FRAMEWORK

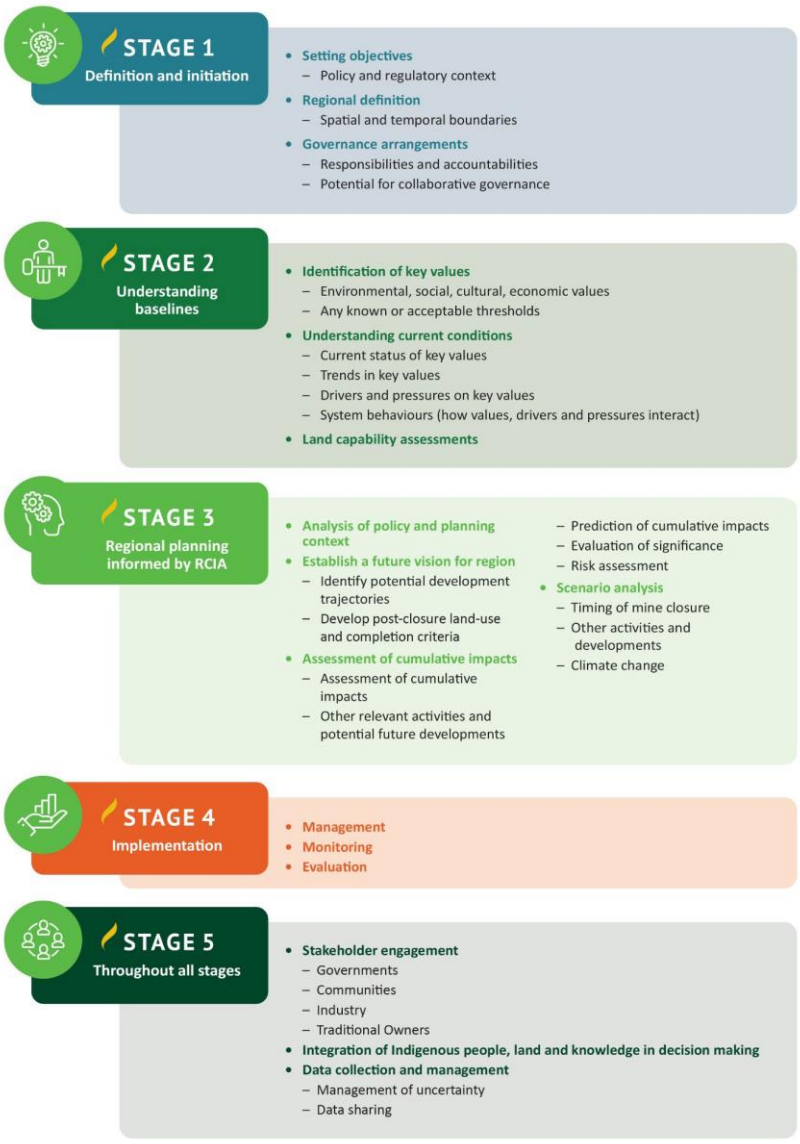
Project 1.1: A foundational framework for RCIA (expanded)

CRC TiME
Transformations in Mining Economies

Australian Government Department of Industry, Science and Resources | AusIndustry Cooperative Research Centres Program

Extracted from: Sinclair, L., Pope, J., Holcombe, S., Hamblin, L., Pershke, D., Standish, R.J., Kragt, M.E., Haslam-McKenzie, F., Subroy, V. and Young, R.E. (2022). Towards a framework for regional cumulative impact assessment. CRC TiME Limited, Perth, Australia.

These are extracts only. Each should be read in context of the full final report. Please refer to the full report for more information.



Stage 1: Definition and initiation

The purpose of this stage is to initiate the process and define its objectives, geographic and temporal boundaries, and governance arrangements.

Setting objectives

The first step in initiating an RCIA will be articulating its objectives and ensuring they are fit for purpose, taking into account considerations such as the policy and regulatory context, the needs and expectations of stakeholders, and the availability of resources. The legal review (Chapter 7) provides a high-level overview of CIA requirements in Australian jurisdictions, while further detailed review will be needed for each region, including local, state, and national planning policy. Determining the objectives of an RCIA will determine which of the three stages of RCIA are required. It will also enable a prioritisation of activities within each stage.

The density and complexity of multiple mines within a region, at varying levels of maturity, will mean that the RCIA will need to be revisited periodically, rather than conducted as once off exercise.

Regional definition

A pre-existing regional boundary will often act as the preliminary logical boundary for an RCIA. This could be a local government boundary, Native Title Determination Area, water catchment, or area defined by any existing regional plans or strategies. Based on an initial scoping of impacts, boundaries will be defined to capture the geographic range of particular economic, social, environmental, and cultural impacts. Further adaption of the regional boundary during assessment and stakeholder consultation may also occur in subsequent stages, as more information is obtained. . In some cases it may make more sense to work with overlapping boundaries for different issues, rather than trying to settle on a single boundary. It will be important to show how the boundaries relate to other systems (e.g., biodiversity communities, aquifers and watersheds, local economies, etc). Consideration should also be given to temporal boundaries, for example how far into the future the planning will extend, and from how far back into history information will be gathered.

Governance arrangements

A leading or coordinating entity must be identified, which in many cases will be a government agency or authority. This entity may be nominated in legislation or may voluntarily initiate the RCIA process. In some cases, a collaborative governance approach may be the most appropriate arrangement, with potential representation from different levels of government, existing and potential future industry, the community, and Traditional Owners. A stakeholder mapping exercise should be undertaken in this first stage to identify relevant stakeholders. It will also be important to establish appropriate structures to support RCIA, which might include a coordinating committee to manage the process, an advisory group to provide direction and advice, and specialist working groups. The responsibilities of each group in conducting the RCIA should be clearly defined at this stage, together with arrangements for communication between the groups. Governance arrangements may need to evolve throughout the process. For example, the structures appropriate for CIA supporting regional planning (Stage 3) might be different from those required to undertake the ongoing monitoring (Stage 4).

Broader engagement with the community and stakeholders should occur throughout the RCIA process and is discussed in the relevant section below.

Stage 2: Understanding baselines

The purpose of this stage is to understand the present situation with respect to key environmental, social, economic and cultural conditions within the region, as the foundation upon which a future can be planned in Stage 3 and monitoring can be conducted in Stage 4.

Identification of key values

Key values are components of the environmental, social, economic and cultural landscape (Measham et al. 2022) that are prioritised as the focus of the RCIA process. They may be determined by relevant legislation – for example, 'matters of national environmental significance' in the EPBC Act (Chapter 3-2), may reflect particular issues of concern to stakeholders, or may be values that are known to be under particular pressure - for example it may be known that a species is endangered, or that inequality within a community is higher than average. They may also reflect social or economic aspirations; for example levels of employment or numbers of small businesses.

Key values, even when they are specified by legislation or government policy, should be 'ground-truthed' through consultation with relevant stakeholders. The process of ground-truthing helps to understand the interaction and relative significance of intersecting environmental, social, cultural and economic values. Ensuring that Traditional Owners are engaged in determining these valued components and establishing 'significance' is essential, potentially including concepts such as 'Country' as a value and 'cultural keystone species' (Chapter 4-3).

Understanding current conditions

Once the key values that will be the focus of the RCIA have been identified, the next step is to determine the current condition of these values, comparing their current condition with any known thresholds or targets, and examining trends – are the indicators getting better or worse? Depending on the key value, this analysis may involve quantitative scientific data, or qualitative data which may be based upon the local knowledge of community members and other stakeholders.

It is important to recognise that the current condition of these key values is the result of historical cumulative drivers and pressures acting on them. Historical drivers and pressures will include, but not be limited to, mining activities. While it is not essential to enumerate every activity or pressure that has occurred over time, it is important to develop some understanding of the historical causes of impacts on the key values, and the pathways through which these impacts may have occurred. Some impact accumulation processes may be additive and linear, while others may be more complex and systemic and may call for a systems approach (Grace & Pope, 2021).

Some impacts of mining will cease or reduce once mines close (e.g. noise), while others may continue (e.g. acid mine drainage, land subsidenceand infrastructure maintenance liabilities). These impacts form 'mining legacies' (Roche et al., 2021) and need special consideration in stages 3 and 4 below. In addition, the process of closure will often result in new negative impacts in the socio-economic sphere, such as population loss in turn leading to loss of services and reduced economic activity. . There are a variety of tools and methods than can be used for this purpose, with opportunities for stakeholder involvement in the process. For example, cultural mapping is a tool for Indigenous CIA that is particularly useful for well-documented cultural landscapes (Chapter 4-3). There are also evolving GIS-based methods for capturing local knowledge, histories and ethnographies within spatial systems (Gonzales, Rivera, García, & Markwell, 2013; Kwan & Ding, 2008; Lechner, Owen, Ang, & Kemp, 2019).

Land capability assessment

Land capability assessments provide information that contributes to understanding the baseline conditions within the region. This supports the development of post-mining plans for a region by enabling potential future land uses to be matched to land with the best capability to support those land uses. Where restoration or rehabilitation to a pre-mining condition is not feasible or the best outcome, land capability assessments identify precincts where mine site assets (such as water sources, transmission lines, airstrips, accommodation villages or water storage facilities) could enable a transition to a post-mining land use (Chapter 5-2).

Stage 3: RCIA to support regional planning

Once an understanding of regional baselines has been developed, planning for the future of the region can commence. Regional planning and RCIA are synergistic. While regional planning itself is outside the scope of this project, RCIA is an important tool to inform it, and the framework elements discussed below represent key points of intersection between regional planning and RCIA.

Analysis of policy and planning context

The purpose of reviewing the existing policy and planning context within the region is to identify what is already in place, in terms of regulations, guidelines, goals, objectives or constraints that may shape the regional planning process. Existing policies and plans may also be important sources of information about cumulative impacts, values and acceptable thresholds in the region. They may also identify potential future developments that need to be taken into consideration when undertaking the cumulative impact assessment (see below).

Establish a future vision for the region

This step involves establishing (at a high level) what the future of the region might look like post-mining, and should involve a broad range of stakeholders. The aim here is not to make a definitive decision but to identify possibilities, which are then assessed, reviewed and refined, culminating in a regional plan charting a way forward for the region. The visioning process may be informed by the RCIA undertaken in Stage 2 and may be informed by consideration of post-closure land uses and alternative development trajectories.

Future visions for the region may already be articulated in existing plans, documents, or groups. If not, this will be the task of appropriate steering committees, working groups or consultative forums set up by the RCIA process in Stage 1.

Identify post-closure land-uses and completion criteria

While there may be legal requirements that impact options at mine closure such as rehabilitation to achieve defined biodiversity criteria final shape of landforms or configuration of voids, there may also be opportunities to repurpose mine sites to support new industry or alternative land use (for example recreation), in which case a broader set of completion criteria may need to be developed.

Ideally, the process of identifying appropriate future uses for mine sites would occur early in the mining life cycle and be updated as closure approaches, so that individual operators have a pathway to facilitate desired outcomes for the region. Or, if a range of possible future land-uses are identified, this can allow proponents to not inadvertently preclude them as possibilities, but ultimate development of future industries will depend of their economic feasibility.

Identify alternative development trajectories

This step involves exploring ways in which the regional economy may evolve post-mining and identifying a range of options that can be further explored through a regional planning process, reflecting the vision for the region. Options could reflect different sectors, such as conservation, tourism, technology-based and other development, or combinations of these. They may take advantage of existing infrastructure, services or supply chains. This step may also be informed by the baseline RCIA conducted in Stage 2. It is likely that there will be some iteration required as the options are assessed under different scenarios as per the following steps.

Assessment of cumulative impacts, including options evaluation

This step involves evaluating the identified development trajectories and determining which one(s) should be carried forward into the regional plan. Cumulative impact assessment is an important tool to inform the evaluation process; it essentially asks what the cumulative impacts on the identified key values might be for each option. These cumulative impacts might be either negative (for example impacts on the natural environment of certain development activities) or positive (for example, achievement of employment targets or an increase in small businesses within the region, or improvements in regional infrastructure). As mines approach closure, additional impacts may need to be considered such as an accelerating loss of services and population or an increase in the amount of land that may need to be managed in perpetuity, etc. There is considerable guidance available on conducting CIA generally, which can be adapted for this purpose (Chapter 2).

Essentially the process involves the steps for each option of:

1. Identifying the legacy impacts of mining, including potential social and economic impacts associated with the cessation of mining activity
2. Identifying other relevant activities (in addition to those related to mine closure)
3. Identifying reasonably foreseeable future developments
4. Predicting the cumulative impacts on the key values of these activities
5. Evaluating the significance and acceptability of these impacts or opportunities

This assessment may result in some identified options being ruled out or refined.

Scenario analysis

Scenario analysis can be used to explore uncertainties inherent in planning by testing the feasibility and potential cumulative impacts of the identified development trajectory options under different possible futures (Duinker & Greig, 2021). Scenarios could be related to commodity prices and their impact on the timing of mine closure, changes in regional demographics (e.g. an influx of people moving from the city to regional areas as remote working becomes more acceptable), changes in policy, or climate change. The latter will be particularly important when considering water availability and resilience of rehabilitated or re-purposed landforms to disturbance. Scenario analysis can thus inform the identification of a development trajectory that is robust under different possible future scenarios.

Generate outputs to inform regional mine closure planning

The outputs of Stage 3 should be directed towards informing and supporting regional mine closure planning. While the actual development of regional plans is outside the scope of RCIA, many of the components of this framework are also common components of planning, especially options identification and analysis, scenario analysis, governance arrangements, and stakeholder engagement. A close engagement with the relevant planners will ensure that synergies are identified and that outputs of RCIA are appropriate, useful, and avoid

duplication. Useful outputs of RCIA are not limited to the data generated but extend to structures, relationships and decision making processes established through Stages 1 to 3.

Stage 4: Implementation

Management, monitoring and evaluation

The management and monitoring of cumulative impacts starts from the selection of indicators to measure the impacts on key values identified in Stage 2 and comparing the actual impacts as experienced with those predicted in Stage 3. Adaptive management will often be required to ensure that negative cumulative impacts are kept to acceptable levels and positive cumulative impact goals are achieved.

Monitoring indicators involves both a continuous updating of data along with ground truthing data through qualitative interviews with key stakeholders to ensure that the data reflect lived experience. Collaboratively determining indicators of cumulative impacts that cater to multiple audiences and updated over time can build trusting relationships with stakeholders (Rifkin, 2021).

Community monitoring programs that build local capacity to collect, deliver, and use ecological, social, cultural and economics information can empower community stakeholders to make educated decisions about ongoing management strategies, as well as facilitating relevant data collection. This will in turn increase transparency and trust in the data used for management decisions. Appropriate capture and storage of this data into a centralised system is the precursor to making RCIA digital and dynamic.

Evaluating the overall effectiveness of RCIA framework allows for continued improvements and refinements of practices and refining the framework itself.

Stage 5: Throughout all stages

Certain activities need to be undertaken in appropriate forms throughout the four stages as described above: 1) definition and initiation, 2) understanding baselines, 3) RCIA to support regional planning and 4) implementation, for a successful implementation of RCIA.

Stakeholder engagement

Meaningful stakeholder engagement throughout the different stages of RCIA will be critical for establishing the legitimacy of the process and maintaining the social licence of associated projects, the industry and regulators. Engagement is more than consultation; it is a two-way process of education, understanding values, and shared decision making between the different levels of governments (Commonwealth, State and Local departments and agencies may be involved), affected communities, other industries and Traditional Owners. Perceptions of risk and different assessments of values and acceptable thresholds are key challenges for planning post-mining land use (Measham, Walton, & Felton, 2021). Structured collaborative processes with key stakeholders and regulators, including early engagement and agreed frameworks for decision making provide significant value in enabling more objective assessments of the relative risks and benefits of different mine closure options.

A regional approach to planning for mine closure can avoid the consultation fatigue associated with each proponent establishing its own consultation group with input limited to a specific site. Joint stakeholder forums, steering committees or working groups may be

established to support the process. An appropriate level of power sharing and decision making is needed to ensure any stakeholder group has meaningful input, trust, and transparency. Roles and responsibilities for participation must be clearly defined and linked to governance structures established in stage 1. ICMM's Good Practice Guide (2019) provides a good process for negotiating roles and responsibilities between stakeholders, including where these may not be set by government.

Traditional Owners and Indigenous engagement

While Indigenous engagement tools have been mentioned throughout the framework, it may also be important to establish protocols and a steering committee to guide or oversee the integration of Indigenous peoples' interests and knowledge at each stage of the assessment. Shared power in decision making, including design of RCIA, recognises the sovereignty of Traditional Owners, as the groups of people with the longest standing connection to Country as well as helping to ensure that significant sites, knowledges, and cultural protocols are not overlooked. Integrating Indigenous knowledge from the beginning of the process can create trust required to solve problems before they become disasters.

Data collection and management

There is an opportunity to use digital data sharing technology to more effectively collate, manage, and share data generated by the RCIA at each stage. Digital data sharing both enables and requires harmonised RCIA across jurisdictions. Curated data sharing platforms involve both the collation of secondary sources and the translation of primary sources (WABSI, 2021). As technologies and cultures of data sharing continue to improve there may be centralised state or national data sharing platforms. Until these exist, suitable platforms will need to be identified or designed to ensure rigor, trust and transparency in data interpretation.

Data sharing protocols also need to negotiate how the commercial impacts of data sharing should be managed. Some data on mine site assets or risks may be commercially sensitive and protocols need to be established for identifying where this is the case and managing the data accordingly. While consultation with the current data custodians is essential, technical guidelines should also be developed to guide the ethical collection, management and sharing of relevant data.

REFERENCES

Sinclair, L., Pope, J., Holcombe, S., Hamblin, L., Pershke, D., Standish, R.J., Kragt, M.E., Haslam-McKenzie, F., Subroy, V. and Young, R.E. (2022). Towards a framework for regional cumulative impact assessment. CRC TiME Limited, Perth, Australia.

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.

crctime.com.au hello@crctime.com.au