Dynamically transforming environmental assessment through a shared analytics framework:
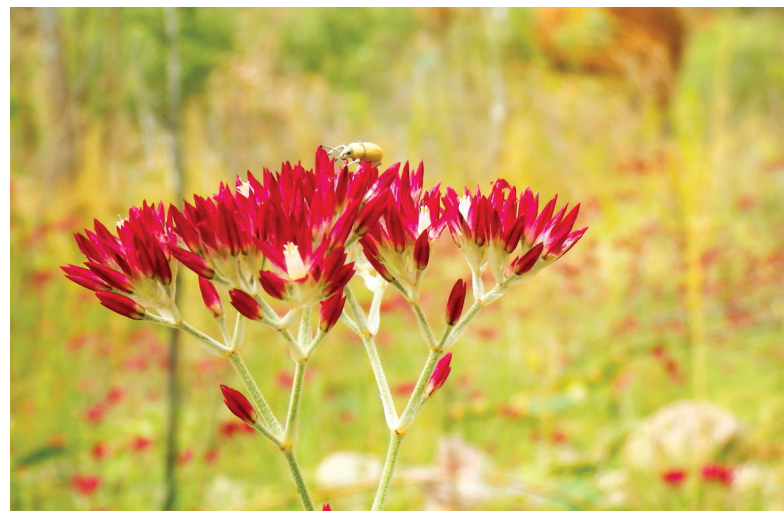
Bowen Basin Case Study

CRC TiME
Transformations in Mining Economies

The Shared Analytic Framework for the Environment (SAFE), developed by the Western Australian Biodiversity Science Institution (WABSI) and the Department of Agriculture, Water and the Environment (DAWE) provides a structured approach to designing and building data and analytic capabilities required for bioregional cumulative impact assessments.

KEY FINDINGS

- Integrating data into existing infrastructure requires models that specify minimum requirements for data, format, validation and metadata capture.

- In Queensland, the greatest opportunity for additional data requisition is for water-related data.

- To obtain this data, its submission might need to be made a compliance requirement.

- Pathways for data submission are well-defined but lines of responsibilities for management are often complex and unclear.

CRC TiME undertook this Bowen Basin case study to assess the framework's ability to support dynamic environmental assessments and management in the mining industry. Outcomes suggested that additional data, a clear pathway, and minimum requirements for data integration may all be necessary for SAFE to be effective.

THE CHALLENGE

The value of implementing SAFE in Queensland is unknown, posing challenges around effective environmental assessments and management in the region's mining industry. Other unknowns also contribute to the issue, including:

- The status of current processes for data submission to the Queensland Government, outlining types, formats, storage locations and access protocols

- The status of data submission to Queensland Government data repositories by companies and therefore identifying gaps or items for improvement;

- The challenges faced by resource companies with respect to data submission and how these can be overcome; and

- A plan for improving data coherence at State and Commonwealth levels to support data access by a range of stakeholders, from regional to national level.

THE OPPORTUNITY

This project aimed to determine the gaps and opportunities related to the application of SAFE to Queensland's mining industry by addressing the above unknowns. An opportunity existed to conduct an in-depth review of four Environmental Impact Studies (EIS) to help identify the information currently collected by companies, and to characterise the associated data in terms of type, format, storage location and access protocol. Opportunity also existed for information to be gathered on data system architecture, data submission and transfer processes, and on experiences with data acquisition and generation as part of an EIS process.

OUTCOMES

- Existing Queensland data systems are equipped to accept data collected as part of an EIS. integrating this data into the existing infrastructure requires data models that specify minimum requirements for the data, data format, data validation, and metadata capture.

- Guidance is provided regarding biophysical data integration in the Queensland data systems, which will contribute to achieving the objectives of SAFE. There are also opportunities to collect additional data for most biophysical aspects (biodiversity, surface water, groundwater, air quality), but the greatest opportunities are related to the acquisition of water-related data.

- Submission of water-related data might require an update to legal obligations. Industry representatives indicated that data submission would need to become a compliance requirement.

- The pathways for submitting data are well identified but the lines of responsibilities for managing the corresponding databases are not always clear and are, in general, complex. There is an opportunity to reconsider the structure for the governance of data systems.

NEXT STEPS

Recommendations centre around the collaborative development of models by small-to-medium enterprises and capitalising on existing data systems. This includes:

- Relying on subject matter experts in research, government and industry to collaboratively develop effective data models for biodiversity and water data submission. This will present a range of challenges, particularly in aligning legal requirements from various jurisdictions.

- Capitalising on existing data systems and ensuring appropriate resources are allocated to achieve the level of improvement required to accept data submitted by EIS proponents. The surface water database WaTERS may require the most significant investment.

- Recognising that achieving seamless data submission processes will be a challenging project, requiring extensive engagement and effective collaboration.

PROJECT PARTNERS

University of Queensland; Western Australian Biodiversity Science Institution (WABSI); Commonwealth Department of Agriculture, Water and the Environment (DAWE)

PROJECT REPORTS

REVIEW FULL REPORT

Cote, C.M., Asmussen, P. and Gentle, C. (2022). Dynamically transforming environmental assessment through a shared analytics framework: Bowen Basin case study. CRC TiME Limited, Perth, Australia.

CONTACT

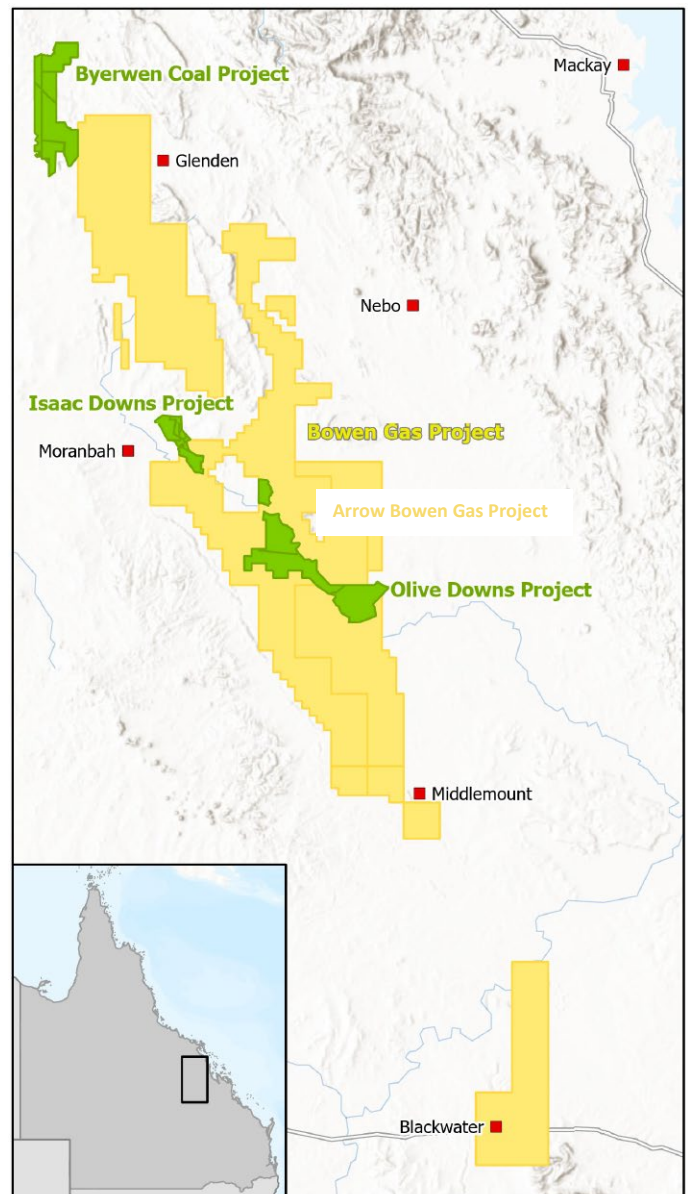**E** info@crctime.com.au   **T** +61 (08) 9263 9805

Figure 1: Locations of reviewed EIS projects in the Bowen Basin.

ABOUT US

The Cooperative Research Centre for Transformations in Mining Economies is part of Australia's national innovation ecosystem. Our diverse partnership brings scale, collaboration and coordinated investment to tackle the most complex mine closure and post-mine transition challenges. Together we're rethinking what's possible to improve outcomes for people, communities, the environment and industry.

We acknowledge the traditional custodians across all the lands on which we live and work, and we pay our respects to Elders both past and present.

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