Report of the intersessional open-ended contact group (ICG) to Review the Draft Comprehensive Environmental Evaluation prepared by Argentina for the ‘Redevelopment of Petrel Station, Dundee Island, Antarctica’

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**Working Paper submitted by New Zealand**

Summary

An intersessional open-ended contact group (ICG) was established in accordance with the *Procedures for intersessional CEP consideration of draft CEEs* to consider the draft Comprehensive Environmental Evaluation (CEE) prepared by Argentina for the ‘Redevelopment of Petrel Station, Dundee Island, Antarctica’. Participants commended Argentina for the preparation of the draft CEE and several aspects of its proposal. On the basis of comments provided by participants, the ICG advises the CEP that the draft CEE is generally well structured and largely conforms to the requirements of Article 3 of Annex I to the Protocol on Environmental Protection.

However, the ICG noted that while the draft CEE contains well-presented high-level summaries of the environmental aspects, potential impacts of the proposed activity and mitigation measures (Annex’s 2-6), the supporting description of the proposed activity in the main body of the CEE is lacking information, making it difficult to assess whether the environmental impacts of the proposed activities on the environment have been identified and whether the suggested mitigation measures are appropriate. The ICG identified a number of aspects for which additional information or clarification would be useful to include in a final CEE, if Argentina plans to proceed with the proposed activity.

Background

On 30 January, 2023 Argentina notified the CEP Chair of the availability of the draft CEE for the ‘Redevelopment of Petrel Station, Dundee Island, Antarctica’. The draft CEE was prepared by the Environmental Management and Tourism Programme of the Argentine National Antarctic Directorate.

The full document, was available for download from <https://drive.google.com/drive/folders/1PyF_Oo0xKcMEAgXf5ZEnjIhuUa2W9VG6>

and via the CEP Workspace on the website of the Secretariat of the Antarctic Treaty: <https://www.ats.aq/devAS/EP/CEPWorkspace>.

In accordance with the *Procedures for intersessional consideration of Draft CEEs* (CEP XX Final Report, Appendix 3) the CEP Chair issued:

* CEP Circular 3 / CEP XXV (31 January 2023), which:
* advised CEP contact points of the availability of the draft CEE;
* advised of the need to establish an open-ended intersessional contact group (ICG) to review the draft CEE;
* proposed that New Zealand’s CEP representative, Ms Ceisha Poirot, convene the ICG;
* proposed terms of reference for the ICG; and
* invited CEP Members to comment on the proposed convener and / or terms of reference.
* CEP Circular 4 / CEP XXV (15 February, 2023), which noted that no comments had been received on the proposed convener or terms of reference.

Terms of reference

The ICG addressed the four standard terms of reference outlined in the *Procedures for intersessional consideration of Draft CEEs*:

1. The extent to which the CEE conforms to the requirements of Article 3 of Annex I of the Environmental Protocol
2. Whether the CEE: i) has identified all the environmental impacts of the proposed activity; and ii) suggests appropriate methods of mitigating (reducing or avoiding) those impacts
3. Whether the conclusions of the draft CEE are adequately supported by the information contained within the document
4. The clarity, format and presentation of the draft CEE

Method of operation

All ICG correspondence was available to CEP Members and Observers via the CEP Discussion Forum. A link to the Spanish and English language versions of the full draft CEE was posted to the Discussion Forum, with all language versions made available via the CEP Workspace once full translations of the CEE were completed. All languages of the Non-Technical Summary and the template for comment were posted to the Discussion Forum.

ICG participants were reminded by the CEP Chair and ICG convener of the CEP’s agreement that the *Procedures for intersessional consideration of Draft CEEs* do not detract from the right of any Party to the Protocol to raise an issue on a draft CEE at meetings of the CEP or at an Antarctic Treaty Consultative Meeting (ATCM).

The ICG commenced with an opening message from the convener on 8 March, 2023 and an initial comment period from that date until 29 March, 2023. The convener circulated a draft ICG report for comment on 8 April, 2023 and prepared a final report, addressing comments received, by the 14 April, 2021 deadline for submission of Working Papers to CEP XXV.

Summary of comments received from ICG participants

Comments were submitted to the ICG by ten CEP Members (Australia, Canada, Chile, Ecuador, France, Germany, New Zealand, Norway, the United Kingdom and the United States) and one Observer (ASOC). The following sections summarise the main points raised by ICG participants, in accordance with the ICG terms of reference. The full submissions provided by participants are available in the CEP Discussion Forum. If Argentina decides to proceed with the proposed activity, it should also have reference to the matters raised in those full submissions.

Participants commended Argentina for the preparation of the draft CEE and several aspects of its proposal, including the plans to utilise a location already subject to human disturbance from previous activities, to address legacy environmental issues through the removal of disused facilities and associated materials, the plans to maximise energy efficiency and use renewable energy methodologies to meet energy requirements, to establish advanced scientific facilities and make them available for international collaboration, and to implement a comprehensive environmental monitoring program.

However, it was considered that some parts of the draft CEE might be improved in the light of the detailed comments set out below.

1. The extent to which the CEE conforms to the requirements of Article 3 of Annex I of the Environmental Protocol.

ICG participants considered that the draft CEE largely and broadly conforms to the formal requirements of Article 3 of Annex I of the Environmental Protocol. However, in their reviews, participants identified a number of aspects for which additional information or clarification would be useful to include in a final CEE, if Argentina plans to proceed with the proposed activity. In the following, a summary of these comments is provided against the requirements of Annex I, Article 3.2.

Description of the proposed activity including its purpose, location, duration and intensity, and possible alternatives to the activity, including the alternative of not proceeding, and the consequences of those alternatives (Annex I, Article 3.2(a))

Participants considered that the proposed activity, including its purpose, location, duration and intensity were described in Chapters 1, 2 and 4. In some areas there was a large amount of technical detail provided, with some areas lacking in information regarding the impacts on the environment. There was repetition and lack of consistency of information across these chapters which led to a lack of clarity of what was in scope for the CEE, what stage of the renovation had already been completed and what activities had been considered but excluded from the proposed activities, of which the latter should be moved to the consideration of alternatives. Despite the comprehensive information provided, participants suggested that additional detail could be included on:

* the planned intensity of operations at the station over the 30-year design life (including the number of people per season at the station);
* a description of the projected waste and wastewater production during the construction and operational phases of the activity;
* an estimate of fuel use during the construction and operational phases of the activity;
* estimated ship-to-shore operations (including movement of passengers and cargo) during the construction and operational phases of the activity, including fuel transfer and spill prevention during resupply operations;
* how non-native species introductions will be minimised or prevented;
* the rational/operational need for the construction of two runways, rather than one, and how this outweighs the additional environmental impact;
* the anticipated frequency and timing of aircraft movements;
* the location and nature of ancillary infrastructure, such as roads and scientific installations (e.g. masts, communications antennas, pipelines) to be established to support planned logistics and research activities;
* a more comprehensive description of the historical wastes and site contamination and the extent to which removal/remediation is planned and whether the clean-up will include management of residual contaminants in the soil (e.g. hydrocarbons, heavy metals, asbestos);
* whether the proposed activities have been planned to facilitate eventual decommissioning (of the base or the runway) in a manner that minimises environmental impacts; and
* plans, if any, for the facilities to be available to support tourism activities.

Regarding the consideration of alternatives, participants considered that Chapter 5 provides a thorough consideration of alternatives, including the alternative of not proceeding. Participants suggested that additional detail or consideration of the following could be consider for inclusion in a final CEE:

* why the alternative of not proceeding, and the clean-up of Petrel Base and Cape Welchness more comprehensively, was not considered;
* options to restore the local ecosystems and remove historical debris;
* why other stations and existing infrastructure in Antarctica, belonging to Argentina or other Parties, were not considered (other than the Marambio Base), to provide a more fulsome examination of international cooperation, distances from other logistics facilities or other aspects as alternatives to the redevelopment;
* the option of importing aggregate instead of quarrying local materials;
* constructing only one runway rather than two and whether a longer (1800 or 2100 m) runway extending into the nearshore marine environment is more suitable or not;
* the construction of an asphalt runway surface vs. gravel;
* the construction of a pier / wharf and associated infrastructure;
* scheduling elements of the construction activities and aviation operations to avoid sensitive periods for local wildlife (e.g. moulting, fledging); and
* alternatives to drawing domestic water from the nearby lagoons.

Description of the initial environmental reference state with which predicted changes are to be compared and a prediction of the future environmental reference state in the absence of the proposed activity (Annex I, Article 3.2(b));

Participants considered that Chapter 6 comprehensively describes the environment of the broader northern Antarctic Peninsula and surrounding environment, as well as the geographic and physical characteristics of Dundee Island but does not provided a comprehensive description of the environment and the particular sensitivities of Cape Welchness where the proposed activities are planned to take place.

Participants suggested that further details should be provided regarding:

* development of, and presentation of the results of a baseline survey of the environment of the area including vegetation composition and distribution, freshwater biodiversity, terrestrial invertebrate biodiversity and marine intertidal biodiversity;
* the existing physical disturbance footprint (i.e. the size and location of areas of the landscape at Cape Welchness that have already been disturbed by human activities);
* the presence and distribution of terrestrial flora and fauna and proximity to the various elements of the proposed activity, including aircraft flight paths;
* the nearshore marine environment in the vicinity of the proposed activity (e.g. marine communities, habitats, macroalgae, invertebrates, hydrodynamics);
* the locations, nature and extent of contaminated sites associated with past activities;
* environmental features in the vicinity of the quarries and water supply lagoons; and
* wilderness and aesthetic values, taking into consideration past activities.

Participants indicated that the predicted future state of the environment was also not explicitly clear. Some descriptions had been presented (e.g. climate change) but a dedicated section could be included. In addition, it was suggested that Argentina should clean up the historical waste at this site, regardless if the proposed activity goes ahead or not.

Description of the methods used to forecast the impacts of the proposed activity (Annex I, Article 3.2(c))

Participants thought there was clear methodology described (in Section 7.1) but further detail could be provided regarding the data used to forecast the impacts and a review of the assessments provided in the annexes which for some impacts did not seem accurate, and some likely impacts were noted as being absent. One participant was not clear on the use of a fifth factor relating to ‘legal aspects’ that was included in the significance calculation and further information could be provided on its use.

*Estimation of the nature, extent, duration, and intensity of the likely direct impacts of the proposed activity (Annex I, Article 3.2(d))* and *Consideration of possible indirect or second order impacts of the proposed activity (Annex I, Article 3.2(e));*

Participants noted that this has been considered and included in the annexes impact assessment tables though it was thought that they were limited in content and some impacts may have been overlooked or absent.

*Consideration of cumulative impacts of the proposed activity in the light of existing activities and other known planned activities (Annex I, Article 3.2(f));*

Participants suggested this section of the draft CEE (Section 7.6) did not have enough detail to provide a proper assessment of cumulative impacts and could provide a greater explanation and further detail to better understand the conclusions described in this section.

Identification of measures, including monitoring programmes, that could be taken to minimise or mitigate impacts of the proposed activity and to detect unforeseen impacts and that could provide early warning of any adverse effects of the activity as well as to deal promptly and effectively with accidents; (Annex I, Article 3.2(g))

Participants noted that mitigation measures are identified in the impact assessment tables in Annex 2-6. The monitoring programme is included in Chapter 8 and it is noted that details of the monitoring programme are still to be developed once the station is operational. It is not clear what monitoring will be carried out during the redevelopment phases to detect any unforeseen adverse impacts of the activities on the Antarctic environment as well as to deal promptly and effectively with environmental accidents. Participants suggested further thought was needed on the frequency of some monitoring and the consideration/inclusion of terrestrial/soil invertebrate surveys. Further information is provided under ToR#2.

Identification of unavoidable impacts of the proposed activity (Annex I, Article 3.2(h));

The participants noted that unavoidable impacts were not explicitly identified but could be inferred from the impact assessment tables in Annex 2 to 6.

Consideration of the effects of the proposed activity on the conduct of scientific research and on other existing uses and values (Annex 1, Article 3.2 (i)):

Participants noted that the draft CEE indicates that the purpose of the proposed activity is to establish a new science and logistics hub for Argentina’s Antarctic program to support the science programme and to facilitate international cooperation, but suggested that the CEE should describe the effects, if any, of the proposed activity on the conduct of scientific research or on other existing uses, as the information provided was considered relatively limited.

An identification of gaps in knowledge and uncertainties encountered in compiling the information required under this paragraph; (Annex I, Article 3.2(j))

The participants noted that Section 9 of the draft CEE describes knowledge gaps but suggested that some additional gaps and uncertainties evident from the remainder of the document, together with an indication of what steps will be taken to address them, should be considered including:

* the current state of the nearshore marine environment and a detailed understanding of the diversity, abundance and distribution of terrestrial biota;
* the amount of wastes expected to be generated during station operations, and the planned approach to managing solid biodegradable wastes and waste water (including effluent discharge location);
* locations for discharge to the marine environment of waste water effluent and brine from the reverse osmosis plant;
* implications of runway construction for the local hydrology / drainage and flow into the marine environment;
* locations, volume and types of historical wastes and ground contamination; and
* the uncertainties around interaction of the runway and the moraine under different climate change scenarios, especially given the impacts already experienced at Marambio Base.

A non-technical summary of the information provided under this paragraph; (Annex I, Article 3.2(k)) and The name and address of the person or organization which prepared the Comprehensive Environmental Evaluation and the address to which comments thereon should be directed (Annex I, Article 3.2(l)).

The participants noted the Executive Summary, contact details on the front cover and Section 12 which list the authors and advisors.

1. **Whether the CEE: i) has identified all the environmental impacts of the proposed activity; and ii) suggests appropriate methods of mitigating (reducing or avoiding) those impacts**

Participants noted that the proposed activity is complex but the draft CEE has broadly identified the majority of environmental impacts of the proposed activity and outlines the activities to be undertaken to mitigate (reduce or avoid) those impacts.

However, despite a detailed technical description of Petrel Base Renovation (Chapters 1, 2 and 4) and a description of the environment (Chapter 6), some elements of the proposed activity are lacking in information regarding the impacts on the environment (as outlined under ToR#1) and consequently, the full impacts of the proposed activities on the environment are hard to assess.

While Annex 2 - 6 of the draft CEE contain well-presented high-level summaries of the environmental aspects, potential impacts of the proposed activity and mitigation measures, the supporting description in the main body of the CEE (Chapter 7) is lacking or absent, making it difficult to determine whether the environmental impacts of the proposed activities on the environment have been identified and whether the suggested mitigation measures are appropriate.

Potential areas for improvement include:

* a more detailed description of the planned activities (including, for example, on construction methods, quarrying methods, use of stockpile areas, and presence and use of roadways between the different areas of the site);
* identification and description of the environmental aspects that will arise from the planned activities;
* clear descriptions of how the identified aspects will impact upon the environment;
* a dedicated and detailed section on management and/or mitigation measures with a full description of the proposed mitigation measures, including measures M1-M30 referenced in Annexes 2 to 6 as well as mitigation measures for environmental impacts not already identified;
* clarify that mitigation measures will be implemented for all impacts of low significance, as evident from Annexes 2 to 6, which reflects an appropriately precautionary approach; and
* provide links to / summaries of supporting management plans (e.g. Base Contingency Plan, Wildlife Manual, Waste Management Plan, Small Boat Manual, Directive for Work Abroad of the Argentine Antarctic Program).

Having the impact assessment tables split into the different activities (i.e. the repair, maintenance and demolition of original facilities (Annex 2); the construction of new buildings (Annex 3); the construction, use and maintenance of the airport area (Annex 4); the construction of the photovoltaic power plant (Annex 5) and the water supply lagoons (Annex 6)) is useful. However, it was suggested this did not allow a thorough assessment of activities that would be happening in parallel as it appeared they were considered individually. Therefore, consideration could further be given to how the impact assessment tables are presented in the final CEE.

The participants suggested that some environmental impacts may have been overlooked or not consider and could be discussed as relevant in the final CEE. These may include:

* impacts to the marine environment, associated with:
  + the extension of the runway(s) into the nearshore marine environment;
  + the runway earthworks and potential erosion, dust generation and sediment runoff from planned drainage channels, existing streams and rills;
  + disposal of brine from the reverse osmosis plant; and
  + ship to shore operations, including use of landing barges and fuel transfer;
* impacts to terrestrial flora and fauna associated with dust generated during demolition activities, and construction and operation of the runway and other new facilities;
* impacts of light pollution and new structures (e.g. masts, windows) on flying birds;
* impacts on wildlife and vegetation at Cape Welchness arising from an increase in human activities following redevelopment of the station (i.e. increased scientific and logistics activities and personnel);
* impacts from the presence and visibility of the station and facilities in the Antarctic landscape (e.g. impacts to wilderness and aesthetic values);
* habitat and ecosystem level impacts of construction and ongoing operation;
* human health impacts, noting there is no permanent human population in the vicinity of the base, the effects on construction and other personnel could be considered;
* impacts of the chlorine that will be used in the treatment (and disposal) of the wastewater;
* impacts from noise and atmospheric emissions during construction and operational stages;
* potable water requirements per person and for the whole operation; and
* possible impacts on cooperation with other nations and nearby stations in terms of logistic operations.

1. Whether the conclusions of the draft CEE are adequately supported by the information contained within the document.

The participants all agreed that due to the scale and complexity of the proposed activities outlined in the CEE for the Redevelopment of Petrel Station, the impacts are likely to have more than a minor or transitory impact on the environment and that a CEE is the appropriate level of environmental impact assessment for the proposed activity.

However, ICG participants felt that the conclusion of the draft CEE does not align with the environmental impact assessment and identified mitigation measures presented in Annex 2-6. Noting that Chapter 11 of the draft CEE states that, ‘*Of a total of 209 environmental impacts estimated in the original assessment, 102 were low risk, 83 medium risk and 24 high risk. After the mitigation measures were proposed, finally 200 were low risk, 9 medium risk and none high risk’,* participants thought this assessment seemed unlikely and optimistic and indicated that a review of the environmental impact assessment and a more thorough description and consideration of mitigation measures was needed to support the conclusion of the CEE.

1. The clarity, format and presentation of the draft CEE

ICG participants commented generally that the draft CEE is a clear, well-structured, well written, thorough document. However, due to the complexity of the proposed activities, participants suggested the following improvements to enhance the presentation and clarity of the document:

* Consolidate the description of the station and renovation project, particularly Chapter’s 2 and 4, into one chapter to avoid duplication or repetition of information;
* Ensure clarity of the information presented to avoid confusion of the proposed activities. For example, contradicting information is presented which makes it unclear whether or not the port facility has been included or discarded;
* Reorganise some of the information presented to improve the flow of information for the reader, moving important context information sooner in the document;
* Remove or relocate technical/engineering information into an annex where not relevant to the assessment of environmental impacts. This will support reduction in the overall size of the document;
* Move the environmental impact assessment tables into the body of the text and discuss the impacts more comprehensively within the document to support understanding of the impacts and review the colour coding used in the tables for accuracy and consistency;
* Dedicate a section to describe the mitigation measures and effects they mitigate within the document;
* Include a ‘List of Figures’, a ‘List of Tables’ and a ‘List of Acronyms’ with the Table of Contents and ensure the Table of Contents matches the structure of the document;
* Ensure that all Figures and Tables are labelled and referred to accurately in the text of the document as many are mislabelled or missing;
* Ensure the use of acronyms are explained first before use across the document;
* Improve the resolution and clarity of maps and figures throughout the document, ensuring they are appropriately labelled, and translated where possible, as many figure labels were unreadable;
* Ensure all maps include a scale, orientation and legend; and
* Remove the reference to the ‘Argentine Antarctic Territory’ (page 40).

Conclusions

Having reviewed the draft CEE prepared by Argentina for the ‘Redevelopment of Petrel Station, Dundee Island, Antarctica’ in accordance with the *Procedures for intersessional CEP consideration of draft CEEs*, the ICG advises the CEP that:

1. The draft CEE largely conforms to the requirements of Article 3 of Annex I to the Protocol on Environmental Protection to the Antarctic Treaty, although there is a need to address some elements of Article 3 in greater detail.
2. Argentina should consider the issues raised during the ICG and, if it decides to proceed with the proposed activity, there are several aspects for which additional information or clarification should be provided in the required final CEE. These matters are outlined in detail in the submissions made by participants, and are summarised in this ICG report. In particular, the Committee’s attention is drawn to the suggestions that further details should be provided regarding:

* the description of the proposed activity, particularly including more detail of both construction of, and operational activities of the future station such as water consumption and management, waste and wastewater management, fuel management, ship to shore activities (i.e. passengers, cargo and fuel supply/delivery), runway operations, clean-up of legacy waste and prevention of non-native species introduction;
* alternatives to the proposed activity, including further examination of not proceeding and the comprehensive clean-up of Petrel Base and Cape Welchness more broadly, a more thorough analysis of why other stations and existing infrastructure in Antarctica were not suitable and options regarding the number and construction alternatives for the runway(s) and port;
* the initial environmental reference state, including a more comprehensive assessment of terrestrial and nearshore flora and fauna and extent of human disturbance and contamination at the station site and Cape Welchness more widely;
* the methodology used to forecast the impacts of the proposed activity, including how impact significance ratings were determined given the scale and complexity of the proposed activity and lack of some information presented in the CEE;
* a more comprehensive assessment of cumulative impacts that might arise with the proposed activities, existing activities and other known planned activities in the area;
* a more comprehensive assessment and description of the mitigation measures, including for impacts not addressed or sufficiently well described;
* the environmental monitoring program before, during and after construction activities; and
* gaps in knowledge, particularly including the understanding of the diversity, abundance and distribution of flora and fauna in the terrestrial and nearshore marine environment, details of operational issues such as number of people, waste and wastewater generation and discharge to the environment, aircraft activities and impacts of runway construction for the local hydrology / drainage and flow into the marine environment, locations, volume and types of historical wastes and ground contamination and the uncertainties around interaction of the runway and the moraine under different climate change scenarios, especially given the impacts already experienced at Marambio Base.

1. Due to the scale and complexity of the proposed activities outlined in the CEE for the Redevelopment of Petrel Station, impacts on the environment are likely to have more than a minor or transitory impact on the environment and that a CEE is the appropriate level of environmental impact assessment for the proposed activity. However, the conclusion of the draft CEE does not align with the environmental impact assessment and identified mitigation measures and it is suggested that a review of the environmental impact assessment and a more thorough description and consideration of mitigation measures was needed to support the conclusion of the CEE.
2. The draft CEE is generally clear, well structured, and well-presented although due to the scale and complexity of the proposed activities, suggestions were made to enhance the presentation and clarity of the document.