A typology of approaches to regional cumulative effects assessment and management

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Cooperative Research Centre for Transformations in Mining Economies

VISION

CLOSURE AS A VALUED CORNERSTONE FOR POST-MINE ECONOMIES AND THE MINING INDUSTRY, BUILDING ENDURING BENEFIT FOR ALL AUSTRALIANS.

MISSION

BRING TOGETHER DIVERSE STAKEHOLDERS TO HELP REIMAGINE AND DRAMATICALLY TRANSFORM AUSTRALIAN MINE CLOSURE OUTCOMES.

- PROGRAM 1: Regional Economic Development
- PROGRAM 2: Risk, Evaluation and Planning
- PROGRAM 3: Operational Solutions
- PROGRAM 4: Data Integration, Forecasting and Scale

Project 4.7 Regional Cumulative Effects Assessment and Management (RCEAM) to Support Transitions in Mining Economies

- CRC TiME Impact Objective 1: Mines are closed in ways that deliver social, economic and environmental value
- CRC TiME Impact Objective 5: Policy, decision and management systems reduce risks across stakeholders.
- The overall project aims to develop process-based methodology, guidance documents, and governance model for undertaking RCEA that can consistently be applied across Australia to inform transitions in mining economies at a regional scale.

Stage 1 2023	Stage 2 2024	Stage 3 2025 +
• RCEAM typology, decision tree and case studies	• Developing capacity	• Pilot Study/ies

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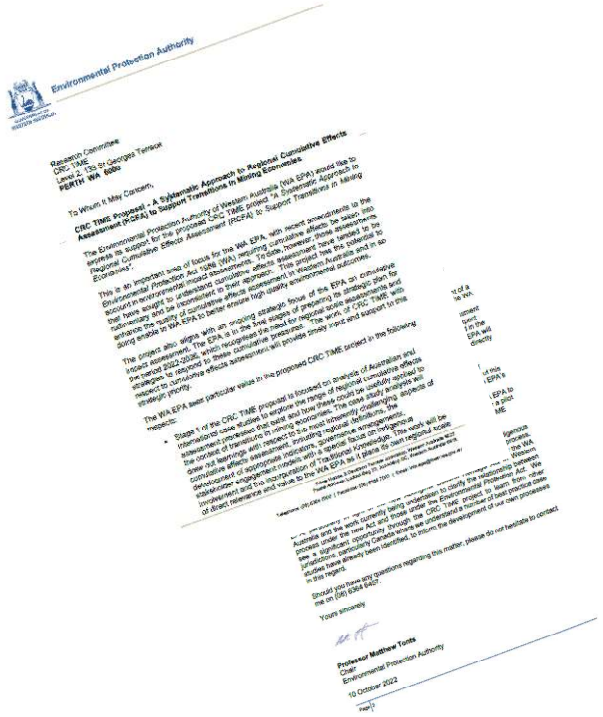
Stage 1 Objectives: Case Study Analysis

1. To analyse selected Australian and Canadian RCEAM case studies, including their success factors, challenges and lessons learnt, and generate insights on the **how** of RCEAM, including: regional definitions, governance arrangements, stakeholder engagement approaches, Indigenous involvement and the incorporation of Traditional Knowledge, analytical tools, and indicator development;
2. To develop a typology of RCEA practice, distinguishing **what** scope RCEAM might have; **who** might initiate, conduct or implement RCEAM; and **why** the RCEAM might be conducted, in terms of the outputs it might deliver and its ultimate purpose;
3. To consider the potential value of RCEAM to planning and decision-making for mining transitions and to develop a guide to support regional stakeholders in planning and scoping an RCEAM process for mining transitions.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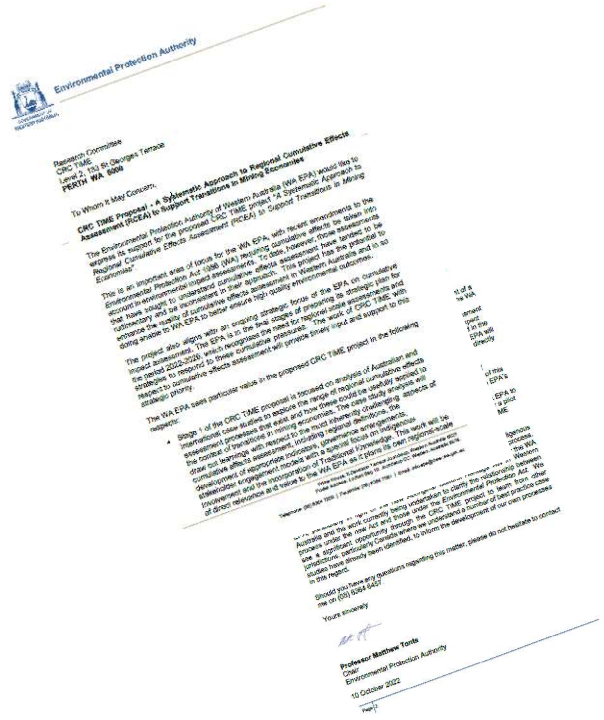
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Yours sincerely

Professor Matthew Tonts
Chair
Environmental Protection Authority

10 October 2022

Desktop case study analysis – draft typology developed

Canada:

- Great Sand Hills Regional Environmental Study, Saskatchewan (2007)
- Cumulative effects assessment of the North Saskatchewan River Watershed, Alberta (2009)
- Tlicho Wenek'e Land Use Plan, North West Territories (2013)
- RCEA for Hydroelectric Developments on the Churchill, Burntwood and Nelson River Systems (2015)
- Elk Valley Cumulative Effects Management Framework, British Columbia (2018)
- Wood Buffalo National Park Strategic Environmental Assessment, Alberta/NWT (2018)
- Assessment of the cumulative effects of climate change and land use on the trans mountain pipeline and wildlife habitat in the North Thompson Watershed (2019)
- Metlakatla Cumulative Effects Management Program (2019)
- Regional Assessment of Offshore Oil and Gas Newfoundland and Labrador (2021)
- North Coast Cumulative Effects Program (in progress)

Australia:

- Abbot Point Port Cumulative Impact Assessment (2013)
- Great Barrier Reef Region Strategic Assessment (2014) and Reef 2050 Plan Cumulative Impact Management Policy (2018)
- Cockburn Sound Drivers, Pressures State, Impact, Responses Assessment (2017)
- Boomtown Indicators project
- BHP Strategic Assessment
- Case studies of Bioregional Assessment (2018) and Geological and Bioregional Assessment (2020) programs undertaken under the Environment Protection and Biodiversity Conservation Act 1999
- South Western Australian Mining Sector Socio-economic Impact Assessment (2019)
- EPA s16e) advice: Potential cumulative impacts of proposed activities and developments on the environmental, social and cultural values of Exmouth Gulf (2021)
- City of Karratha Cumulative Impact Assessment and Action Plan (in progress)

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Detailed data collection and analysis – revised typology

Research trip to Canada 22 May – 21 June, 2023

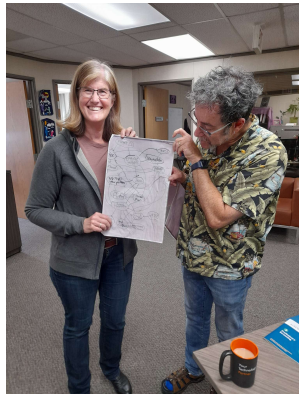
Interviewed 30 people in 9 cities (26 in person + 4 online)

- 20 people involved in selected case studies (6 primary plus 5 additional)
- 10 researchers and other experts
- Including government representatives, First Nations, academics, consultants, NGOs

Attended Indigenous Centre for Cumulative Effects Conference

Plus additional interviews conducted in person and online from Australia

Total 38 interviews with 39 people



With Alan Ehrlich of MVEIRB

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The variety of RCEAM - different case studies emphasise different process steps

Four broad steps of RCEAM (derived from Blakley 2021):

1. Scoping, including identifying regional boundaries, values, and pressures;
2. Retrospective analysis, aimed at understanding the *status quo* and how it has arisen;
3. Prospective analysis, predicting the potential future cumulative effects under different scenarios in order to inform future planning and decision-making;
4. Decision-making and implementation, including monitoring and management.

e.g. Manitoba Hydro RCEA, Cockburn Sound DPSIR
Retrospective analysis can consume considerable time and resources – influence on decision-making? Can identify knowledge gaps.

e.g. Great Sand Hills Regional Environmental Study, Wood Buffalo NP SEA, Great Barrier Reef
Can predict future CE of BAU (less strategic) or evaluate alternative scenarios (more strategic)

e.g. Metlakatla CEM, Boomtown Indicators
Focus on monitoring and management. can involve setting triggers and thresholds

Blakley, Jill A. E. 2021. 'Introduction: Foundations, issues and contemporary challenges in cumulative impact assessment.' in Jill A. E. Blakley and Daniel M. Franks (eds.), *Handbook of Cumulative Impact Assessment* (Edward Elgar Publishing).

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Why? Possible RCEAM purpose and outputs

Purpose	Outputs
To inform future planning and decision-making	Current conditions, trends and cumulative pathways
To identify a preferred future scenario	Predictions of cumulative effects under different scenarios
To evaluate the acceptability of cumulative effects	Predictions of likely cumulative effects under business as usual
To inform future research	Knowledge gaps
To support ongoing monitoring and management of cumulative effects	Management objectives or triggers
	Monitoring data and recommendations

"My first thing is: who makes decisions about what? What do you need to make a decision? And if you don't know, if decision makers don't know what they need to make a decision, then that's step one. Forget designing the framework. Let's first figure out what information is needed" (Researcher and practitioner)

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Who? Who initiates and coordinates? Who participates?

Examples

- Initiation and coordination by Government at request of third party:
  - Wood Buffalo NP SEA and Great Barrier Reef strategic assessment – requested by World Heritage Committee of UNESCO
  - Slave Geological Province Regional SEA – requested by Thlicho Nation
- Initiation by industry at request of Government
  - Elk Valley CEAM (coordination subsequently taken over by Government)
- Research institutions as coordinators
  - Metlakatla CEM (SFU at request of First Nation)
  - Boomtown Indicators (UQ)
  - Alberta Foothills CEA (SFU on behalf of government)
- Communities, including Indigenous Nations, as initiators and coordinators
- Are all stakeholders invited to participate by coordinator, or is it selective?

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What? What type of process is it? What is the scope?

Process types

- Regulatory (e.g. Great Barrier Reef strategic assessment, RAs under *IAA 2019* in Canada) versus non-regulatory (most case studies)
- Ongoing (e.g. Metlakatla CEM, Boomtown Indicators) versus one-off (most case studies) – will depend on purpose

Scope

- Values:
  - Single category (e.g. Karratha RCIA – social, many case studies – biophysical)
  - Integrated (Indigenous-led)
- Pressures:
  - Single type of development (e.g. Transport Canada CE of marine shipping)
  - All pressures
- May be good reasons to limit scope, again depends on purpose

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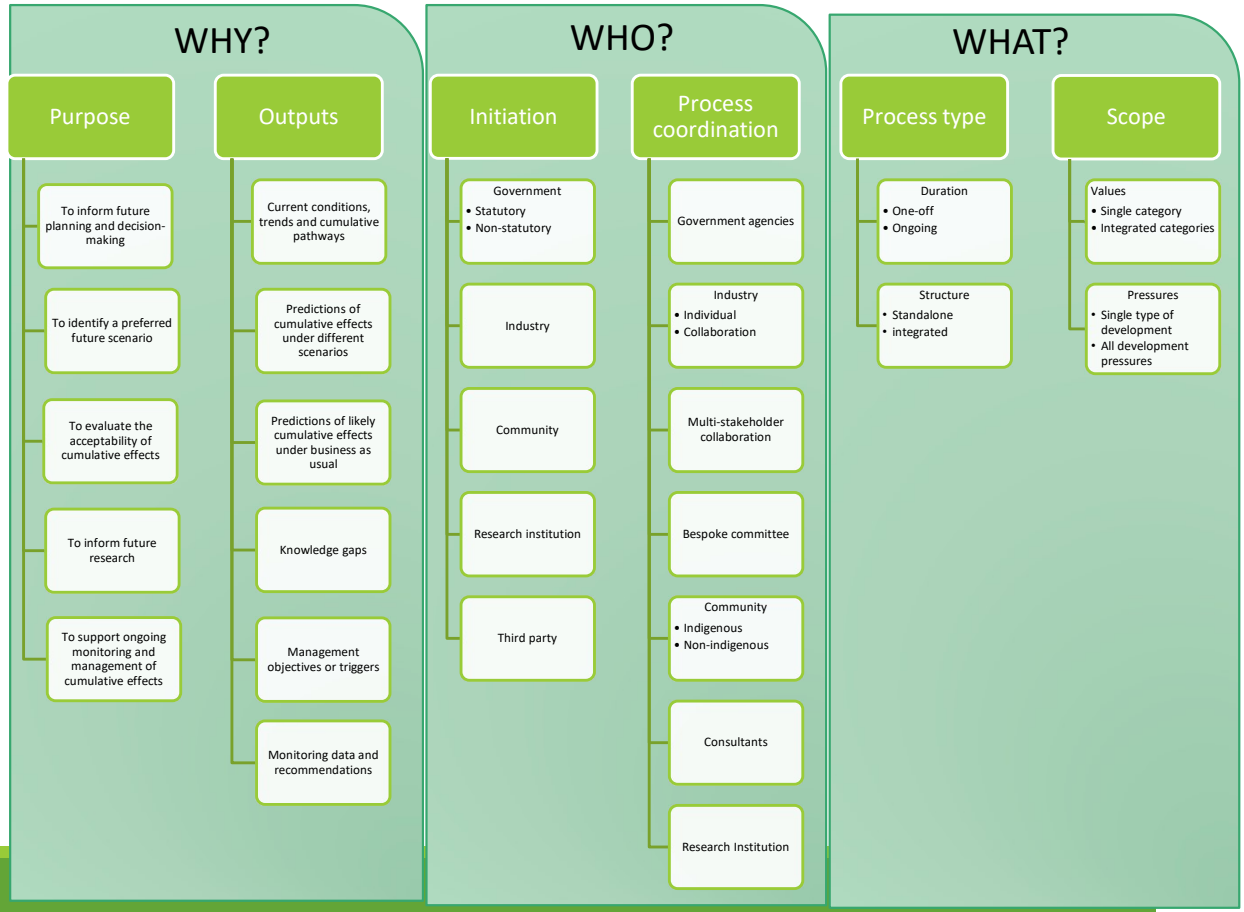
Proposed RCEAM Typology



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The potential application of RCEAM to mine closure/mining transitions

Cumulative effects in the context of mine closure can be legacy effects and the effects of closure itself. The challenge is to manage negative effects and collaboratively realise opportunities for mining regions post-mining.

Potential applications of RCEAM to mine closure/mining transitions:

- To assess cumulative impacts of using water to fill pit voids of multiple mines
- To inform the evaluation of alternative post-mining land uses
- To inform the spatial planning for infrastructure development post-mining (e.g. renewable energy projects) by assessing the cumulative environmental and social effects of alternative locations
- To inform transitional planning by assessing the inter-related social and economic cumulative effects of closure on regional communities
- To support visioning and planning for community socio-economic development post mining
- To support Caring for Country activities post-mining or through mining transitions (Indigenous-led RCEAM);
- To develop monitoring and management programmes for legacy cumulative effects.

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Thank you to our project partners

Government of **Western Australia**
Department of **Water and Environmental Regulation**

Australian Government
Department of Climate Change, Energy, the Environment and Water

Let’s continue the conversation!

Post questions and comments in the IAIA24 app.

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