

Actions from GISERA NT Regional Research Advisory Committee Meeting 11 June 2020

Key

Action Open
Action Due/overdue
Action complete/in train

	Item	Action	Owner	Due	Status
1.	11-06-20 Item 2A	Action 1 : The research proponent to include domestically combusted gas and the fate of non-combusted gas in the study.	Research proponent	30 June 2020	
2.	11-06-20 Item 2A	Action 2 : The researchers should include a sensitivity analysis in the project to the extent feasible, on what those mixes of end use products could mean as an emission.	Research proponent	30 June 2020	
3.	11-06-20 Item 2A	Action 3 : The research proponent to interact with relevant stakeholders including industry and NT Government as part of the Technical Reference Group including the Department of Trade, Business and Innovation.	Research proponent	30 June 2020	
4.	11-06-20 Item 2A	Action 4 : The research proponent to engage with Northern Land Council on indigenous fire management offset program.	Research proponent	30 June 2020	
5.	11-06-20 Item 2A	Action 5 : The proposal to explicitly state that project will identify the quantum of emission occurring within the Northern Australia consistent with the NT GHG inventory.	Research proponent	30 June 2020	

6.	11-06-20 Item 2B	Action 6 : The proposal to be edited to consider the Petroleum Act so that the framework becomes more broadly applicable	Research proponent	30 June 2020	
7.	11-06-20 Item 2B	Action 7 : The proposal to consider and align with the Code of Practice definition of wastewater.	Research proponent	30 June 2020	
8.	11-06-20 Item 2B	Action 8 : The proposal to include a stage-gate following stage 2, with revisions made to stages 3 and 4 to account for outcomes and learnings of the first two stages which will then be submitted for RRAC consideration prior to proceeding with latter stages.	Research proponent	30 June 2020	
9.	11-06-20 Item 2B	Action 9 : The proposal will be edited so that the first two stages refer to the general development of the framework and the latter stages refer to a specific example of the framework application in the Beetaloo.	Research proponent	30 June 2020	
10.	11-06-20 Item 2C	Action 10 : The scope is currently focussing on vegetation communities that could be at risk, but the RRAC would like, to the extent possible, the research to focus on all vegetation communities in prospective development areas.	Research proponent	30 June 2020	
11.	11-06-20 Item 2C	Action 11 : The map should be revised to be representative of the Beetaloo Sub-Basin's geologically defined area, to include the exploration permits and the revised focus area of this study (where fieldwork will be maximally useful).	Research proponent	30 June 2020	

12.	11-06-20 Item 2C	Action 12 : The revised map and description of focal area selection/criteria to be emailed to the RRAC prior to GISERA Director approval of project.	Research proponent	30 June 2020	
13.	11-06-20 Item 2C	Action 13 : Definition of “regional scale” on page 4 to be provided.	Research proponent	30 June 2020	
14.	11-06-20 Item 2C	Action 14 : The research proponent to consider whether an earlier project commencement is feasible.	Research proponent	30 June 2020	
15.	11-06-20 Item 2C	Action 15 : GISERA Executive Officer to schedule a meeting with relevant stakeholders to determine level of engagement with TO’s and source of funding for their involvement through the Cultural Monitor program.	GISERA Executive Officer	20 July 2020	
16.	11-06-20 Item 2D	Action 16 : Proposal to be more directly related to regulatory and code of practice reality in order to maximise impact of this work.	Research proponent	30 June 2020	
17.	11-06-20 Item 2D	Action 17 : Proposal to focus on where current and likely future infrastructure development is occurring.	Research proponent	30 June 2020	
18.	11-06-20 Item 2D	Action 18 : The proposal to include a stage-gate to apply the method to a subset of the region of interest and demonstrate its utility. Then the RRAC will consider a revised proposal to distribute the method more broadly.	Research proponent	30 June 2020	
19.	11-06-20 Item 2D	Action 19 : The research proponent should contact Jason Hill, Department of Environment regarding current work on erosion.	Research proponent	30 June 2020	



20.	11-06-20 Item 2F	Action 20 : The research proponent to consider whether an earlier project completion is feasible.	Research proponent	30 June 2020	
21.	11-06-20 Item 2F	Action 21 : Representatives from the NT Government be included on the Technical Reference Group.	Research proponent	30 June 2020	

Minutes
GISERA NT Regional Research Advisory Committee Meeting No. 4
Thursday, 11 June 2020
Via telephone

OPENING

The meeting of the GISERA Northern Territory Regional Research Advisory Committee (RRAC) was called to order at 12.40 pm (ACST) on Thursday, 11 June 2020.

PARTICIPANTS

Damian Barrett: GISERA Director (*CSIRO*)
Fay Miller: Mayor of Katherine (*Katherine Town Council*)
Greg Owens: Industry Development Manager (*Northern Territory Farmers Association*)
Ian Satchwell: Chairman, Energy Group (*Chamber of Commerce Northern Territory*) – for Greg Ireland
Julie-Ann Stoll: Special Projects, Mining (*Central Land Council*)
Greg McDonald: Manager, Minerals & Energy (*Northern Land Council*)
Jenny Davis: Co-Director, Research Institute for Environment and Livelihoods (*Charles Darwin University*)
James Pratt: Executive Director- Onshore Gas Development (*Department of Primary Industry and Resources, Northern Territory Government*)
Stephanie Stonier: Corporate Affairs Manager (Northern Australia) (*Origin*)
Paul Wybrew: Manager Environment, Technical, Monitoring and Approvals (*Santos*)
Chris Chilcott: Research Leader Northern Australian Development, Science Strategy (*CSIRO*)
David Dewhurst: Geoscience Research Leader (*CSIRO*)
Cathy Robinson: Director, Northern Australia Research Alliance (*CSIRO*)

Others present:

Matt Kerne: Senior Environmental Specialist (*Origin*)
Dan O'Sullivan: GISERA Deputy Director (*CSIRO*)
Jizelle Khoury: GISERA Executive Officer and Secretariat (*CSIRO*)

Apologies:

Greg Ireland: Chief Executive Officer (*Chamber of Commerce Northern Territory*)
Ashley Manicaros: Chief Executive Officer (*Northern Territory Cattlemen's Association*)
Tim Radburn: Executive Director (*Pangaea Resources*)

ITEMS FOR DISCUSSION

ITEM 1. Welcome and introductions

The GISERA Director welcomed all members to the meeting.

The GISERA Director noted the seismic baseline proposal was held over to take into account some activities currently underway between the Commonwealth's Department of Environment, the Geological and Bioregional Assessment and Geoscience Australia. CSIRO will then have discussions with the NT Government and industry to ensure any future GISERA work is well targeted toward community issues and synergistic with other work underway or completed.

ITEM 2A. PROJECT PROPOSAL

Offsets for life cycle greenhouse gas emissions of onshore gas in the NT

The GISERA Director provided a summary of the project proposal.

Key points raised:

- The key objective of this project is to seek feasible options to offset life cycle greenhouse gas emissions emitted in Australia associated with scenarios of onshore shale gas extraction in the Northern Territory. The project will quantify technical scenarios for offsetting Australian emissions from new production and Australian consumption of onshore gas extracted from the NT's Beetaloo Sub-Basin. In addition, this project responds to NT Government's 'Scientific Inquiry into Hydraulic Fracturing' final report Recommendation 9.8. As part of the exploration of offset options, the project will investigate scenarios of developing hydrogen production in the NT that couple more broadly with the NT Government Gas Strategy.
- Need to ensure that gas that is combusted domestically is incorporated into this study.
- Researchers to include fate on non-combusted gas (as much as comprehensively possible) and to be clear on what is being included and excluded in the study.
- The researchers should include a sensitivity analysis in the project to the extent feasible, on what those mixes of end use products could mean as an emission.
- Phase 4 of the project includes indigenous fire management. Importance of this offset program to the Northern Land Council was emphasised and the need to discuss that aspect of the research with the NLC.
- The Technical Reference Group will have input into the scenarios, and it will be important that the composition include industry and relevant sections of NT Government as well as other stakeholders.
- It was noted that the Department of Trade, Business and Innovation leads the policy area for hydrogen in NT Government, so researchers will need to ensure they are engaged during that aspect of the project.
- The NT Government will require this project to deliver a deliberate decision-making process on how it responds to the Inquiry Recommendation, so the project will need to clearly

identify the quantum of emissions that are occurring within the NT as opposed to just within all of Australia. That will greatly assist the NT Government in navigating the policy challenge and meeting the Recommendation requirement. Needs to be made explicit in the proposal, along with its assessment of analysis of the various options which can be used by NT Government in policy development and decision making around offsets.

- The proponent will need to interact with the relevant sections of NT Government as part of the Technical Reference Group.

Outcome: The RRAC approved this project, subject to the actions below being addressed to the satisfaction of the GISERA Director.

Action 1: The research proponent to include domestically combusted gas and the fate of non-combusted gas in the study.

Action 2: The researchers should include a sensitivity analysis in the project to the extent feasible, on what those mixes of end use products could mean as an emission.

Action 3: The research proponent to interact with relevant stakeholders including industry and NT Government as part of the Technical Reference Group including the Department of Trade, Business and Innovation.

Action 4: The research proponent to engage with Northern Land Council on indigenous fire management offset program.

Action 5: The proposal to explicitly state that project will identify the quantum of emission occurring within the Northern Australia consistent with the NT GHG inventory.

ITEM 2B. PROJECT PROPOSAL

Shale gas water life cycle management options framework

The GISERA Director provided a summary of the project proposal.

Key points raised:

- The key objective of this project is to develop an options framework and decision criteria for water and wastewater management for NT shale gas development that affords a high level of environmental protection for community and government while remaining cost-effective for industry. This project will directly address Recommendation 5.5 of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory and will explore the options for safe disposal of wastewater (Recommendation 7.9 and 7.17).
- It was noted that the Scientific Inquiry is focused on shale in its terms of reference, but all the Inquiry Recommendations are applied under the Petroleum Act 1984, therefore all

source rock types are relevant (not just shale). This should be considered in the project title and throughout the proposal.

- Need to ensure the definition of wastewater in this proposal is explicitly the definition of wastewater from the Code of Practice: Onshore Petroleum Activities in the Northern Territory.
- Concern raised that proposal needs to move away from having a definitive outcome with an assessment based on criteria developed that says these are our highest priority treatment options. Generalising across whole area will be problematic.
- Proposal is overly prescriptive and detailed regarding the selection of treatment technologies. It is a framework identifying synergies, identifying potential treatment opportunities and the multi criteria tools that should be used to assess them rather than of performing a lot of those assessments on the treatment technology and going into that fine level. Project needs to be technology agnostic and goal is to produce a framework, not make the decisions now.
- It was requested that a stage-gate between phase 2 and 3 be included in the proposal. Following stages 1 and 2, the research proponent will revise the proposal's stages 3 and 4 to take into account what was uncovered, and any lessons learnt. The RRAC would then reconvene and consider the revised proposal as to how to go forward based on the outcome of the first two phases.
- Important to note that the geological and geographic conditions across the various basins in the NT can differ. Concern was raised that a generalisation of the scope cannot to meet the requirements of every basin in the Territory. It was agreed that stages one and two will refer to the general development of the framework, then a stage-gate, followed by stages three and four which will refer to a specific example of the framework application in the Beetaloo.
- It was suggested that the management options framework should explicitly take an adaptive management approach (in terms of environmental information) and a real options approach, so as to best manage the wide range of actual outcomes, the opportunities that present, the impacts that present and the risks that present. Researchers to consider greater risk focus as opposed to a preference focus on the study.
- It was acknowledged that this is an important piece of work and that there would be value in the revisions going to the RRAC for consideration prior to project commencement.

Outcome: The RRAC would like to research proponent to revise the proposal taking to account all the points raised and submit a revised proposal via email to the RRAC for consideration.

Action 6: The proposal to be edited to consider the Petroleum Act so that the framework becomes more broadly applicable

Action 7: The proposal to consider and align with the Code of Practice definition of wastewater.

Action 8: The proposal to include a stage-gate following stage 2, with revisions made to stages 3 and 4 to account for outcomes and learnings of the first two stages which will then be submitted for RRAC consideration prior to proceeding with latter stages.

Action 9: The proposal will be edited so that the first two stages refer to the general development of the framework and the latter stages refer to a specific example of the framework application in the Beetaloo.

ITEM 2C. PROJECT PROPOSAL

Understanding and managing impacts to biodiversity from roads and pipelines in the Beetaloo

The GISERA Director provided a summary of the project proposal.

Key points raised:

- The key objective of this project is to understand how the extension of linear transport infrastructure (mainly roads and pipelines) in the Beetaloo Sub-basin during the development of an onshore gas industry will impact biodiversity. It will then use this new scientific information to identify areas that are most threatened from infrastructure development and provide information to support management approaches and decision making across industry and government to reduce the risk to biodiversity while facilitating development. This information will be useful to the community to help understand the biodiversity values that may be threatened by development and to provide options to regulators on how impacts can be minimised. In addition, the project partially addresses Recommendation 8.7, 8.9, 8.10 and 8.11 of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory.
- The scope is currently focussing on vegetation communities that could be at risk, but the RRAC would like, to the extent possible, the research to focus on all vegetation communities in prospective development areas.
- The Technical Reference Group need to ensure the result is relevant, so when considering disturbances or infrastructure selected, they are representative of what a gas development would look like. For example, if a rig needs a 5-metre access track to access a well pad, researchers are not looking at 30 metre bitumen highways.
- It was noted that consultation with the Technical Reference Group may result in focal area being adjusted (especially in the case of industry development or a scenario where well stimulation may be possible in the near future).
- Any external work that is underway and at point that can be utilised during this project should be included. For example, mapping that is currently being undertaken by the Geo-Bioregional Assessment by the NT Department of Natural Resources (DENR) may be ready before project commencement. There are vegetation surveys being undertaken and fine scale mapping being done that could be used as a basis for this project.
- The focal area currently identified on figure 1 is relevant when considering likely future improvement or widening to the road corridors, but consideration also needs to be given to whether there are any wells planned in that focal area.

- It was suggested that the study area be more focused on directly addressing the areas that are current under exploration and to focus the fieldwork on the more immediate parts of the Beetaloo. Industry can advise where those areas are. This will provide a better use of resources to give more immediate and directly applicable results out of the work.
- The map (figure 1) is not representative of the Beetaloo Sub-basin but appears to have been taken from the Commonwealth Government's Geo-Bioregional Assessment. The Beetaloo Sub-basin is a geologically defined area. The map should be revised to be representative of the Beetaloo's geologically defined area, to include the exploration permits to get greater clarity of that area and the revised focus area of this study.
- In addition to the updating the map, the proposal should be explicit about how the focal area was determined/the criteria.
- Imperial Oil and Gas Pty Ltd, a company just east of the Beetaloo are likely to drill wells, noting they are not in the Beetaloo Sub-Basin or part of the GISERA Alliance. The pipeline corridor has been put out for tender by government for a feasibility study and it was questioned whether there is capacity for this or a future project to consider that and the impact within the focal area as it will help determine where to drill wells.
- At the top of page 4 it reads "The project will develop a map that identifies habitat connectivity at a regional-scale". Need to clarify in proposal exactly what area falls under "regional scale".
- The research proponent to consider whether the project can commence earlier, even if it would be just the desktop work.
- Some consideration to be given about engagement with Northern Land Council cultural monitors. There was discussion around whether monitors should be brought in at a particular stage or throughout the project. Should it apply regardless of whether research is being undertaken on company leases or not (i.e. for any on-country research). A meeting will be scheduled to discuss the appropriate level of engagement with TO's and how cultural monitor's engagement will be funded. Meeting to include GISERA Director, lead researcher, NLC and the companies.
- The RRAC would like to receive the revised map and the description of how focal area was selected (the criteria) before final approval is provided by the GISERA Director.

Outcome: The RRAC approved this project, subject to the actions below being addressed to the satisfaction of the GISERA Director.

Action 10: The scope is currently focussing on vegetation communities that could be at risk, but the RRAC would like, to the extent possible, the research to focus on all vegetation communities in prospective development areas.

Action 11: The map should be revised to be representative of the Beetaloo Sub-Basin's geologically defined area, to include the exploration permits and the revised focus area of this study (where fieldwork will be maximally useful).

Action 12: The revised map and description of focal area selection/criteria to be emailed to the RRAC prior to GISERA Director approval of project.

Action 13: Definition of “regional scale” on page 4 to be provided.

Action 14: The research proponent to consider whether an earlier project commencement is feasible.

Action 15: GISERA Executive Officer to schedule a meeting with relevant stakeholders to determine level of engagement with TO’s and source of funding for their involvement through the Cultural Monitor program.

ITEM 2D. PROJECT PROPOSAL

Putting land management knowledge into practice

The GISERA Director provided a summary of the project proposal.

Key points raised:

- The key objective of this project is the provision of high-quality spatial data to farmers, regulators, and the gas industry to: a) assist their evaluation of design and placement of gas infrastructure options; b) protect surface water and vegetation and reduce erosion, soil damage and dust as required by the recommendations from the NT Hydraulic Fracturing Inquiry; and c) create novel communication tools to improve the exchange of data between different individuals and groups. This project directly addresses the Recommendations 7.1, 8.13 and 8.14 of the NT Hydraulic Fracturing Inquiry and will also assist with preliminary information for Recommendations 8.7, 8.8, 8.11 and 8.15.
- The proposal should be explicit about what area of the NT this project will target. It should focus on where infrastructure development is occurring around exploration now and where future development designated to occur. This will improve impact of work, in particular around communications.
- The proposal has no reference to the NT Land Clearing Guideline. This and the Code of Practice: Onshore Petroleum Activities in the Northern Territory needs to be considered for design activities and have communication actions that industry/government can use (perhaps a Framework). That is, the research needs to show an understanding on what current practices are in place and what standards are being met now, and how this technology can improve in addition to that.
- The research proponent should contact Jason Hill, Department of Environment regarding current work on erosion.
- Is 20 cm resolution suitable given the large areas of the NT and that the topography in the region is very low. It was suggested to maximise the project, there be a staged approach where the researchers would choose a subset of the section of the Beetaloo where people are concerned about water movement, erosion or cattle disturbance around water bodies, then trial it which will demonstrate whether it will provide the kind of information that will be useful.

- The RRAC were supportive of the inclusion of a stage-gate where the researchers demonstrate for a limited area the application of the technology and its usefulness in terms of communication and then, on the basis of that, proceed to rolling it out across the larger area.

Outcome: The RRAC approved this project, subject to the actions below being addressed to the satisfaction of the GISERA Director.

Action 16: Proposal to be more directly related to regulatory and code of practice reality in order to maximise impact of this work.

Action 17: Proposal to focus on where current and likely future infrastructure development is occurring.

Action 18: The proposal to include a stage-gate to apply the method to a subset of the region of interest and demonstrate its utility. Then the RRAC will consider a revised proposal to distribute the method more broadly.

Action 19: The research proponent should contact Jason Hill, Department of Environment regarding current work on erosion.

ITEM 2F. PROJECT PROPOSAL

Mapping future transport passages and volumes for improved planning and operation

The GISERA Director provided a summary of the project proposal.

Key points raised:

- The key objective of this project is to provide a 'pre- and peak' analysis of the freight costs (road and rail), flows and impacts for identified sites or regions in the NT Beetaloo Basin for the construction phase and operational phase. It will also test a range of interventions that may reduce transport costs, transported related environmental impacts (e.g. dust, noise, erosion) to the landscape and community, and increase road safety. This will provide information to support decision making across industry, government regulation and community. In addition, this study will assist with preliminary information that can be used for Recommendations 8.16, 8.11 and 8.13 of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory.
- Early feedback from NT transport department "a well thought through study that will complement and enhance the initial views contained within some of governments other infrastructure assessments."
- The Technical Reference Group to include representatives from NT Government, to allow for involvement and awareness of progress rather than waiting for end result.

- It would be good if study could be completed sooner. If this is not possible, then NT Government's on TRG will assist with early engagement and information.
- There are some clear implications for the township of Elliot, being the major township in the region. This study would be potential for future application with spatial planning in relation to any upgrades or modifications to the transport corridors. The communities that live in the region along the major highways – Katherine, Elliot etc. may be interested in having some stakeholder engagement, where the results of the study are presented to a community engagement.

Outcome: The RRAC approved this project, subject to the actions below being addressed to the satisfaction of the GISERA Director.

Action 20: The research proponent to consider whether an earlier project completion is feasible.

Action 21: Representatives from the NT Government be included on the Technical Reference Group.

ITEM 3. PROJECT VARIATION

Environmental monitoring and microbial degradation of onshore shale gas activity chemicals and fluids

Key points raised:

- There have been several significant, unplanned and unforeseen events that have impacted the research proponent's ability to deliver the project on budget and on time (as was outlined in meeting paper)
- The research proponent is seeking approval to move the following milestone dates:

Task	Description	Revised delivery date
Task 3	Baselining microbial communities	31 August 2020
Task 4	Microbial degradation and sole carbon growth trials	31 August 2020
Task 5	Impact and indicator taxa	30 November 2020
Task 6	Final Report	30 November 2020

- The research proponent is also seeking approval to increase the overall project budget by an additional \$20,000 (\$15,000 GISERA funds / \$5,000 CSIRO in-kind) to cover the additional OPEX costs incurred. This will bring the total project budget to \$291,964.

Outcome: The RRAC approved the project variation which includes changes to the delivery dates of milestones 3-6 and an overall project budget increase of \$20,000. This results in an overall total project budget of \$291,964 and a project delivery date of 30 November 2020.

ITEM 4. OTHER BUSINESS

4.1 Research Investment Ratios

Key points raised:

- The 5 research proposals considered at this RRAC meeting represent a total investment of \$1,563,425. This includes a 73% GISERA investment of \$1,141,300 and a 27% CSIRO investment of \$422,125. These ratios were applied on the basis 6 proposals would be submitted, as originally intended.
- Given that only 5 proposals were submitted, it was requested to revert back to the normal ratio for NT proposals of 75% from GISERA and 25% from CSIRO.

Outcome: The RRAC approved change in investment ratio which will result in a 75% GISERA investment of \$1,172,569 and a 25% CSIRO investment of \$390,856. The overall project budgets will remain the same.

NEXT MEETING

The next meeting of the NT Regional Research Advisory Committee is yet to be scheduled. It is anticipated that a meeting will occur once further proposals are established.

Damian Barrett adjourned the meeting at 4.32 pm (ACST).

Minutes submitted by: **Jizelle Khoury**

Minutes approved by: **Damian Barrett**