time there will be a proportion of those people working in Antarctica. The New Zealand Defence Force also provide personnel who help provide the essential services to keep Scott Base running.¹⁰

Scott Base is managed some what like a boarding hostel, with shared bedrooms, communal dining room and an industrial kitchen with chefs.⁹ Scott Base can accommodate up to 85 people on base at any one time.¹⁰

Scott Base supports between 50 and 70 events in Antarctica each season. The support of each of these events requires is extensive and includes accommodation, fresh water, electricity, heat, food, science laboratories, transportation, communication and field support.¹⁰

The events Scott Base supports include science, environmental monitoring and compliance, Invited Visitors, Antarctic Arts Fellows, Education, Media Initiatives, Operational Support and Worker Visitors, and Antarctic Heritage Trust projects.¹⁰

Scott Base also hosts a significant number of international visitors, in the 2004/2005 season Scott Base hosted a Belgian Ministerial Delegation, Italian ambassador and Italian Antarctica program and a delegation from the Chinese Arctic and Antarctic Administration.¹¹

In addition to Scott Base, Antarctica New Zealand also manages several other research facilities including the Arrival Heights laboratory at McMurdo station, and scientific huts at Cape Bird, Bratina Island and several sites in the Dry Valleys.¹⁰

Antarctica New Zealand is well respected for their ability to manage long term, large complex international projects such as ANDRILL (ANtartic DRILLing).¹¹ Scott Base is a vital part of the support provided to such events.

Scott Base works closely with other nations, particularly the United States and Italy, in the planning and conduct of its Antarctic activities. This helps to ensure maximum efficiency across all programs.

4.2 Achievements

1957-1982¹²

It has been said that New Zealand ‘forgot’ about Antarctica during the period between 1923 and 1955. Although it offered great support to the expeditions of other countries such as the expeditions of Ellsworth and Byrd of the United States it carried out remarkably little activity on its own account. However, New Zealand has made up for that lapse in the national consciousness over the past fifty years.

This change in attitude was triggered by the Commonwealth Trans-Antarctic Expedition (the ‘TAE’) and by New Zealand’s strong commitment to the International Geophysical Year, the IGY. The TAE began in 1955 with voyage of the advance party on the *Theron* and concluded in 1958 with the arrival of Vivian Fuchs’ team at Scott Base thus completing the trans-continental crossing. The IGY commitment began with the inclusion of five New Zealand scientists to the TAE party and continued with the handover of Scott Base from the TAE to the IGY team shortly after the crossing was completed in March, 1958.

The Department of Scientific and Industrial Research (DSIR) ran New Zealand’s Antarctic programs from that point forward. This has maintained New Zealand’s presence in Antarctica and has delivered a continuous stream of scientific achievement. In the words of Robert Thompson, then Director of DSIR, “New Zealanders have been active in Antarctic exploration and scientific research since 1957. Today (1983), up to 300 New Zealanders are involved in Antarctica during the summer season, conducting scientific studies at Scott Base” (Thompson, R. Antarctic Achievements – 1983). New Zealand operated three bases at that time and jointly supported another. These were at Vanda Station on the shores of Lake Vanda, Cape Bird on Ross Island, and Scott Base itself.

In addition, New Zealand, with the Americans, operated a station at Cape Hallett.

During this period Cape Bird served as a summer base for biological field parties. Its focus area was projects in terrestrial and marine biology.

New Zealand also established a scientific station at **Arrival Heights** at Hut Point. This station has operated for over 20 years and today continues to perform significant research on atmospheric conditions above Antarctica. The Arrival Heights station operates one of only two Dobson Spectrophotometers. This instrument measures the absolute amount of ozone that is contained in the atmosphere.

The key scientific achievements during these early decades included:

- Topographical and geographical mapping of most of the Ross Dependency (an area of 770,000 sq. km).
- Detailed geological investigations in selected areas of the Dependency. These yielded the following:
 - Discovery of a fossil bone fragment from a Triassic amphibian – the first record of tetrapod life in Antarctica and similar to discoveries made in South America and South Africa.
 - Numerous discoveries of fossilised plants, petrified trees and coal, indicating warmer climates of ages past.
 - Correlations in age and composition of many Antarctic rocks to those found in other southern latitude continents.

- These discoveries helped confirm that Antarctica was the ‘anchor point’ of the super-continent of Gondwanaland. It also helped better explain the theory of plate tectonics and ‘continental drift’.

There were many additional research efforts of importance especially in areas of the solar/terrestrial relationship. Antarctica provided an ideal platform for the study of solar flares, earth’s magnetic fields, and the impact of cosmic rays. Permanent stations were needed to allow the continuous gathering of data over several years. The Arctic did not allow for these types of studies due to the lack of land at the desirable high latitudes on which to build the necessary permanent stations.

As one of the key stations, Scott Base continuously gathered data over a period of two sunspot cycles i.e. more than 22 years!

This led to the discovery of the effect of solar winds in which transport strong solar magnetic fields to earth. These then interact with earth’s own geo-magnetic field in the region known as the magnetosphere. These findings were followed up by further research to see what effect, if any, there is on the earth’s weather.

Additional research was performed in the areas of biology and lifeforms supported by the extreme Antarctic climate. Investigation into the mechanisms of fauna to withstand the cold environment was of considerable value. The ice budget and morphology of the ice sheet was also studied.

It is of interest that Global Climate change emerged at this time as a significant area of interest.

To quote from DSIR, "In twenty-five years (*between 1957 and 1982*) the NZAP (New Zealand Antarctic Program) and New Zealanders have had 1,484 papers published in recognised scientific journals worldwide. This achievement places New Zealand as number three producer of scientific information among all those countries conducting research in the Antarctic."¹²

1982- 2005

The scientific tradition that began in 1957 has carried on through to the present. The Antarctic Treaty has acted as the vehicle for some of New Zealand’s more notable contributions. These began with Christopher Beeby’s valiant efforts on behalf of CRAMA, the minerals regime (never ratified).¹³ New Zealand has played a pivotal role in the subsequent Environmental Protocol (Madrid Protocol) and more recently in the development and acceptance of the Liability Annex.¹⁴ New Zealand leadership in the area of environmental management is well known.

New Zealand has hosted several international events including the ATCM XXI meeting held in 1997 in Christchurch.

In the scientific sphere there are many projects where New Zealand has made, or is making a significant contribution. These include:

- The Latitudinal Gradient Project (LGP) Contributing to Evolution and Biodiversity in the Antarctic.¹⁵
- Ten Years of BrO observations at Arrival Heights, Antarctica¹⁶

- A Self-sustaining katabatic wind-driven ice shelf in the Southern McMurdo Sound, Antarctica¹⁷
- Tropospheric ozone depletion events and air mass origin at Arrival Heights, Antarctica¹⁸
- Who's transporting fat in toothfish?¹⁹
- Short term changes in the oxidising capacity of the atmosphere due to hydroxyl²⁰
- Too much pressure on thin ice? Antarctic Tourism and self regulation²¹
- ANDRILL (ANtarctic DRILLing). The project to study 40 million years of Antarctic history in the Ross Sea area using sedimentary cores.²²

These projects are but a sampling of recent scientific initiatives that New Zealand has been involved in.

In summary, New Zealand can look back with some pride to the very significant contribution that it has made to our understanding of the world's natural systems.

4.3 Costs

The cost of running Scott Base in the Antarctica is about \$7.5 million per year.²³ This out of the New Zealand 2005 budget is 0.016%, a surely insignificant amount for the value received.²³ As a comparison this is two thirds the amount allocated in the last budget for the education sector to set up and develop "strong relationships offshore".²³

5 Discussion of Issues

5.1 Sovereignty

Seven countries have laid claim to different parts of Antarctica.⁸ New Zealand's claim covers what's called the Ross Dependency. The Antarctic Treaty has put these claims into abeyance.⁸ However, nationalism remains alive and well in Antarctica as evidenced by the maps produced by several of the claimant countries.

New Zealand's claim

In 1923 the British government passed an Order in Council instructing New Zealand to take responsibility of an area to be known as the Ross Dependency.² This gave New Zealand the right to administer the Ross Dependency; however New Zealand did very little in the area until 1955 with the Trans Antarctic Expedition and again in 1957 with the International Geophysical Year.²⁴

On the other hand, there are many points that would support a claim by New Zealand of the Ross dependency. These include:

- New Zealand has proximity to the Ross Sea area.
- New Zealand's acceptance of 1923 British order-in-council confirmed only the second claim to be made in Antarctica²
- the historic support that New Zealand has given to the British expeditions during the early part of the last century
- the New Zealand flag flies over Scott Base
- The New Zealand Post Office established its services in the Ross Dependency with the expeditions of Shackleton and Scott as early as 1907^{25,26}
- New Zealand has continuously occupied Scott Base year-round for almost fifty years since 1957

Apart from the legalities of this issue, there does exist the practical side.

It would appear that there is little hope of New Zealand's claim on the Ross Dependency ever being internationally recognised. There are several reasons for this.

Firstly, the ATS will never address the sovereignty issue. Historically, the ATS has put all territorial claims "on ice." The claims are neither supported nor rejected.⁸ The ATS shows no inclination to change its stance on that as it would likely cause substantial international discord.

Secondly: The United Nations does not and will not recognize the 7 claims made on Antarctica. Most non-Treaty nations do not agree with the claims and voice their disagreement within UN meetings, suggesting the idea of Antarctica as a global commons.⁹

Thirdly: the United States would in all likelihood not recognize New Zealand's claim. The official United States position (and also held by Russia) is neither to recognize any claims nor to make any claims of their own. They may not give up the territory where they have made their largest investment, i.e. McMurdo Station.

It should be noted that the United States were very active in the Ross Dependency before New Zealand established Scott Base. In particular, as early as 1928, Admiral Richard E. Byrd established Little America I. This was subsequently followed by Little America 2, and 3.²⁷

With these facts in mind the issue of sovereignty, and the protection of New Zealand's territorial claim to the Ross Dependency, does seem to be a valid issue for consideration.

5.2 Dependence on the United States

New Zealand has historically had good relationships with the United States. New Zealand has got offside with the United States before, for example, the United States did not approve of our nuclear free policy. New Zealand also publicly disagreed with the United States invasion of Iraq and took no part of this. The cooperation between New Zealand and United States continued in the Antarctic during this time. The relationship has withstood disputes and will do so in the future.

Scott Base is totally dependent on the United States Antarctic program.²⁸ New Zealand forms part of a logistics pool with the United States and Italy, to which, New Zealand contributes 15 Hercules flights to Antarctica, one helicopter in Antarctica, cargo handling in Christchurch and McMurdo and all the United States landing fees at Christchurch airport.²⁸ New Zealand also provides all the communications for the Italian base.²⁹ To the same pool the United States fuel transport and storage, runways in Antarctica, an ice breaker to re-supply stations, medical facilities and the remainder of intercontinental and intra-continental transport.²⁸

While New Zealand does contribute to the logistics pool, unforeseen events may mean that New Zealand cannot fulfil their commitments, for example last season the sea-ice melted earlier than expected, closing the sea-ice runway. This meant that New Zealand could only fulfil 11 of the 15 Hercules flights, leaving them in debt to the United States.¹¹

There are examples where Scott Base relies on McMurdo Station for emergency back systems. For example last season the satellite that provides communications for Scott Base, failed. If it were not for McMurdo providing a back up system, Scott Base would have had no communication, either locally or internationally, that's a daunting prospect in Antarctica.¹¹

It is noted, however, that New Zealand does not take hand outs from the United States; New Zealand pays for everything they receive through what they contribute to the logistics pool.

It is unlikely that the United States will withdraw support from Scott Base, although there are three possibilities that could lead to such a situation.

The first being, the feasibility of using Christchurch as a gateway to Antarctica, the United States may find it more economical to fly out of another airport, for example Hobart.

The second possibility for the United States withdrawing support from Scott Base also involves finances. The extensive sea ice over the past couple of years, due to the B15 iceberg, has made it significantly more difficult and expensive for the United States ice-breakers to get into McMurdo Sound. In addition the United States no longer has its own Ice-breaker and it is leasing one from Russia. If the expense of re-supply McMurdo continues to be so high the United States may find it more feasible to move the majority of their operations to one of their other bases, for example, Palmer station.

The third possibility for the United States to withdraw support for Scott Base is political dispute between New Zealand and the United States. Historically New Zealand has got offside with the United State before and will undoubtedly do so again in the future. For

example the United States did not approve of our nuclear free policy and the current United States ambassador to New Zealand said in his opening speech that he was disappointed that the policy had not changed. New Zealand also publicly disagreed with the invasion of Iraq and took no part of this. The cooperation and relationship between the two nations has withstood these disputes and will continue to do so in the future.

It is highly unlikely that the United States would leave McMurdo as it is their largest of three bases and they have just completed the traverse to the South Pole. This shows that the United States have commitment to the area so it is unlikely that they will retreat in the near future. If the United States did leave McMurdo Station, they cannot take it with them. The base may be taken over by another nation, with whom New Zealand could pool logistics.

However, if the United States did cease to support Scott Base, for any reason, New Zealand would have to abandon Scott Base altogether, scale down operations, find another nation to pool logistics with, or operate a base from a more easily accessible location, for example Cape Adare.

5.3 *Science in Antarctica*

Antarctica is a continent devoted to peace and science and as such is the location and subject of much research. There is a wide variety of science being carried out across the continent by many nations, New Zealand being one of them. Scott Base provides the support and logistics for New Zealand science carried out in Antarctica.

Science in the Antarctic is very expensive and to receive logistic support from Antarctica New Zealand prospective scientific events go through a vigorous evaluation process competing against other potential scientists. This process aims to ensure that the science New Zealand supports in the Antarctica is of a high quality and relevance.

New Zealand's science budget is modest by international standards, and as such the science New Zealand produces cannot compete on an international scale.²⁸ However, New Zealand does participate in, and supports, some large scale international projects.

The New Zealand Government's intention is to support, and where appropriate, lead, high quality Antarctic science.³⁰ Antarctica New Zealand's major focus is supporting an effective New Zealand science program. The board is committed to raising the quality and relevance of science undertaken in Antarctica.¹¹ This is demonstrated through New Zealand's role in ANDRILL and other projects.

New Zealand is currently managing and supporting the high profile, multinational scientific project, ANDRILL, as well as having designed and built the drill.¹⁰ Involving New Zealand, Germany, the United States and Italy, ANDRILL is the most ambitious Antarctic drilling project to date.²² It aims to improve understanding of the ice sheet and the ice shelf as it studies the last 40 million years by looking at what has been trapped in sediment cores.²²

Another example of New Zealand producing high quality science is the combined United States, New Zealand and Italian, (LGP) which works towards a greater understanding of ecosystems along the Victoria Land coast.¹⁵ This is another example of the world class, international collaborative research that is supported by Scott Base.

The question needs to be asked; can this science be done without Scott Base or done better from another base? Scott Base may be a good facility but in terms of scientific laboratories, it is nothing compared to McMurdo Station. The quality of science done at Scott Base is restricted by the facilities available and you can only produce science as good as your equipment.

At present most of the New Zealand science in Antarctic is conducted in the field so laboratory facilities are less important. Logistically field work and be supported by any local base. The advantage of Scott Base is that it is a small community and the scientists receive personal support.

Given the expense and time frame of Antarctic research Antarctica New Zealand aims to put energy and funds into research that can only be done in Antarctica and that is not being done by other nations. However, there is some overlap with science conducted at Scott Base and that conducted at McMurdo laboratories.²⁹

The real reason New Zealand operates a base in Antarctica is to gain influence in the future of Antarctica.²⁸ New Zealand is very interested in the conservation, protection, commercial value, and scientific value of Antarctica and in order to have any influence in its future it is essential that New Zealand has an active science program. Scott Base is there to support the science which is only there to maintain New Zealand's influence in Anta matters in the international arena.²⁸

5.4 *Spirit of Antarctic Treaty*

The Antarctic Treaty represents a commitment by its 45 signatory countries to pursue science and peaceful objectives in a spirit of co-operation for the good of Antarctica and the world.

This is confirmed by Article III which begins “In order to promote international cooperation in scientific investigation in Antarctica, ... Information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations” (See appendix one). Note the emphasis on operational efficiency. Although the reference is to information exchange, it can be assumed that this concept is embodied in the spirit of the Treaty. This would be in the interests of both mitigating environmental impacts as well as reducing costs.

In a further quote from Article III: “2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relationships with ... international organisations having a scientific or technical interest in Antarctica’ (See appendix one).

Again, we see a strong intent that multi-national cooperation should be the approach of choice. The ‘go it alone’ approach seems to be, in a certain sense, inconsistent with this principle of the Treaty.

It is encouraging that the past several years have seen an increase in use of the international collaborative approach within the Antarctic. More countries are pooling resources to the point that some countries are choosing to operate out of other country's bases and not to operate their own base, eg the Netherlands. Despite this lack of a base, the Netherlands have an active science programme.

NZ already has good working relationships with Australia, the US, Italy and Canada. The Australian Antarctic Division are keen to investigate the possibility of working more closely with NZ.³¹ New Zealand could once again lead the world and open a truly international base, in line with the spirit of Article III of the Treaty. This would bring many benefits. For example, access to more sophisticated laboratories, access to boat programs – which NZ does not currently have, and access to more transport. By reducing the need to duplicate facilities infrastructure, the cost of participating in an international base would be much less than having to run a base of our own. New Zealand has already had experience operating a joint base with the US at Cape Hallett. This base, which was established in 1957, ran for many years up until the 1980's.¹⁰

There is another reason to try to minimise the number of bases built in Antarctica. This is to reduce the environmental impacts associated with building and operating a base. Every time a new base is established that new location suffers some degree of permanent impact. In addition, the on-going logistics associated with base operation and transport creates further effects that can degrade the local surroundings. In this context, the collaborative approach that avoids having to construct yet another Antarctic station would seem to have considerable merit.

Article III does however recognise that practicalities cannot be ignored and uses the term “where practical”. This means that a combination of shared and dedicated facilities might be utilised by two or more countries. This is the type of arrangement that is presently in place with the US, Italy and New Zealand by way of the ‘pooling agreement.’³² Cultural differences must also be considered when people of different backgrounds are to work alongside each other.

One alternative is for a country to employ the resources of another on an ‘as needed’ basis. This may be sufficient for countries that have a less intensive science program but who nevertheless wish to perform some science in Antarctica. For example, Malaysia has been using Scott Base as their entry point and base for performing science in Antarctica. Ideally, this approach provides facilities sharing where it makes sense and dedicated facilities where required – perhaps the best of both worlds.

Antarctica New Zealand encourages collaborative efforts with scientists worldwide to ensure that New Zealand’s Antarctic science contributes substantially to the world store of knowledge.³³

Scientists from 8 other nations participated in the New Zealand programme during 2004/05.¹¹

Again, in the recent report produced by the Australian observer team noted that: “Scott Base demonstrates the NZ Government commitment to cooperation under the Antarctic Treaty by actively supporting the operations in Antarctica of other Parties.”²⁹

There are some trends in both directions. For example new bases are being built now by China and Belgium. The UK is replacing Halley Station while the US is replacing their base at the Scott/Amundsen Station at the South Pole.

An interesting point is that New Zealand did offer to relinquish its claim on Antarctica.²⁴ This was at the time of the Antarctic Treaty negotiations. The offer was not taken up by the other nations. It would perhaps be naïve of New Zealand to proceed unilaterally on this issue.

In summary, there are various approaches that countries are using to achieve their scientific objectives in Antarctica. One of these approaches may provide a viable option for a new country that is thinking of having an Antarctic science program.

5.5 *New Zealand – a small country*

The population of New Zealand is 4 million out of the total world population of 6.5 billion, amounting to about 0.06%.²⁷ Should we share the world's resources in the same ratio?

We believe the 0.06% of the world population is an irrelevant statistic as we are not expected to contribute only 0.06% of the papers to ATS or CCAMLR.

We have pride in the fact that we are a small country and we believe we are one of the best little countries in the world. We have a world presence, well above the 0.06% quoted, in sports, in Antarctic involvement, in the United Nations, in film making and in the last two World Wars.

National identity is made up of two things, the image citizens have of their country and the country's international image.³⁴ World opinion has a dramatic impact on people's national identity.³⁴

National pride involves both admiration and stake holding, the feeling that one has some kind of share in an achievement or an admirable quality eg we all share the pride that Sir Edmund Hillary climbed Mt Everest.

People feel pride in the country's science, economics, arts and literature and sport. Pride in science varies greatly between nations. Pride in science will be stronger in nations that have satisfied basic material needs. Countries that have more science achievements take more pride in their science, e.g. United States, Australia and New Zealand.³⁵

Scott Base and Ross Dependency are ours, they are in our backyard and we are proud of that. We are proud of the role we play in the Antarctic. Where better than our back yard to have peace, no nuclear weapons, high environment standards, the protection of southern oceans, no mining, all of which are principles of the Antarctic Treaty System. We are proud of that and it helps in our National identity.

We are a small country but we believe we can have a "Continued influence in Antarctica governance through maintaining an effective role in the Antarctic Treaty System, and maintaining its long term interest, commitment to and credible presence in the Ross Dependency."³⁰ Part of that presence comes from Scott Base.

Antarctica New Zealand contributes to New Zealand's position as an influential Antarctic nation by developing, managing and executing a high quality Antarctic programme.³³

New Zealand is committed to conservation of the intrinsic and wilderness values of Antarctica and the Southern Oceans, for the benefit of the world community and for present and future generations of New Zealanders. This will be reflected in active and responsible stewardship, under the ATS.³⁰

We also make a significant contribution to the international Antarctic community through active involvement in international forums and by supporting New Zealand's efforts in the Antarctic Treaty System including full participation as a consultative party to the Treaty.³³

Maintaining and running Scott Base gives New Zealand this international credibility! It allows us to have influence in the future of Antarctica. New Zealand is very strong in international Antarctic matters, even though we are so small. If we didn't have the commitment to Scott Base we believe our commitment would not be seen as being so strong or influential.

5.6 Cost – What can New Zealand afford

The cost for running Scott Base is only \$7.5 million per year.¹¹ This is a mere 0.016% of the New Zealand 2005 budget of \$42.2 million,²³ a rather insignificant amount in context, and especially so in terms of value received.

There are many comparisons that could be made from the budget including the following:
The annual Scott Base budget

- is two thirds the amount allocated in the last budget for the education sector to set up and develop “strong relationships offshore.”²³
- would use 3 hours of the total annual health budget of \$9.2 billion²³
- is barely in the “rounding error” of the total budget²³
- would buy two thirds of the Department of Conservation estate in the Ahuriri valley
- is just over twice the annual salary of Teresa Gattung, the CEO for Telecom, not including her free telephone and air travel³⁶
- is less than what the taxpayer paid for “Cool It”, the course for which you enrolled but never attended, got an IT CD and a free voucher
- could provide 2500 cataract operations to New Zealand citizens
- was the amount of prize money for Lotto³⁷
- we can only build ½ a km of Auckland motorway.

The budget quoted for McMurdo Base is \$500 million, and for Australia \$120 million.³⁸

Scott Base seems not only cheaper than other bases we seem to get very good value for money. Last year about 45% of the people going to Scott Base were on Science events.¹¹ It would be interesting to find a similar ratio for other countries but that was not obtainable by the syndicate. Antarctica New Zealand New Zealand conducts its affairs in Antarctica within an extremely modest budget supported by a surprisingly small number of people in relation to what is accomplished.³³

Does Scott Base compromise on quality to save money? The Australian observer Audit team stated “The observers are pleased to report that there is full compliance with the provisions of the Antarctic Treaty and Protocol” i.e. we were still able to comply with all treaty requirements even with a small budget.²⁹

New Zealand needs to spend the money to have an active science program to have influence in future of Antarctica. New Zealand chooses to have Scott Base running 24/7 to support the program.²⁸

Perhaps the question should be - not can we afford Scott Base? - But can we afford NOT to have Scott Base?

6 Summary Arguments

Scott Base gives weight to New Zealand's territorial claims in any sovereignty discussion. However there is some question over whether or not these claims will ever be substantiated.

Most New Zealand Antarctic science is done in the field. Scott Base is a useful facility to support this science, however, this support could come from any base.

Scott Base is the platform from which New Zealand has established its high credibility within the community of Antarctic nations.

Scott Base is not self-sufficient, however, the existing pooling arrangements with the United States and Italy provide all the support necessary. New Zealand may benefit from participating in a truly international base or operating out of another nation's base.

Scott Base is an extremely efficient, low cost operation. The operational costs of Scott Base are a very small proportion of New Zealand's total budget.

We have strong links to the history of the Antarctic through Scott Base. New Zealanders are proud of what their small country achieves. The implications of any changes to current operations should be carefully considered.

7 Conclusion – Syndicate Consensus

The question is not as simple as it first appears.

First, there are conflicting goals which by definition cannot both be attained concurrently. Second, it is not always easy to ascertain the Antarctic vision and goals of the New Zealand government at any point in time. Third, the dynamic interplay of advantages and disadvantages means that the answer can vary over time.

As a result we found ourselves leaning to a hybrid solution rather than one that is ‘black or white’.

Conclusions:

1. We do **not** think that Scott Base is necessary to protect New Zealand’s claim to the Ross Dependency. There are three reasons for this:

- i. We think that the claims in Antarctica will never be resolved by the ATS, the United Nations or any international court. We should not forget that the idea for the Antarctic Treaty arose because these territorial disputes were insoluble.
- ii. We believe that the New Zealand claim is open to serious challenge given the history of McMurdo Sound
- iii. We believe it is unrealistic to think that given the United States position on Antarctic claims, i.e. not recognising any claims nor making any claim of their own, that the United States would relinquish their position in the Ross Dependency area in favour of New Zealand. Their investment in McMurdo Station is simply too great.

2. We do **not** think that Scott Base is essential in order for New Zealand to have an Antarctic Science program. However, we do believe that it would be very difficult for that science program to remain as efficient and effective as it now is, if it had to be carried out within the framework of another country’s facilities. There is always a cost in flexibility and responsiveness when activities are scaled upward. In addition there are the issues of cultural differences and management styles that would have to be reconciled.

We believe that the correct answer depends very much on New Zealand’s vision and goals for Antarctica.

We conclude that Scott Base **IS** necessary if the following goals are to be achieved:

- i. If New Zealand is to retain its stature within the international community and maintain its influential position within the Antarctic Treaty nations.
- ii. If New Zealand is concerned about its own environment extending down to the Southern Ocean and with the larger global environment
- iii. If New Zealand is to carry on its proud and historic role in Antarctica – a role that began over a century ago – from Scott through to Hillary and, hopefully, to new champions of Antarctica in the future.

Recommendation:

It is our recommendation that, on balance, when the advantages and disadvantages of the alternatives are considered then Scott Base should continue to be operated and managed as a New Zealand national base. Opportunities to share and pool in the interests of efficiency and the values of the ATS should be taken wherever possible.

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9 Appendices

Appendix 1

The Antarctic Treaty

SIGNED IN WASHINGTON, 1 DECEMBER 1959

ENTERED INTO FORCE: 23 June 1961

The Governments of Argentina, Australia Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America;

Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledge the substantial contributions to scientific knowledge resulting from international co-operation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such co-operation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

Article I

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any types of weapons.
2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

Article II

Freedom of scientific investigation in Antarctica and co-operation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

Article III

1. In order to promote international co-operation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable:
 - a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;
 - b) scientific personnel shall be exchanged in Antarctica between expeditions and stations;

c) scientific observations and results from Antarctica shall be exchanged and made freely available.

2. In implementing this Article, every encouragement shall be given to the establishment of co-operative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

Article IV

1. Nothing contained in the present Treaty shall be interpreted as:

a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;

b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise;

c) prejudicing the position of any Contracting Party as regards its recognition or nonrecognition of any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica.

2. No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

Article V

1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.

2. In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties the rules established under such agreements shall apply in Antarctica.

Article VI

The provisions of the present Treaty shall apply to the area south of 60 deg South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Article VII

1. In order to promote the objectives and ensure the observance of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.

2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.

3. All areas of Antarctica, including all stations installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this article.

4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.

5. Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of

- a) all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica .organized in or proceeding from its territory;
- b) all stations in Antarctica occupied by its nationals; and
- c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

Article VIII

1. In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction over all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1 (b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect of all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures In pursuance of subparagraph 1 (e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

Article IX

1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the City of Canberra within two months after the date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty, including measures regarding:

- a) use of Antarctica for peaceful purposes only;
- b) facilitation of scientific research in Antarctica;
- c) facilitation of international scientific cooperation in Antarctica;
- d) facilitation of the exercise of the rights of inspection provided for in Article VII of the Treaty;
- e) questions relating to the exercise of jurisdiction in Antarctica;
- f) preservation and conservation of living resources in Antarctica.

2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.

3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting Parties participating in the meetings referred to in paragraph 1 of the present Article.

4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.

5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

Article X

Each of the Contracting Parties undertakes to exert appropriate efforts consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

Article XI

1. If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.

2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement or reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

Article XII

1. a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meeting provided for under Article IX. Any such modification or amendment shall enter into force when the depositary Government has received notice from all such contracting Parties that they have ratified it.

b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two years from the date of entry into force of the modification or amendment in accordance with the provisions of subparagraph 1 (a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.

2. a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article.

c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1 (a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present Treaty, and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

Article XIII

1. The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which may be invited to accede to the Treaty with the consent of all the

- Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.
2. Ratification of or accession to the present Treaty shall be effected by each State in accordance with its constitutional processes.
 3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.
 4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.
 5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for these States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instruments of accession.
 6. The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

Article XIV

The present Treaty, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to the Governments of the signatory and acceding States.

In Witness Whereof, the undersigned Plenipotentiaries, duly authorized, have signed the present Treaty.

Done at Washington this first day of December, one thousand nine hundred and fiftynine.