Report of the intersessional open-ended contact group (ICG) to Review the Draft Comprehensive Environmental Evaluation prepared by Turkey for ‘Construction and Operation of Turkish Antarctic Research Station (TARS) at Horseshoe Island, Antarctica’

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**Working Paper submitted by Australia**

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 Turkey for ‘Construction and Operation of Turkish Antarctic Research Station (TARS) at Horseshoe Island, Antarctica’. ICG participants commented favourably on several aspects of the proposed activity described in the draft CEE, including Turkey’s stated plans to utilise a prefabricated, modular station design that would minimise waste generated during construction and facilitate an efficient decommissioning process, to also minimise waste generation during station operations, to utilise advanced wastewater treatment, and to use renewable sources to meet a component of the energy requirements and reduce carbon emissions. On the basis of comments provided by participants, the ICG advises the CEP that the draft CEE is generally clear, well structured and well presented, and largely conforms to the requirements of Article 3 of Annex I to the Protocol on Environmental Protection. However, the ICG further advises that the conclusion that the proposed activity would ‘lead to minimum disturbance of the environment’ is not adequately supported by the information contained within the draft CEE. The ICG advises the CEP that Turkey should consider the issues raised during the ICG and that, 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.

1. Background

On 13 February 2021 Turkey notified the CEP Chair of the availability of the draft CEE for ‘Construction and Operation of Turkish Antarctic Research Station (TARS) at Horseshoe Island, Antarctica’. The draft CEE was prepared by Ministry of Environment and Urbanization (MoEU), the Scientific and Technological Research Council of Turkey (TÜBİTAK) Marmara Research Center (MAM) Polar Research Institute (PRI), and Istanbul Technical University (ITU). The full document, in English, was available for download from <http://lodos.mam.gov.tr/kare/Draft_CEE_of_TARS.pdf> 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 6 / CEP XXIII (15 February 2021), 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 Australia’s CEP representative, Mr Ewan McIvor, 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 7 / CEP XXIII (3 March 2021), 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 English language version of the full draft CEE was posted to the Discussion Forum, together with French, Spanish and Russian versions of the Non-Technical Summary and the *Guidelines for Environmental Impact Assessment in Antarctica* (the EIA Guidelines) adopted under ATCM Resolution 1 (2016).

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 4 March 2021 and an initial comment period from that date until 2 April 2021. On 31 March 2021 the Secretariat advised CEP Members of revisions to the draft CEE, made by Turkey in response to a request from a Consultative Party. The convener circulated a draft ICG report for comment on 12 April 2021 and prepared a final report, addressing comments received, by the 30 April 2021 deadline for submission of Working Papers to CEP XXIII.

1. Summary of comments received from ICG participants

Comments were submitted to the ICG by ten CEP Members (Argentina, Australia, France, Germany, India, Italy, 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 Turkey decides to proceed with the proposed activity, it should also have reference to the matters raised in those full submissions.

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

ICG participants expressed the view that the draft CEE conforms, or partially conforms, to the requirements of Article 3 of Annex I of the Environmental Protocol, and highlighted the need to address some elements of Article 3 in greater detail.

Participants commented favourably on several aspects of the proposed activity, including Turkey’s stated plans to utilise a prefabricated, modular station design that would minimise waste generated during construction and facilitate an efficient decommissioning process, to also minimise waste generation during station operations, to utilise advanced wastewater treatment, and to use renewable sources to meet a component of the energy requirements and reduce carbon emissions.

Participants identified several aspects for which additional information or clarification should be provided in a final CEE, if the proponent decides to proceed with the proposed activity. The following sections describe points raised by several participants.

Description of the proposed activity (Annex I, Article 3.2(a))

Participants noted that the draft CEE presented a useful overview of the construction and operation of the proposed station (Section 2). They suggested that further details, including additional maps, should be provided to ensure the CEE adequately describes the full scope of the proposed activity and associated actions, including further information on the following matters.

* Location, design, construction, operation and removal of the temporary camp required to support a construction workforce of 130 personnel.
* Which of the scientific activities identified as part of Turkey’s National Polar Science Program would be supported by the station, how those activities would benefit from establishing a new station at the proposed location, and how those activities would complement research supported by other stations in the region and contribute to expanding scientific knowledge.
* Logistical support activities for the construction and operation of the station, including:
* large vessel and small boats operations (e.g. vessel type, frequency of activities, locations), including ship-to-shore operations and clarification of whether any temporary or permanent land-side infrastructure would be required (e.g. wharf or boat ramp)
* use of helicopters for research and operational support (e.g. aircraft type, frequency of activities, locations)
* vehicle use during the operation of the station (e.g. vehicle numbers and type, frequency of activities, locations), including consideration of whether carrying out station operations largely on foot would enable the effective operation and maintenance of the station, and allow Turkey to achieve its stated scientific objectives.
* Extent of any earthworks required to prepare the construction site and access routes, and the number, type and size of foundations required for the main station buildings and ancillary infrastructure. As noted below under ‘Description of the initial environmental reference state’, a prior study of the soil mechanics of the area where the station will be located was recommended.
* Detailed description and maps to illustrate the layout of the station, presented on a detailed base map, including the location of fuel storage, renewable energy sources, roads, scientific facilities, waste storage, the incinerator and other ancillary infrastructure.
* Details about the proposed Energy Management System, including the diesel generators and their emission control parameters and measures (e.g. particle filters), the type, location, construction and operation of renewable energy sources (e.g. wind turbines and solar panels), and the contribution renewable energy sources are expected to make to meeting overall station energy requirements.
* The status of collaborative arrangements with other national Antarctic programs that will contribute to ‘cost-effective solutions and to reduce carbon footprint in the region by means of joint logistic activities’.
* Technical information regarding the design and intended operation of the incinerator (e.g. possible use of a wet scrubber), arrangements for storing waste, handling of hazardous waste, and plans for the removal of waste from the Antarctic region, including whether arrangements are in place in the receiving country.
* Information about how wastewater would be treated (i.e. specific details about the technology to be used), where effluent will be discharged and whether the location meets the requirements of Annex III, Article 5.
* Timing of the proposed works, including in what years the construction activities would occur and further information about the timing of specific construction / mechanical / electrical works. Noting that the proposed two-year schedule might be ambitious, consideration could be given to planning or allowing for construction to extend into a third season.
* Specific details of the volume, location and construction of fuel tanks, types of fuel that will be stored, monitoring systems and containment infrastructure.
* Specific building materials to be used and details about their environmental performance (noting the welcome intention to utilise materials that would be durable and suitable for reuse, recycling and recovery).

Possible alternatives to the activity (Annex I, Article 3.2(a))

Participants noted that the draft CEE addressed several alternatives to the proposed activity (Section 3), and suggested further information could be provided regarding these and other possible alternatives, including:

* Why the site on Horseshoe Island was selected in favour of the other locations, including further explanation of the criteria used in the multi-criteria evaluation and a description of the comparative environmental sensitivities of the sites considered.
* Alternatives to the proposal to draw domestic water from nearby lakes on Horseshoe Island, which might result in potentially significant impacts on the scientific and environmental values of the lakes and adjacent areas, and which might not ensure a sustainable water supply. It was suggested that further information about potential impacts and practical consideration should be provided and that alternative water supply options, such as reverse osmosis / desalination of seawater should be considered.
* The option of collaborating with other national Antarctic programs on the use of existing facilities.

Description of the initial environmental reference state (Annex I, Article 3.2(b))

Participants noted that parts of the initial environmental reference were well described (Section 4), however they suggested that other elements should be further developed to ensure a comprehensive basis for assessing and monitoring the environmental impacts of the proposed activity, including the following matters.

* Comprehensive information about the distribution and abundance of both terrestrial and nearshore marine flora and fauna at the proposed station site, and in other areas on Horseshoe Island and the surrounding region that could be impacted by the proposed activity. Details of surveys / studies undertaken to date should be provided, and further surveys / studies undertaken as necessary to fill gaps and ensure a comprehensive description of the environment.
* A comprehensive description of the presence of birds in the project area and surrounding region, including bird flight paths, throughout the season. This information should be collected and analysed before finalising plans for the station, particularly the possible use of wind turbines or helicopters. Particular concern was expressed regarding potential impacts to breeding bird colonies at Lagotellerie Island, which is located in relatively close proximity to the proposed station site, and which is identified as an Antarctic Important Bird Area and designated as Antarctic Specially Protected Area (ASPA) 115.
* In addition to describing the climatic conditions at Horseshoe Island, information about anticipated / potential environmental consequences of climate change in the location of the proposed activity, and also the possible implications of climate change for proposed activities (e.g. sea level rise, permafrost melting, availability of lake water / snow) and their associated environmental impacts. It addition, it was suggested that consideration should be given to risks from natural hazards such as earthquakes and tsunamis which may occur at the Antarctic Peninsula.
* Geological and geotechnical site assessments undertaken to identify and evaluate predicted impacts to geomorphology and non-living values, as well to determine the suitability of the proposed station design and construction methodology (e.g. local permafrost, geology and ground conditions including ground water).
* Maps to illustrate the proposed station location in the context of key local and regional features / environmental sensitivities (e.g. flora, fauna, ice-free areas, glacial features, ASPAs, HSMs, Important Bird Areas).

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

Participants commented that the prediction of impacts (Section 5) could be improved and better supported by describing the methodology used for the impact identification and assessment process, as suggested in the EIA Guidelines, including an explanation of how the impact significance ratings (i.e. presented in Tables 5-6 and 5-7) were determined. They also suggested that significance ratings could be reviewed in light of recommended additional information about the initial environmental reference state.

Estimation of the likely direct impacts, indirect, cumulative and unavoidable impacts of the proposed activity, and effects on the conduct of scientific research and other existing uses and values (Annex I, Article 3.2(d)(e)(f)(h)(i))

See ToR#2(i).

Identification of gaps in knowledge and uncertainties (Annex I, Article 3.2(j))

Participants noted that the draft CEE provides a relatively brief and general list of gaps in knowledge and uncertainties (Section 7). They suggested that this section should be further developed to provide greater detail, and to also discuss knowledge gaps and uncertainties highlighted elsewhere in this ICG report, including:

* details of the specific scientific activities to be supported by the station, where they will be conducted, and the logistics required to support them
* gaps in knowledge of the initial environmental reference state at the proposed station site
* location of bird colonies and bird flight paths
* the suitability and sustainability of the nearby lakes as a domestic water source
* details of the renewable energy sources to be used and their contribution to total energy requirements
* the potential effects of climate change on the environment and implications for station operations
* collaborative arrangements with other national Antarctic programs operating on the Antarctic Peninsula.

Non-technical summary (Annex I, Article 3.2(k))

Participants noted that the Non-Technical Summary (NTS) generally provides a clear and helpful summary of the information presented in the main body of the CEE. It was noted, however, that the NTS could be expanded to also include a figure showing the local and regional setting and layout of the proposed station, and to include summaries of the:

* purpose of the proposed activity, including scientific activities to be supported by the station
* key alternatives considered
* initial environmental reference state
* spatial extent of proposed activities
* nature and significance of associated environmental impacts
* overall conclusion of the CEE regarding the predicted impacts of the proposed activity, using the terminology of Article 8 and Annex I (see also comments below at ToR#3).

Identification of mitigation measures, including monitoring programs (Annex I, Article 3.2(g))

See ToR#2(ii).

1. Whether the CEE:

i) has identified all the environmental impacts of the proposed activity;

Participants noted that some elements of the proposed activity were not described or were not considered in sufficient detail (as outlined under ToR#1) and that, consequently, the full impacts of those activities on the terrestrial and nearshore marine environment would need to be considered in detail in addition to those impacts discussed in the draft CEE (Section 5). Participants also suggested that further information and assessment was required for other environmental impacts, including:

* Information to support the assessment that the transport of material, equipment, construction personnel and station personnel during the station construction and operation would only result in ‘a minor risk of the accidental introduction of non-native biota’.
* Location and extent of physical disturbance to ice-free ground and related impacts to terrestrial flora and fauna due to earthworks and excavation required to establish access routes and laydown areas for materials and equipment, and to install foundations for station buildings and ancillary infrastructure.
* Impacts to the terrestrial and nearshore marine environment associated with the generation of dust and sediment generated during the construction and operation of the proposed station (e.g. earthworks, vehicle use).
* Changes to drainage and snow accumulation due to the presence of the station buildings.
* How the proposed activity, particularly the associated landscape modification and physical presence of new infrastructure, would alter the wilderness and aesthetic values of the area.
* Further assessment and description of the indirect and cumulative impacts of the proposed activity in the light of existing activities and other known planned activities, including potential cumulative impacts arising from:
* the combination of the individual impacts of the proposed activity, some of which were not addressed on described in sufficient detail
* the conduct and support of research by Turkey once the station is operational, within the immediate station area, elsewhere on Horseshoe Island and in the broader Antarctic Peninsula region
* interactions between the proposed activity and the research and logistics activities of other national Antarctic programs in the region
* interactions with tourism activities, including at the visitor site on Horseshoe Island.

ii) suggests appropriate methods of mitigating (reducing or avoiding) those impacts

Participants observed that the draft CEE identified measures to mitigate a range of impacts associated with the construction and operation of the station (Section 5). However they suggested that a more comprehensive description of planned mitigation measures was needed, including for those elements of the proposed activity and associated impacts, that were not described or adequately addressed in the draft CEE (as outlined at ToR#1 and ToR2(ii)). Participants gave particular emphasis to the need to elaborate mitigation measures for the following matters.

* Specific arrangements for effective non-native species prevention (including cleaning and inspections), monitoring and response, particularly noting the high risk of introductions in the Antarctic Peninsula region.
* Preventing and responding to leaks and spills of fuel and other hazardous liquids, including arrangements for safe ship-to-shore fuel transfer, characteristics of fuel tanks and containment infrastructure, procedures for refuelling and fuel handling both on station and in the field, details of equipment, procedures and training for responding to spills in the terrestrial and marine (including ice-covered) environment, and arrangements for remediating contaminated ground. This should include providing a copy or summary of the planned emergency response and oil spill contingency plans for both the construction and operations phases of the proposed activity.
* Waste management and disposal, including procedures for incineration or storage of wastes for removal from Antarctica in a manner that will prevent dispersal into the environment or scavenging by wildlife. As above for the Oil Spill Contingency Plan, this should include providing a copy or summary of the intended Waste Management Plan.
* Steps to prevent, and take action in response to, bird strikes on the wind turbines.
* Measures to prevent disturbance to wildlife during construction activities, including due to noise.
* Minimising the generation of dust arising from ground works and vehicle use.

Participants welcomed the stated intention to develop a monitoring program (Section 6), and suggested that further details of planned monitoring activities should be presented, including:

* objectives of the monitoring program
* baseline values for parameters to be measured
* inclusion of all potential impacts that will require monitoring as a mitigation measure
* number and locations of sampling sites
* monitoring of biota, in particular birds
* considering a higher frequency of measurements to allow rapid detection and responses as required.

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

Participants considered that a CEE was the appropriate level of EIA for the proposed activities.

Participants questioned the predictions presented in the draft CEE that ‘the research station will reduce the human footprint by decreasing the number of onboard crew and the vessel duration in the region in a cumulative manner’ (pg. 11) and that the proposed activity ‘will have less environmental impact in the region in the long-term compared to short-term expeditions’ (pg. 45). They noted that the impacts (or footprint) of the proposed activity extend beyond carbon emissions, and that the operation of the proposed station would still involve shipping support. It was suggested that comparative information about fuel use / emissions could be provided to support these predictions.

In general, participants felt that the overall conclusion that the proposed activities would ‘lead to minimum disturbance of the environment’ (Section 8) was not adequately supported by the information contained within the draft CEE.

It was noted that a more comprehensive description of the proposed activity (including scientific activities to be supported by the station) and the initial environmental reference state (as summarised under ToR#1 above), as well as further details regarding mitigation measures, would be required to establish a comprehensive basis for evaluating environmental impacts, and to inform an assessment of whether such impacts would be outweighed by the anticipated benefits.

Participants suggested that the conclusion of the draft CEE should be presented using the terminology of Article 8 and Annex I of the Environmental Protocol. Some participants considered that, on the basis of the information available, the proposed activities were likely to result in ‘more than a minor or transitory impact’.

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

Participants commented that the draft CEE is generally clear, well structured and well presented.

As mentioned above, participants noted that further information and clarification would be required to facilitate a comprehensive description and assessment of the environmental impacts of the proposed activity.

Participants emphasised that it would be valuable to provide further maps and figures to complement the written description of the proposed activity and initial environmental reference state, and to help place the project in its local and regional setting. It was also suggested that maps and figures include scale bars, north arrows, labels and legends where appropriate.

Other suggestions for enhancing the clarity, format and presentation of the draft CEE are contained in participants’ full submissions, available from the CEP Discussion Forum.

1. Conclusions

Having reviewed the draft CEE prepared by Turkey for the ‘Construction and Operation of Turkish Antarctic Research Station (TARS) at Horseshoe 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. Turkey 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 details of the temporary construction camp, scientific activities to be supported by the station, required earthworks, logistical support activities including shipping, and small boat, helicopter and vehicle operations, and further details regarding the design and construction of the station buildings, collaborative logistics arrangements with other programs, and specific arrangements for energy, waste and wastewater management
* alternatives to the proposed activity, including the reasons for selecting the location for the proposed station, the alternative of collaborating with other programs on the use of existing facilities, and alternatives to utilising lakes on Horseshoe Island as a domestic water supply
* the initial environmental reference state, including a more comprehensive assessment of terrestrial and nearshore flora and fauna at the station site and broader region, in particular consideration of the location of bird areas and flight paths, a geological assessment of the proposed station site, and the possible impacts of climate change on the environment
* the methodology used to forecast the impacts of the proposed activity, including the means of determining impact significance ratings
* potential environmental impacts, including for aspects of the proposed activity not addressed or sufficiently well described, particularly those impacts that might be associated with disturbance of ice-free ground due to groundworks, operation of wind turbines, use of nearby lakes for domestic water supply, and the potential introduction of non-native species
* cumulative impacts that might arise in light of existing activities and other known planned activities in the area, including research activities extending beyond the station site and potential interaction with other national Antarctic program and tourism operations in the broader region
* mitigation measures, including for impacts not addressed or sufficiently well described, particularly those measures related to fuel management, non-native species prevention, waste and waste water management, and avoiding impacts to wildlife from construction, wind turbine and aircraft operations
* the planned environmental monitoring program
* gaps in knowledge, particularly including details of activities to be supported by the station and required logistics, gaps in the initial environmental reference state, uncertainties regarding the suitability of the nearby lakes as a domestic water source, and gaps in knowledge of climate change impacts and implications for the operation of the station.

1. The conclusion that the impacts of constructing and operating the proposed station would ‘lead to minimum disturbance of the environment’ is not adequately supported by the information provided in the draft CEE. The conclusion should preferably be presented in the terminology of Article 8 and Annex I of the Protocol and, in that regard, it is likely the proposed activity would have ‘more than a minor or transitory impact’.
2. The draft CEE is generally clear, well structured, and well presented, although additions and improvements to the maps and figures are recommended and further information and clarification is required to present a comprehensive assessment of the environmental impacts of the proposed activity.