



Australia's National
Science Agency

GISERA | Gas Industry Social and Environmental Research Alliance

Progress report

Background Seismicity of Beetaloo Sub-basin and Seismic Hazard



Progress against project milestones

Progress against milestones/tasks are approved by the GISERA Director, acting with authority in accordance with the GISERA Alliance Agreement.

Progress against project milestones/tasks is indicated by two methods: Traffic light reports and descriptive Project schedule reports.

1. Traffic light reports in the Project Schedule Table below show progress using a simple colour code:

- **Green:**

- Milestone fully met according to schedule.
- Project is expected to continue to deliver according to plan.
- Milestone payment is approved.

- **Amber:**

- Milestone largely met according to schedule.
- Project has experienced delays or difficulties that will be overcome by next milestone, enabling project to return to delivery according to plan by next milestone.
- Milestone payment is withheld.
- Milestone payment withheld for second of two successive amber lights; project review initiated and undertaken by GISERA Director.

- **Red:**

- Milestone not met according to schedule.
- Problems in meeting milestone are likely to impact subsequent project delivery, such that revisions to project timing, scope or budget must be considered.
- Milestone payment is withheld.
- Project review initiated by GISERA Director.

2. Progress Schedule Reports outline task objectives and outputs and describe, in the 'progress report' section, the means and extent to which progress towards tasks has been made.

Project schedule table

TASK NUMBER	TASK DESCRIPTION	SCHEDULED START	SCHEDULED FINISH	COMMENT
1	Identification of Potential Seismic Sources	01 July 2022	31 August 2022	Completed
2	Detection and Location of Background Seismicity	01 September 2022	31 March 2024	
3	1 st Interim Report	01 September 2022	31 October 2022	This task will be completed February 2023.
4	Seismic Velocity Model Building	01 July 2022	30 June 2023	
5	2 nd Interim Report	01 May 2023	30 June 2023	
6	3D Seismic Wave Simulations	01 August 2023	30 May 2024	
7	Final Report	01 March 2024	30 June 2024	
8	Communicate findings to stakeholders			

Project schedule report

TASK 1: Identification of Potential Seismic Sources

BACKGROUND

The identification of existing seismic sources including man-made ones prior to the installation of the network is critical in discrimination in later stages.

TASK OBJECTIVES

Conduct desktop study to identify and map existing seismic sources from legacy data.

TASK OUTPUTS AND SPECIFIC DELIVERABLES

Time dependent 2D maps of seismic sources showing the variation historical seismicity. These maps will also indicate the information gap.

PROGRESS REPORT

This milestone is complete now.

- The shapefiles of the locations of the infrastructure road network, petroleum titles, mines (both historical and operating ones) have been obtained from the Northern Territory Geological Survey.
- Historical seismic event information and the current seismic monitoring station locations have been sourced from relevant earthquake catalogues.

- Reproducible python-based 2D mapping scripts have been developed to map this information.
- The mapped spatial information of road network, petroleum licenses and mine locations are assessed as potential source generators with respect to the station locations.

TASK 2: Detection and Location of Background Seismicity

This task is due for completion in March 2023.

TASK 3: 1st Interim Report

BACKGROUND

The desktop study regarding the potential seismic sources aims to determine the location of existing sources and classify them. The workflow for detection and location of earthquakes will process the incoming data from Geoscience Australia's passive seismic network.

TASK OBJECTIVES

Provide a general outline of the potential and historical seismic sources. Provide a preliminary assessment of the workflow's performance about the existing data.

TASK OUTPUTS AND SPECIFIC DELIVERABLES

A detailed report showing the results of the desktop study of seismic sources through maps and digital datasets. Assessment workflow with respect to the already collected data.

PROGRESS REPORT


This task will be completed February 2023.

Variations to Project Order

Changes to research Project Orders are approved by the GISERA Director, acting with authority, in accordance with the GISERA Alliance Agreement. Any variations above the GISERA Director's delegation require the approval of the relevant GISERA Research Advisory Committee.

The table below details variations to research Project Order.

Register of changes to Research Project Order

DATE	ISSUE	ACTION	AUTHORISATION
27/10/22	After completion of task 1, the current outputs are not large enough to form an interim report. The first-stage outputs of tasks 1, 2 and 4 will be documented and will then form a better picture of the projects progress.	Milestone 3 extended from October 2022 to February 2023.	

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GISERA is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research. The purpose of GISERA is to provide quality assured scientific research and information to communities living in gas development regions focusing on social and environmental topics including: groundwater and surface water, greenhouse gas emissions, biodiversity, land management, the marine environment, and socio-economic impacts. The governance structure for GISERA is designed to provide for and protect research independence and transparency of research.