



**Final Report** Project 2.1

# Understanding the values of stakeholders in Australian post-mining economies

November 2022

[crctime.com.au](http://crctime.com.au)

## PROJECT PARTNERS





All rights reserved. The contents of this publication are copyright in all countries subscribing to the Berne Convention. No parts of this book may be reproduced in any form or by any means, electronic or mechanical, in existence or to be invented, including photocopying, recording or by any information storage and retrieval system, without the written permission of the authors, except where permitted by law.

Copyright © 2022, Cooperative Research Centre for Transformations in Mining Economies Ltd

ISBN 978-1-922704-25-2

**Date of publication**

November 2022

**Cover photo**

Wellington Dam façade  
Courtesy Fran Ackermann

**Corresponding author**

Dr Tira Foran  
[tira.foran@csiro.au](mailto:tira.foran@csiro.au)

**CRC TiME contact**

[info@crctime.com.au](mailto:info@crctime.com.au)

**Disclaimer**

The CRC for Transformations in Mining Economies has endeavoured to ensure that all information in this publication is correct. It makes no warranty with regard to the accuracy of the information provided and will not be liable if the information is inaccurate, incomplete or out of date nor be liable for any direct or indirect damages arising from its use. The contents of this publication should not be used as a substitute for seeking independent professional advice.

**Citation**

**Foran, T<sup>a</sup>., Barber, M<sup>a</sup>. and Ackermann, F<sup>b</sup>. (2022). Understanding the values of stakeholders in Australian post-mining economies. CRC TiME Limited, Perth.**

**Author affiliations**

a – CSIRO  
b – School of Management and Marketing,  
Curtin University

# TABLE OF CONTENTS

---

Executive Summary .....	9
1 Introduction .....	12
2 Methodology .....	14
2.1 Conceptualisation of value .....	14
2.1.1 Values and policy argument .....	15
2.1.2 System context and policy regimes .....	16
2.1.3 Place-related values.....	17
2.1.4 Values associated with substantive or procedural ‘goods’ .....	18
2.2 Analysis of CRC TiME stakeholder values .....	19
2.2.1 ‘Values’ session at 2021 CRC TiME conference .....	19
2.2.2 Regional case studies.....	20
2.2.3 Interview guide (regional case studies) .....	22
2.2.4 Data analysis .....	23
3 ‘Values’ session at 2021 CRC TiME conference .....	24
3.1 Key values with regards to transitions in mining economies .....	24
3.2 Considerations in realising key values.....	25
4 Latrobe Valley, Victoria.....	27
4.1 Background.....	27
4.2 Mining’s impact on the region .....	28
4.3 Best possible outcomes and significance of outcomes .....	30
4.4 Challenges to achieving outcomes .....	32
4.5 Dimensions of actions taken .....	34
4.6 Other main stakeholders .....	36
4.7 Understanding of other stakeholders’ best possible outcomes .....	37
4.8 Key values and their alignment .....	39
4.8.1 Alternative water sources required for rehabilitation .....	39
4.8.2 Net-positive outcome .....	40
5 South West Western Australia .....	42
5.1 Background.....	42
5.2 Mining’s impact on the region .....	43
5.3 Best possible outcomes and significance of outcomes .....	45
5.4 Challenges to achieving outcomes .....	47
5.5 Dimensions of actions taken .....	49
5.6 Other main stakeholders.....	51
5.7 Understanding of other stakeholders’ best possible outcomes .....	53

5.8	Key values and their alignment .....	54
5.8.1	Place-related values.....	54
5.8.2	Substantive or procedural values .....	56
5.8.3	Summary.....	57
6	Gove, Northern Territory .....	58
6.1	Introduction.....	58
6.1.1	Gove Peninsula landscape and history .....	58
6.1.2	Peninsula mineral development, Yolŋu resistance, and Indigenous land rights.....	59
6.1.3	Gove Peninsula mining type and mining methods.....	60
6.1.4	Town creation, homelands, and regional demography.....	60
6.2	‘A new journey together’ – wider stakeholder commitment to the transition vision of Traditional Owners .....	60
6.2.1	The Gove Peninsula Futures Reference Group.....	60
6.2.2	The Traditional Owners’ Vision for the future of the Peninsula.....	62
6.3	Mining’s impact on the region .....	63
6.3.1	Social and economic changes .....	63
6.3.2	Landscape changes .....	66
6.3.3	Key values expressed .....	68
6.4	Best possible outcomes and significance of outcomes .....	68
6.4.1	‘Recognition of Traditional Owners’ – stakeholder commitment to the Traditional Owner vision .....	68
6.4.2	‘Yolŋu and Njäpaki together’ – intercultural relationships .....	69
6.4.3	‘Infrastructure ready for the future’ .....	72
6.4.4	‘We must empower our young people, who are our future leaders’ .....	72
6.4.5	Site rehabilitation .....	73
6.4.6	Corporate reputation.....	73
6.4.7	Key values expressed .....	73
6.5	Challenges to achieving outcomes .....	73
6.5.1	Stakeholder involvement and alignment in transition .....	74
6.5.2	Isolation .....	75
6.5.3	Governance and institutional capability.....	76
6.5.4	Services, infrastructure and physical assets .....	77
6.5.5	Key values expressed .....	78
6.6	Dimensions of actions taken .....	78
6.7	Other main stakeholders .....	80
6.8	Understanding of other stakeholders’ best possible outcomes .....	81
6.8.1	Best outcomes for Traditional Owners.....	81

6.8.2 Best outcomes for Government .....	82
6.8.3 Best outcomes for Mining industry .....	83
6.9 Key values and their alignment .....	83
7 Discussion .....	86
7.1 Values informing best possible post-mining outcomes .....	86
7.2 System-related constraints on realisation of outcomes .....	87
7.2.1 Elements of system context identified by participants as challenges.....	87
7.2.2 Challenges related to overlapping policy regimes.....	88
7.3 Reflections on methodology.....	91
7.3.1 Conceptual framing .....	91
7.3.2 Interviews and small group discussion.....	92
7.3.3 Categories of value .....	92
7.3.4 Use of coded content to guide reporting .....	93
7.3.5 Summary: reflections on methodology .....	93
7.4 Future research questions.....	94
8 Conclusion.....	95
8.1 Implications of different notions of value .....	95
8.2 How stakeholders view land and place differently in transition.....	95
8.3 Role of values in transition between mining and post-mining land uses.....	96
8.4 Consideration of cultural context and stakeholder engagement methodologies .....	96
9 Acknowledgements .....	97
10 References .....	98
11 Annexure A .....	100

## Figures

Figure 1: Summary of project core conceptual framework. Adapted from Fairclough and Fairclough (2012).....	15
Figure 2: Categories of value and system context used to classify interview data. Notes: System context elements are italicised. Sub-categories detailed in Table 17 (in Annex).....	19
Figure 3: Categories of place-related, substantive, or procedural value in small group discussions (Topic 1). Note: x-axis denotes number of references coded. ....	24
Figure 4: Elements of system context in small group discussions (Topic 1). Note: x-axis denotes number of references coded. ....	25
Figure 5: Elements of system context in small group discussions (Topic 2). Note: x-axis denotes number of references coded. ....	26
Figure 6: Latrobe Valley in Victoria. Source: Mapcarta.com and Mapbox.....	27

Figure 7: Elements of system context regarded as challenges to outcome achievement. Note: x-axis denotes number of respondents coded. Legend refers to stakeholder category of CRC TiME. Number in parenthesis denotes number of respondent per stakeholder category (cf. Table 5). ....	33
Figure 8: Dimensions of actions to achieve outcome (Latrobe Valley). Note: x-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category.....	34
Figure 9: Other main stakeholders (Latrobe Valley). Note: x-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category. ....	37
Figure 10: Respondents' understanding of other stakeholders' best possible outcomes (Latrobe Valley). Note: Legend refers to interview respondent. X-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category. ....	38
Figure 11: Collie locality in South West Western Australia. Source: Mapcarta.com and Mapbox. ....	42
Figure 12: Dimensions of actions to achieve outcome (South West WA). Note: X-axis denotes number of references coded. Number in parenthesis denotes number of respondent per stakeholder category. ....	50
Figure 13: Other main stakeholders (South West WA). Note: X-axis denotes number of references coded. Number in parenthesis denotes number of respondent per stakeholder category. ....	52
Figure 14: Distribution of place-related, substantive or procedural values by respondent (South West WA). Note: X-axis denotes number of references.....	55
Figure 15: Gove Peninsula. Source: Mapcarta.com and Mapbox. ....	58
Figure 16: Summary of key themes by category of stakeholder (Gove Peninsula case). Note: Figure shows themes raised by more than one category of stakeholder. Themes consist of categories of value and elements of system context (detailed in Table 17).....	84
Figure 17: Hierarchical representation of coding frequency (Gove Peninsula case study). Note: Tree map shows proportion of references coded to values of actors, types of actions, and system context. ....	103
Figure 18: Hierarchical representation of coding frequency (Latrobe Valley case study). Note: Tree map shows number of references coded to values of actors, types of actions, and system context. ....	104

## Tables

Table 1: Questions to evaluate policy argument. Adapted from Fairclough and Fairclough (2012), Foran et al. (2019).....	16
Table 2: Elements of system context.....	17
Table 3: Types of place-related value.....	18
Table 4: Types of value associated with substantive or procedural 'goods'. Note: <sup>a</sup> Exclusive of 4a, 4b or 4c. ....	18
Table 5: Latrobe Valley case study respondents. ....	21
Table 6: South West WA case study respondents.....	21
Table 7: Gove case study respondents.....	22
Table 8: Interview questions. ....	23

Table 9: Respondents' understanding of other stakeholders' best possible outcomes (South West WA) .....	53
Table 10: Gove Peninsula Future Reference Group: selected roles in mine transition. ....	61
Table 11: Key elements of the Traditional Owner Vision. Source: GPFRG (2021, pp. 6–7). ....	62
Table 12: Guiding principles from Traditional Owners for the Peninsula transition. Source: Collated from GPFRG (2021, pp. 14–15). ....	63
Table 13: Workstreams to enable the Traditional Owner Vision. Source: GPFRG (2021). ....	79
Table 14: Nomination of stakeholders by other stakeholders.....	80
Table 15: Summary of key themes/emphases by respondent interview (Gove Peninsula case). ....	84
Table 16: Mine closure planning and post-mining development: summary of policy regimes. ....	89
Table 17: Codebook used for manual content analysis. ....	100

### List of abbreviations

DELWP	Department of Environment, Land, Water and Planning (Victoria)
DJPR	Department of Jobs, Precincts and Regions (Victoria)
DMIRS	Department of Mines, Industry Regulation and Safety (Western Australia)
DWER	Department of Water and Environmental Regulation (Western Australia)
GPFRG	Gove Peninsula Futures Reference Group
JTSI	Department of Jobs, Tourism, Science and Innovation (Western Australia)
LVA	Latrobe Valley Authority
LVRRS	Latrobe Valley Regional Rehabilitation Strategy
MLRA	Mine Land Rehabilitation Authority (Victoria)
NLC	Northern Land Council
NTG	Northern Territory Government
TO	Traditional Owner

# Executive Summary

---

The concept of ‘value’ refers in essence to relatively enduring conceptions of what matters, or of ‘the good’. Values are relevant to post-mining development because they underpin the formulation of goals, and motivate and define goal-seeking action.

The Cooperative Research Centre for Transformations in Mining Economies (CRC TiME) aims to contribute to the integration of mine closure planning and post-mining development. An accurate understanding of the values of CRC TiME’s stakeholders is directly relevant to CRC TiME’s aim to integrate the policy domains of mine closure planning and regional economic development which have distinct goals. Understanding values requires inviting Indigenous people, residents and workers in mining regions, mine licensees, representatives of government agencies at varying levels, along with experts associated with mining services and research organisations, to express matters of persistent concern or importance to them in regard to post-mining development.

At the time it was launched in mid-2020, CRC TiME had not conducted detailed analysis of the values held across its multi-stakeholder partnership. This research project is the first to describe and classify the diversity of values related to mine closure and post-mining development, held by 26 individuals affiliated with six stakeholder groups of the CRC TiME, in three Australian regions. Based on a conceptualisation of values as emerging through actions and practices, the project invited research participants in their individual capacity (not as formal stakeholders) to express their conception of best possible post-mining outcomes, and associated challenges, for the regions of South West Western Australia, Gove Peninsula (Northern Territory), and Latrobe Valley (Victoria). The project also organised a session at the CRC TiME’s 2021 annual conference which enabled approximately 20 participants to discuss their values related to transition of a mining economy in facilitated small group sessions.

To support empirical analysis of CRC TiME stakeholder values, the project developed and tested a customised methodology. Notable components include: a refined conceptual framework, which takes a policy-oriented approach to values; and the compilation of a comprehensive set of categories of value to support in-depth analysis of interview content. Categories of value included: (i) values related to place; (ii) values related to substantive or procedural ‘goods’; and (iii) values related to elements of the social and biophysical ‘system context’ in which mining transition is embedded.

The project’s semi-structured interview guide (used for regional case studies) did not explicitly ask about value, but rather elicited values in a pragmatic manner, through questions about participants’ desired post-mining outcomes; challenges or concerns related to achievement of desired outcomes; actions they were taking or considered necessary to realise desired outcomes; and their knowledge of other stakeholders’ preferred outcomes.

Each of the three regions whose stakeholder values we explored comprises an important case of active transition to post-mining development in Australia. Victoria’s Latrobe Valley is the site of three large open-cut lignite (brown coal) mines: Hazelwood (closed in 2017), Yallourn (closing 2028), and Loy Yang (scheduled to close by 2048). As of 2022, Latrobe Valley’s coal mines face substantial and – in the case of Hazelwood and Yallourn – pressing uncertainty with respect to permissible and preferred options to rehabilitate their final pit voids. The current uncertainty has policy and political dimensions. It stems from divergence in the issue framing, values, and interests of stakeholders of the Latrobe Valley. This divergence has focused on the *pros* and *cons* of the known landform rehabilitation options (e.g. water from the Latrobe River system; manufactured water; solid capping) and their local and regional effects.

The uncertainty around potential and preferred landforms inhibits community and other stakeholder engagement in envisioning future land uses. Research participants however generally agreed that water was the preferred mine pit rehabilitation option. The ability to access water for rehabilitation would enable multiple post-mining development options (with the range of options at the site level generally increasing in proportion to water quality). However, seven of eight interviewees considered the use of Latrobe River system water a politically infeasible resource.

As with the Latrobe Valley, economic development in Western Australia's South West region (centred around the town of Collie) has been shaped by more than a century of coal mining and coal-fired power generation. Four power generation units closed in 2017 (Muja A and B – Units 1–4). Scheduled closures are Muja Unit 5 (Stage C) in 2022, Muja Unit 6 (Stage C) in 2024 and Muja 7–8 (Stage D) in 2029. Collie Power Station is scheduled to close in 2027. The privately-owned Bluewaters Power Station does not have a scheduled closure date as of August 2022, but is facing closure due to contractual supply and offtake arrangements concluding over the next few years.

Rehabilitation of coal mine pit voids in the South West region likewise faces complex challenges related to water quality and access, in the context of a significantly disturbed surface and groundwater basin, with contamination from legacy mine sites. Among research participants, notable alignments of value included safety and risk associated with pit lakes and AMD (acid and metalliferous drainage), as well as innovative use of fly ash for geopolymers concrete manufacturing.

The Gove Peninsula lies within a region of very strong Indigenous cultural continuity, which previously sparked major national developments in Indigenous rights and cultural recognition. The mine site, refinery, and the mining town of Nhulunbuy will all revert to Aboriginal collective freehold land on mine closure by 2030 at the latest. A stakeholder reference group, the Gove Peninsula Futures Reference Group (GPFRG), has been established to assist with transition planning. All GPFRG members have committed to the transition being guided by a Traditional Owner Vision document. Stakeholders interviewed have a strong focus on social, cultural, economic, and infrastructure issues. The Peninsula transition is an important example of how to recognise and prioritise Indigenous Australians, yet remain inclusive of others with a stake in transition. By doing so, it can generate sustainable and resilient outcomes for the region and the wider nation.

The case studies highlight the specificity of local contexts in a manner that is also insightful and instructive regarding transitions as a whole. Across a diversity of individual values, individual and organisational interests, and regions, the best possible post-mining outcome expressed by our research participants could be summarised as the definition and realisation of significant, **net-positive regional development outcomes**. Achievement of such outcomes was regarded as requiring a **balanced and just distribution of responsibility between relevant actors**. A net-positive outcome is a summative evaluation: it refers to the quality of sustainable development outcomes in a region, which have been realised by the deliberate transformation of a region's assets, liabilities, opportunities and risks, accumulated over its history of mining. Participants described net-positive outcomes as those that achieved **mutual, reinforcing benefits** among specific values.

By 'balanced and just distribution of responsibility' we mean the distribution of public and private reward and risk required to mobilise investment in net-positive outcomes. Based on observations and aspirations contributed by our research participants, we argue that the above concepts constitute the overarching values of stakeholders in mining regions facing transition. Notwithstanding the diversity of specific values and interests, such overarching values could spur innovative thinking and policy argument about specific outcomes and responsibilities to act.

However, values and policy argument are insufficient to achieve transition: they need to be considered together with the other elements of **policy or political economic regimes**. Such regimes combine a particular value-informed policy argument; institutional arrangements which channel resources more or less effectively to addressing the policy argument; human, natural, and financial ‘capital’ necessary for implementation; and the ensuing pattern of political support and opposition in society.

Two such regimes exist: one governing mine closure planning, and the other focused on post-mining development. At present, the mine closure planning policy regime contains specific institutional arrangements which precede and constrain realisation of particular values associated with the post-mining development policy regime (Table 16). The mine closure regime regards the value of **risk mitigation** as having primary importance. However, the post-mining development regime appears to value **pragmatism** and **adaptiveness in** equal importance to risk mitigation. Distinct policy regimes with overlapping values results in fragmented governance of mining transition in regions. Research participants were acutely aware of, and often frustrated with this outcome. The overarching values expressed by our research participants (Section 7.1) could inform new or reinvigorated policy arguments, in turn contributing to refinement of institutional arrangements. We identify collaborative processes and structures in each of the three case study regions. In future, these existing forms of collaboration could serve as organisational platforms for stakeholders to work towards greater integration of mine closure planning and post-mining development.

# 1 Introduction

---

When the stakeholders of a mining region face the prospect of mine closure, how do the values they hold influence their interpretation of the region and the transition, and their aspirations and actions related to post-mining development? Knowledge of what people value, and the diversity of values related to mine closure transitions, can assist decision-makers in producing policies and practices that work towards delivering environmental and socio-economic outcomes that have broad acceptance (Lechner et al., 2017; Measham et al., 2022).

This report explores the values held by diverse stakeholders with an interest in post-mining development of mine sites and mining regions in Australia. We focus on presenting the key values held by stakeholders associated with CRC TiME (CRC for Transformation in Mining Economies) in three Australian mining regions:

- Latrobe Valley in Victoria
- South West region of Western Australia
- Gove Peninsula in Northern Territory.

The people whose values we focus on reporting are drawn from six categories of partners with whom the CRC TiME seeks to engage to realise its agenda of integrating mine closure planning, and regional development in mining regions, through knowledge generation and translation<sup>1</sup>. In semi-structured interviews conducted by the research team in 2021, 26 respondents express their understandings of mining's impact on their region, best possible post-mining outcomes (for themselves as well for other stakeholders), key challenges, and actions they are taking or consider relevant to achieving preferred outcomes. The six categories of CRC TiME partners interviewed consisted of:

- Community
- Government
- Indigenous
- Mining
- METS (mining equipment, technology, and services)
- Research.

A clear understanding of stakeholders' values is necessary for several inter-related reasons. Recognition and commitment to realising values deeply held by groups of individuals are principles central to liberal democracy. Individual and group values, if not understood, are unlikely to be adequately recognised, acted on or fulfilled.

A related reason is that economic transformations require the support and active participation of multiple actors – government at different levels, trade unions, industry and business, civil society, and research organisations. No individual organisation has the capability or authority to implement a post-mining transition on behalf of society. At the same time, the breadth of actors results in a diversity of perspectives about the most desirable transition options and development trajectories for mining regions. These

---

<sup>1</sup> CRC TiME's vision is to position successful closure as a cornerstone of the mining industry, creating enduring value and benefit for all Australians. The program aims to innovate in the domains of mine closure planning, and regional development in mining regions, informed by the notion that integrating these domains will enable more effective investment in post-mining development. CRC TiME funded the project for the purpose of identifying insights that could inform its ongoing research agenda.

perspectives are necessarily informed by an actor's values (whether explicit or implicit), as well as their understanding and experience of the social and environmental 'system' in which they are situated).

To support the above planning and public policy agenda, CRC TiME commissioned Research Project 2.1 with the following objectives:

1. Take stock of different notions of value and what this means for transforming to post-mining land uses.
2. Consider how stakeholders view land differently as it transitions from pre-mining to mining to post mining states.
3. Consider the role of values in the transition between the mining and post-mining land uses.
4. Consider (a) cultural contexts and (b) different methods of engaging/interacting with interested groups. (Source: Authors, based on Project agreement).

The project's literature review (Measham et al., 2022) addressed Objective 1, and informed the development of a conceptual framework (Section 3, this report) which supports the elicitation of individual stakeholder values related to land and to the transition of a mining economy (Objective 2). An extended case study from Gove Peninsula, a region with significant Indigenous population and traditional ownership of land, addresses Objective 4(a). The project's third objective is addressed in Section 8.2, where we discuss how the realisation of values depends on institutional arrangements and other systemic forces, which enable or inhibit their realisation.

With respect to Objective 4(b) – considering different methods of engaging with interested groups – the project contributed in two ways. First, during the 2021 CRC TiME Annual Conference, we organised a session which invited participants to discuss values they held with respect to transition in mining economies. We used small group discussion methods to elicit values, in contrast with the extended individual interviews used for the 3 regional case studies. Second, we compare our methodology with alternative approaches to interact with diverse stakeholders and their values (Section 8.3).

The report is organised as follows: Section 3 describes our methodology, including the project's operational framework for values analysis. Section 4 presents findings from the 2021 CRC TiME conference session. Sections 5, 6, and 7 present values held by stakeholders in Latrobe Valley, South West Western Australia, and Gove Peninsula respectively. Section 8 summarises overarching values informing stakeholder's expressions of best possible outcomes; policy and institutional constraints on the realisation of those values; and the importance of collaborative processes and structures to address such constraints. Section 8 also reflects on strengths and limitations of the project's methodology, and proposes a set of future research questions. Section 9 concludes by summarising the project's contribution to addressing its research objectives.

## 2 Methodology

---

### 2.1 Conceptualisation of value

We begin by defining the concept of ‘value’, and situating it in relation to several other relevant and meaningful concepts. The resulting conceptual framework offers an action-oriented approach to analysing values. The concept of value essentially refers to ‘what matters’ – that is, matters of persistent concern (cf. Fairclough & Fairclough, 2012), or ‘relatively enduring conceptions of ‘the good’ (Brown & Reed, 2000). Such conception can be abstract (e.g. restorative justice for Traditional Owners) as well as relate to specific attributes of a place (e.g. the biodiversity or recreational values of a landscape). Values are capable of motivating action towards their attainment or fulfillment (Schwartz, 1994).

Values can be conceptualised with additional nuance by drawing on particular scholarly disciplines (Measham et al., 2022). From an anthropological perspective, values can be defined as: ‘A coherent pattern of core principles and ideals *within a community* reflecting people’s way of seeing, experiencing and responding to their physical, social, spiritual and human environment’ (Dumont, 2013; Measham et al., 2022).

By contrast to community-oriented conceptualisations of value, contemporary Western conceptualisations of value emphasise the individual, not their community, as the unit of analysis. Individuals are socialised to dominant group values. Although the number of *specific* values people around the world hold is immeasurably large, a finite set of *value types* is argued to recur across different cultures, Western and non-Western (Schwartz, 1994). However, individuals are regarded as capable of self-determination. This includes capability to assign personal weights or priorities to societal values, to take action directed towards realising individual values, and to hold responsibility for personal value choices. The above model of the individual is central to liberal democracy.

In operational terms – that is, to guide data collection and analysis – the project chose to work with liberal democratic conceptualisations of value. This conceptualisation suited the project’s objective of eliciting values held by individuals who differed with respect to their CRC TiME stakeholder affiliation, geographic location, and other socio-cultural dimensions.

Schwartz (1994) introduces and defines values in way consistent with the project’s objective:

*There is widespread agreement in the literature regarding five features of the conceptual definition of values: A value is a (1) belief (2) pertaining to desirable end states or modes of conduct, that (3) transcends specific situations, (4) guides selection or evaluation of behaviour, people, and events, and (5) is ordered by importance relative to other values to form a system of value priorities... (1994, p. 20).*

The formal features above distinguish values from related concepts such as ‘needs’ and subjective ‘attitudes’: ‘They make it possible to conclude that security and independence are values, whereas thirst and a preference for blue ties are not’ (Schwartz, 1994, p. 20). Based on the above definition, Schwartz defines values as ‘desirable trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity’ (*ibid*, p. 21). This definition implies that values:

- are acquired both through socialisation to dominant group values and through the unique learning experiences of individuals.
- serve the interests of some social entity.
- motivate action – giving it direction and emotional intensity.

- function as standards for judging and justifying action (Schwartz, 1994).

### 2.1.1 Values and policy argument

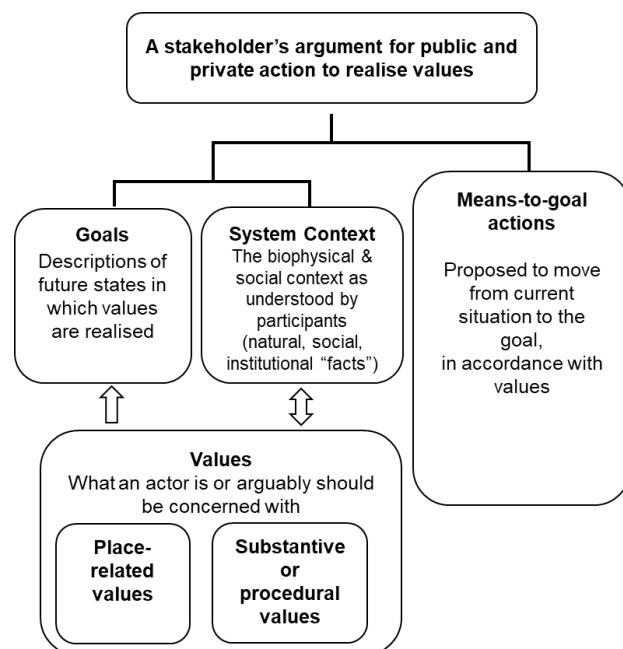
As noted in the Introduction, values, if not understood, are unlikely to be adequately recognised, acted on or fulfilled. This is problematic for two reasons. First, neither individuals nor groups are necessarily conscious of their values as motivational forces, or of their objectives (Keeney, 2013; Measham et al., 2022).

Second, certain values appear to be substantive goods ('ultimate ends'). Measham et al. (2022) referred to these as 'core' or 'absolute' values. We regard core or absolute values as having an (absolute) integrity. Integrity here means that in practice, to achieve any such value means to achieve it categorically.

This leads us to the relation between values and public policy. The project's literature review did not provide concrete guidance for how to realise or safeguard 'core' or 'absolute' values in a liberal democratic society, where multiple public objectives exist. We propose that in practical terms, core values can be regarded as public policy goals which need to be attained to some minimum threshold. This specification requires public or private actors from defining and justifying goals and criteria for achievement, in a manner that respects the notion of their integrity. It underscores the importance of argumentation and deliberation.

Given uneven distributions of population, resources, and power or influence in any society, groups that are demographic or political minorities find themselves in recurrent need of voicing and representing their values (core and secondary). That is, they must argue that what matters to them *arguably* should matter – to some degree, or in some way – to society more broadly<sup>2</sup>.

Given the above concerns and considerations, it is not surprising to find values conceptualised as a foundation of public policy argument (Figure 1). Figure 1 depicts the components of policy argument as comprising values, which inform the articulation of *goals* and the choice of *means-to-goal actions*. Figure 1 also introduces the concepts of *system context*, and the two categories of value used to classify and analyse the values expressed by research participant: *place-related values* (e.g. economic opportunity in a region), and *substantive or procedural values* (e.g. a just distribution of responsibility and liability). Each of these concepts is elaborated further.



**Figure 1: Summary of project core conceptual framework. Adapted from Fairclough and Fairclough (2012).**

<sup>2</sup> Examples over the past half century include Indigenous rights, gender equity and diversity, and climate change.

The components of argument in Figure 1 allow the soundness of a policy argument – ie its rational persuasiveness (Fairclough & Fairclough, 2012) – to be assessed, using questions based on evaluation criteria related to those components (Table 1):

**Table 1: Questions to evaluate policy argument. Adapted from Fairclough and Fairclough (2012), Foran et al. (2019).**

EVALUATION CRITERION	QUESTION
1. Consideration of system context	Are elements of the social and biophysical system context described in a rationally acceptable way?
2. Possibility	Is it logically and technically possible to take a proposed means-to-goal action?
3. Acceptability of value	Are the values that underlie a proposed means-to-goal action rationally acceptable?
4. Other means (options)	Do alternative actions exist that would also achieve a particular goal?
5. Other public values or goals	Do other values or goals exist that might conflict with the proposed action and whose achievement should have priority?
6. Negative consequences of proposed action	What undesired consequences of the proposed action should be taken into account?
7. Best option	On balance, is the proposed action the most acceptable among the alternatives?

The scope of our project did not encompass the type of analysis summarised in Table 1. However, the scope of our regional case study interview guide (Section 3.2.3) covers all components of argument in Figure 1 and evaluation questions 1 to 5 in Table 1. In so doing, the project supports future research around policy argumentation and the reform of policy regimes governing mine closure and post-mining development (Section 8).

### 2.1.2 System context and policy regimes

The system context consists of a set of social and biophysical structural elements, which interact over time to produce a series of outcomes in regions. Elements of the system context include:

- regional environmental and natural resource conditions
- socio-economic conditions
- actors' significant interests and differential resources
- prevailing values, beliefs, and knowledge
- public and private sector institutional arrangements
- histories of cooperation and conflict. (Adapted from Foran and Yuen (2021), and Emerson and Nabatchi (2015)).

The system context shapes individual values and the collective realisation of values. First, an individual's values inform – and are informed by – their interpretation of the system context. That is, how individuals experience their social and environmental circumstances is constitutive of their values. Likewise, how people understand and describe key aspects of their system context to an interviewer reflects their values.

People's understanding of history is an important element of the system context. Considering people's understandings of history ensures that the system context is not rendered as an ahistorical depiction of present interactions, in the context of a colonial country like Australia, which would be inadequate.

### 2.1.2.1 Significance for policy regime formation

The system context is important for a second reason, which relates to the collective realisation of values through the formation of ‘policy regimes’ or ‘political economic’ regimes. The realisation of values informing a policy argument is contingent on the availability or responsiveness of the following elements of the system context:

- institutional arrangements which direct flows of financial and other resources more or less effectively to addressing the policy argument (e.g. statutory requirements)
- natural capital and physical capital in a region, needed to implement the policy argument
- socio-economic conditions (e.g. labour force in a region, specialised ‘human capital’, industry contributions to public revenue)
- the net pattern of political support and opposition among beneficiaries and other affected segments of society, as the policy argument and its associated values are delivered over time.

We use the concept of ‘**political economic regime**’ or ‘**policy regime**’ to refer to a particular policy argument, combined with the above elements of the system context (Foran et al., 2017; May, 2015; May & Jochim, 2013)<sup>3</sup>.

The collective realisation of values hinges on how effectively policy regimes can harness and manage the above key elements of the system context. Although analysis of the policy or political economic regimes related to mine closure and post-mining development is beyond scope of this report, the reader will find frequent references to institutional arrangements by our research participants.

### 2.1.2.2 Analysis of system context

Table 2 summarises the elements we used to classify respondents’ descriptions of their system context. Sub-categories associated with each element are shown in Table 17 (in Annex).

**Table 2: Elements of system context.**

ELEMENT OF SYSTEM CONTEXT	NOTES
1. Actors’ attributes and relations	Seven categories (e.g. ‘Agreement, commitment, or confidence’, ‘Tolerance of difference or inclusiveness’)
2. Environment or natural resource conditions	Four categories (e.g. ‘Climate change’, ‘Water resources or aquatic ecosystems’)
3. Industrial sectors	Ten sectors
4. Institutional arrangements and attributes	Eight categories (e.g. ‘Adaptability or adaptive governance’, ‘Mine closure – regulation or planning’)
5. Knowledge of the system	Refers to degree of understanding of the system or its elements
6. Physical infrastructure	
7. Socio-economic conditions	Seven categories (e.g. ‘Economic security including income or wage levels’, ‘Indigenous conditions’)

### 2.1.3 Place-related values

This category of values captures attributes of the mine land and the broader landscape or environment in which it is situated. For this category, we adapted a typology of 13 landscape or environment values (Brown

<sup>3</sup> A ‘policy regime’ consists of a core policy idea, institutional arrangements, and the pattern of support and opposition which unfolds as implementation unfolds. The concept of ‘political economic regime’ associated with the provision of goods or services in society, includes additional elements of socio-technical systems and infrastructure associated with those goods or services (eg distribution networks for electricity) (Foran et al., 2017).

& Reed, 2000). Originally developed to support analysis of multiple values held by the public (and their preferences for a range of land use activities) associated with a U.S. national forest, the Brown and Reed (2000) ‘forest values’ typology has been adapted for other environmental applications (Brown & Weber, 2012). Our adaptation resulted in eight main categories of value, with two specific categories of economic value (Table 3).

**Table 3: Types of place-related value.**

TYPE OF VALUE	NOTES
1. Aesthetic or therapeutic	Aesthetic values refer to enjoyment of scenery, sights, sounds, smells. Therapeutic values refer to feelings of physical or mental health or wellbeing.
2. Biodiversity or ecosystem services	Biodiversity refers to variety of plant and animal life, ecosystem services refers to a variety of services provided by functioning ecosystems.
3. Cultural or spiritual	Includes Indigenous values.
4. Economic value of place (generalised)	Economic value, not assigned to 4a, 4b, or 4c.
4a. Entrepreneurship or economic innovation	Includes commercial viability.
4b. Housing or urban development	
4c. Circular economy	
5. Intrinsic	Refers to inherent existence value of place, landscape, or environment, irrespective of other human beliefs or attitudes.
6. Legacy, historical, or regional identity	Include path dependency. Legacy and regional identity are mental conceptions relate to who we are or have been; what this place is or has been.
7. Recreational value of place	Place for desired recreational activities.
8. Safety and risk	Includes geotechnical stability and pollution.

#### 2.1.4 Values associated with substantive or procedural ‘goods’

This category of values consists of substantive ‘goods’ (desired outcomes) and desired qualities of processes or actions, as shown in Table 4.

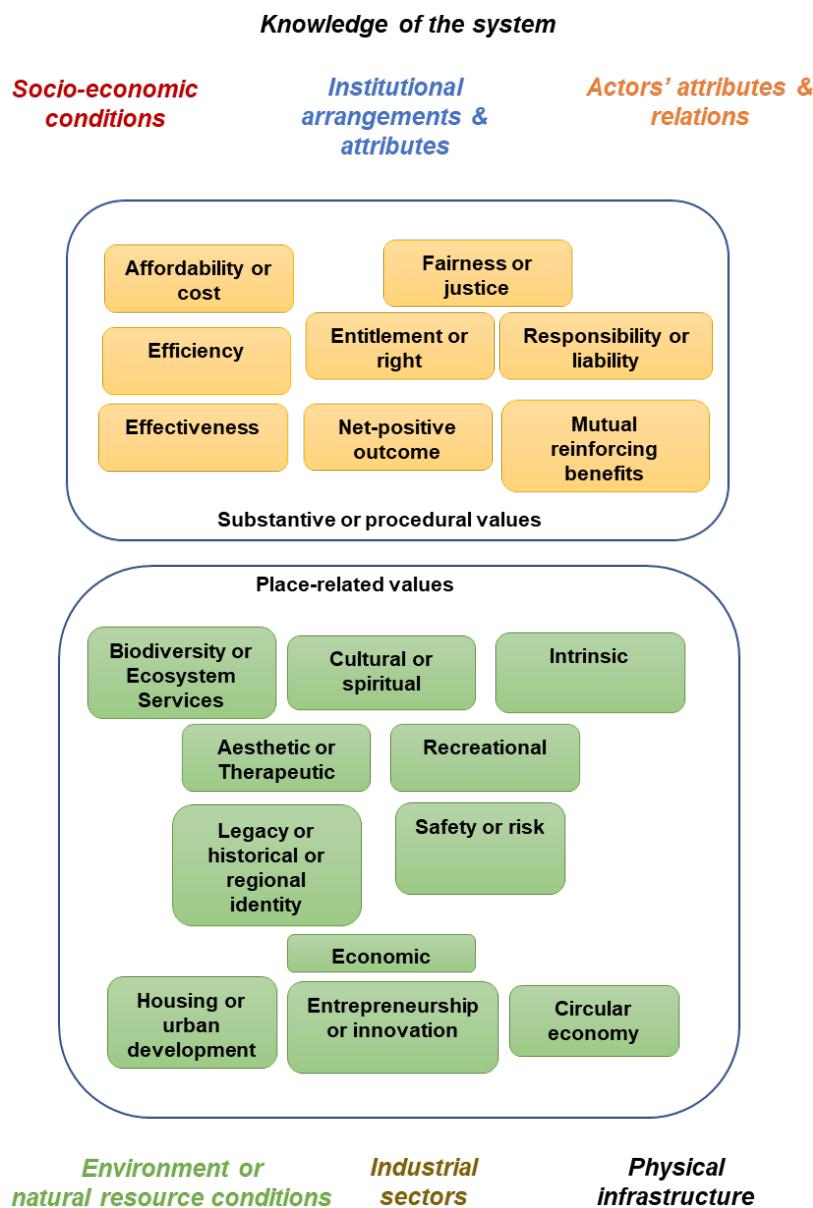
**Table 4: Types of value associated with substantive or procedural ‘goods’. Note: <sup>a</sup> Exclusive of 4a, 4b or 4c.**

TYPE OF VALUE	TYPE OF GOOD (PROCEDURAL OR SUBSTANTIVE)
1. Affordability or cost	Either
2. Effectiveness	Procedural
3. Efficiency	Procedural
4. Fairness or justice (generalised) <sup>a</sup>	Either
4a. Distribution of responsibility or liability	Either
4b. Entitlement or right	Substantive
4c. Net-positive outcome – balanced distribution of goods or services – acknowledging historic legacy	Substantive
5. Mutual reinforcing benefits – including transformative outcomes	Either

At the beginning of our data analysis, we defined the concept of ‘net-positive outcome’ as (i) a summative evaluation of development outcomes in a region; (ii) in which multiple types of value are realised; (iii) in a just manner. We distinguished the related concept of ‘mutual reinforcing benefits’ by its specific reference to types of desired outcomes which interact synergistically, to reinforce gains (cf. Gibson, 2006). In

Section 8.1, both concepts are elaborated based on insights gained from the workshop discussion and case study interviews.

Figure 2 summarises the categories of value and of system context used to classify data collected from research participants.



**Figure 2: Categories of value and system context used to classify interview data. Notes: System context elements are italicised. Sub-categories detailed in Table 17 (in Annex).**

## 2.2 Analysis of CRC TiME stakeholder values

This section describes methods and techniques used to gather and analyse data from the project's two research activities: regional case studies (the main research activity), and a discussion session at the 2021 CRC TiME annual conference (a supporting research activity).

### 2.2.1 'Values' session at 2021 CRC TiME conference

The project organised a discussion session at the CRC TiME's first annual conference for the purpose of publicising the project and gathering data related the values of representatives of organisations participating

in the conference. The by-invitation conference was organised for formal partners of CRC TiME as well as organisational and individuals of interest to CRC TiME in its foundational stage.

Approximately 20 participants joined the online ‘values’ session on 30 November, and were randomly assigned to one of four small groups. The identity and organisational affiliation of participants was not known to the research team in advance of the conference session.

After introductory remarks, each group explored two discussion topics:

1. What are your key (or critical) values with regards to transitions in mining economies? (15 minutes).
2. Reflecting on the range of values discussed during the first breakout session, what might be some considerations in realising them? (10 minutes).

Participants convened in plenary to hear short reports by each group facilitator, with a final open discussion of 10 minutes. Feedback reports to the plenary session and the final discussion were recorded, transcribed, and analysed using techniques described in Sections 3.1.3 to 3.2.4<sup>4</sup>.

## 2.2.2 Regional case studies

Consistent with the project’s aim of developing and testing methods to elicit stakeholder values related to mine closure and post-mining development, the project chose to interview stakeholders of three Australian regions: Latrobe Valley in Victoria; South West region of Western Australia (‘Collie’ region); and Gove Peninsula in Northern Territory.

These regions were chosen on the basis of several criteria: (a) prior identification by CRC TiME as a location for its research activities (‘regional hub’) (3/3 regions); (b) extensive prior fieldwork experience or recent research experience on behalf of CRC TiME conducted by the study team (two of three regions); (c) proximity to researchers’ organisations (two of three regions); and (d) feasibility of access to participants during the COVID-19 pandemic.

Semi-structured interviews were selected as the means for collecting data for the case studies as they allowed for the elicitation of rich idiosyncratic data. Participants were chosen using a criteria-based purposive sampling strategy: prospective participants were identified in mid-2021 on the basis of recommendations from CRC TiME management, as well as recommendations from individuals in each region whom CRC TiME management regarded as focal points for supporting its regional hubs. The study team sought nominations of at least two individuals from each of six categories of stakeholder organisations of CRC TiME:

- Community (organisation or individual)
- Government
- Indigenous
- Mining
- METS (mining equipment, technology, and services)
- Research.

Individuals were invited to participate in confidential interviews, and to respond to the research questions as individuals, not as representatives of organisations. A total of 24 research interviews was conducted, with 26 individuals. (At the request of research participants in the Gove Peninsula case, three interviews were conducted as group interviews; each group interview consisted of two people from the same organisation.)

---

<sup>4</sup> Technical constraints prevented recording of breakout group discussions.

Interviews were conducted through a combination of face-to-face and online video call methods, with face to face prioritised where possible. Due to COVID-19 restrictions, interviews for the Latrobe Valley case study was conducted online. A combination of face-to-face and online interviews were conducted for the other two cases.

Each regional case thus involved between 8–10 interview respondents, interviewed by a single assigned member of the research team. Interview length ranged from 35–90 minutes depending on the number of respondents and the length of responses. Interviews were audio or video recorded and transcribed. In each case, draft transcripts were returned to the Respondent for confirmation. Research protocols received approval from the CSIRO Human Research Ethics Committee and from Curtin University.

#### 2.2.2.1 Participation in Latrobe Valley case study

Eight individuals were interviewed from the six CRC TiME stakeholder categories (Table 5). Respondents possessed moderate to extensive experience in biophysical and socio-cultural aspects of mining transition in Latrobe Valley. Some respondents also brought a comparative perspective based on prior work elsewhere in Australia or overseas. All interviews were by online video, in compliance with Covid-related health measures.

**Table 5: Latrobe Valley case study respondents.**

CRC TIME STAKEHOLDER CATEGORY	NUMBER OF RESPONDENTS	RESPONDENT REFERENCE
Community	1	Respondent 1
Government	1	Respondent 4
Indigenous	1	Respondent 7
Mining industry	1	Respondent 5 (Coal)
METS (Mining equipment, technology and services)	2	Respondent 2 Respondent 8
Research	2	Respondent 3 Respondent 6
<b>TOTAL</b>	<b>8</b>	

#### 2.2.2.2 Participation in South West Western Australia ('Collie') case study

Eight individuals were interviewed (one twice) from the six CRC TiME stakeholder categories (Table 6). The experience of the interviewees ranged from extensive experience in either mining and/or mining transition (three), to moderate experience (four), to relatively little (just one).

**Table 6: South West WA case study respondents.**

CRC TIME STAKEHOLDER CATEGORY	NUMBER OF RESPONDENTS	RESPONDENT REFERENCE	INTERVIEW TYPE TO BE ADDED
Community	1	Respondent 3	Face-to-face
Government	2	Respondent 2 (Regulator) Respondent 4 (Local government)	Face-to-face Face-to-face
Indigenous	1	Respondent 7	Face-to-face
Mining industry	2	Respondent 5 (Mineral sands) Respondent 6 (Coal)	Face-to-face Face-to-face
METS (Mining equipment, technology and services)	1	Respondent 8	Online video
Research	1	Respondent 1	Face-to-face
<b>TOTAL</b>	<b>8</b>		

### 2.2.2.3 Participation in Gove Peninsula case study

Consistent with the other case studies, the six categories of stakeholder used by CRC TiME were used to identify and target respondents and so a minimum of six respondents were sought. The significance of Indigenous organisational perspectives for the Peninsula meant that two separate organisations were sought. In some cases two respondents from the same organisation (stakeholder category of CRC TiME) elected to participate in a joint interview, making a total of ten respondents across seven interviews. This included respondents from member organisations of the multi-stakeholder Gove Peninsula Futures Reference Group (GPFRG), and respondents independent of GPFRG. Where multiple possibilities for respondents from an organisation existed, respondents who were locally resident and/or had a long history of experience of the Peninsula were prioritised.

Table 7 shows the total number of respondents for each CRC TiME stakeholder category and the type of interview conducted. Respondents being interviewed together frequently elected not to repeat points made by their co-respondent, and so in reporting the results, the number of interviews will be used as the total sample number, rather than the number of respondents.

**Table 7: Gove case study respondents.**

CRC TIME STAKEHOLDER CATEGORY	NUMBER OF RESPONDENTS	INTERVIEW TYPE
Community	1	Face-to-face
Government	2	Online video
Indigenous (community)	2	Online video
Indigenous (NT institutional)	1	Face-to-face
Mining industry	1	Online video
METS (Mining equipment, technology and services)	1	Face-to-face
Research	2	Online video
<b>TOTAL</b>	<b>10</b>	

### 2.2.3 Interview guide (regional case studies)

The concepts introduced above – values, system context, goals, and means-to-goal actions – allow us to define an interview guide to elicit a stakeholder's values related to mine closure and post-mining development in a region.

The questions in the interview guide below do not begin by asking participants to directly articulate their values. Rather, the guide seeks to elicit values as expressed by goals (desirable future outcomes post-transition), the barriers to achieving those outcomes (system context), and the actions taken by the participant or regarded as necessary to realise those outcomes (actions).

Further contextual questions enabled investigation of participants' understanding of what others wanted – their values and interests. These were supported by questions about personal experience and historical context in mining transition to enable better interpretation of the system context and individual results. Table 8 shows the interview questions formulated by the project and their relation to the conceptual framework.

**Table 8: Interview questions.**

TOPIC	INTERVIEW QUESTION
1. (System Context) Respondent's prior relevant professional or lived experience	Q1. Can you please tell me about your past experience with issues related to the transition of a mine or mining region.
2. (System Context) Impacts of mining development in region	Q2. Considering this community and/or region, based on your understanding, what kind of changes has mining development had on the community and the landscape?
3. (Goals) Goals related to post-mining development in region	Q3. What would you see as the best possible post-mining outcomes for this place once a mine has closed?
4. (Goals) Importance of goals	Q4. How are these outcomes important for you [or your organisation]? Are any of these outcomes stated goals for you [or your organisation]?
5. (System context, Other values or goals) Challenges to achievement of goals	Q5. What makes it challenging to achieve these outcomes?
6. (Actions) Means-to-goal actions	Q6. Can you describe some actions that you [or your organisation] are taking to address these key challenges?
7. (Other values or goals) Other important stakeholders	Q7. In this region, who are some other main stakeholders in the transition to post-mining development in this region, and why are they important?
8. (Other values or goals) Goals of other stakeholders	Q8. Considering two of the other stakeholders you've mentioned, what is your understanding of the best possible outcomes for post-mining development, as they would see it?
9. Re-cap significant values	Q9. Based on the outcomes you have identified as important, some values that may be significant to you include _____. [Interviewer: recap significant issues, opportunities, goals mentioned by Respondent]. Do these seem right to you? Have we missed anything?
10. (Alignment of values) Relations between significant values	Q10. How would you relate these values to each other?

Based on responses to the above questions, values were identified and classified using one or more of the following categories of value:

- values associated with place, landscape, or environment
- values associated with substantive or procedural 'goods'
- values associated with respondents' descriptions of system context.

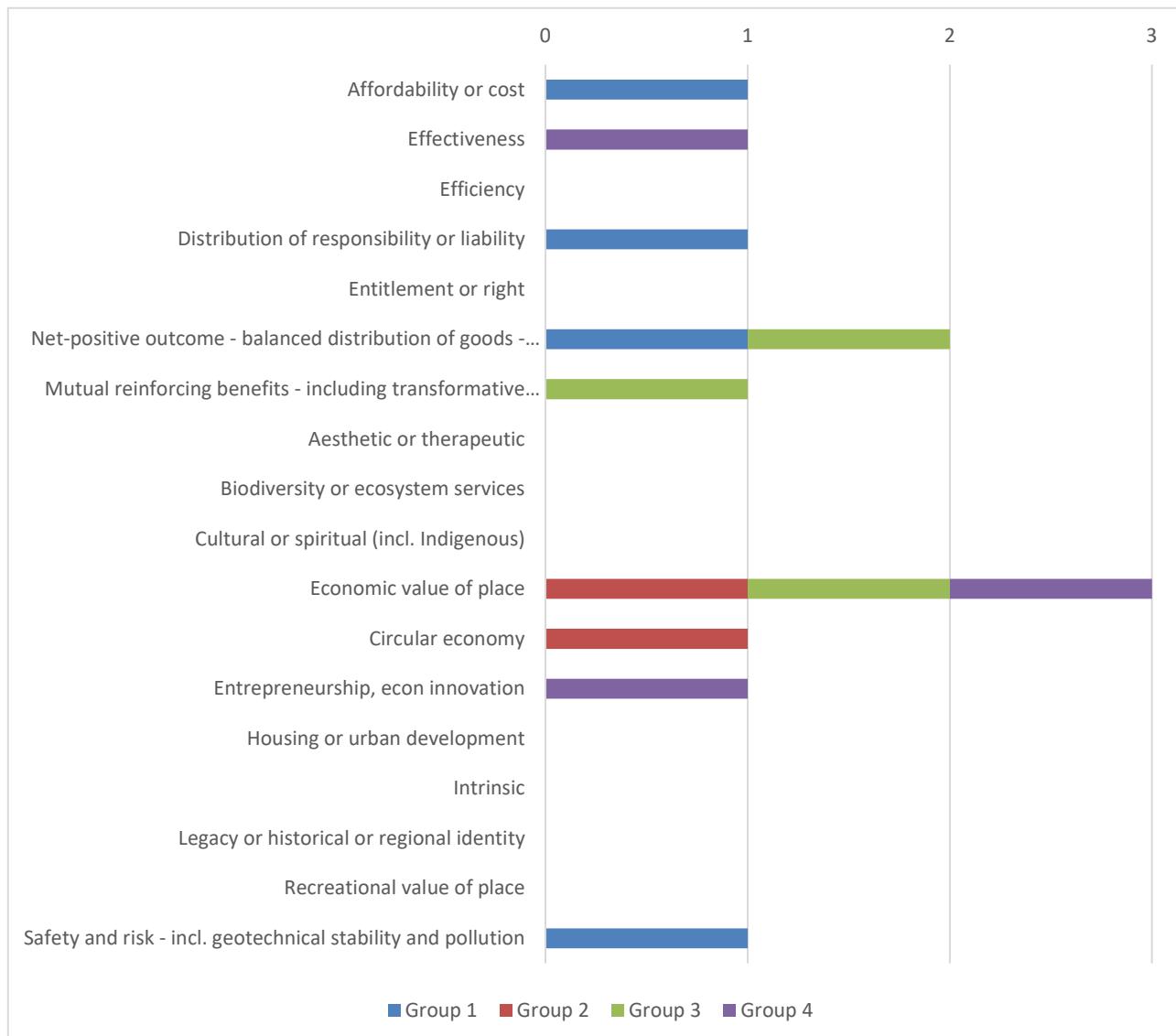
#### 2.2.4 Data analysis

The research team conducted a manual content analysis of interview and conference transcripts, supported by NVivo software. Manual content analysis involved the researcher interpreting transcribed responses to research questions, and assigning text to one or more categories of content (eg the system context and the two categories of value introduced in Section 3.1). Table 17 (in Annex) shows the full set of 'codes' (categories of content) developed by the project. The research team agreed on the definition and scope of codes. Each interview transcript was primarily coded by the researcher who previously conducted the interviews for a given regional case study. The first author coded the conference session data and portions of the South West WA and Gove Peninsula case studies. Codes were used to inform our reporting and discussion of findings.

### 3 ‘Values’ session at 2021 CRC TiME conference

#### 3.1 Key values with regards to transitions in mining economies

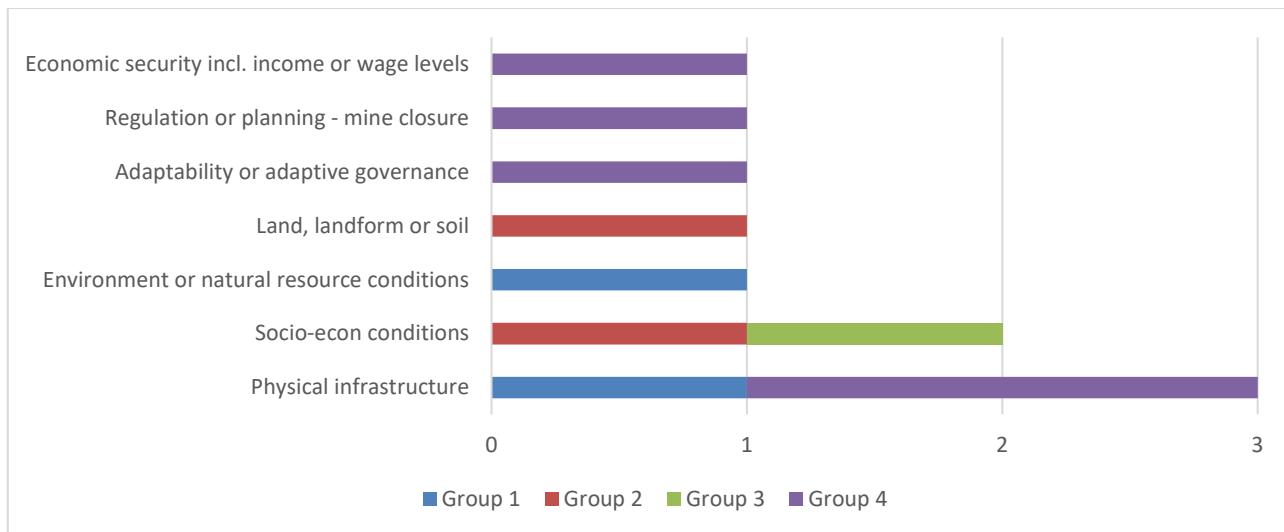
The first discussion topic at the 2021 conference session was ‘What are your key (or critical) values with regards to transitions in mining economies?’. Figure 3 shows the frequency of references to **place-related, substantive, or procedural values**, while Figure 4 shows references to elements of the **system context**, in summaries of small group discussion related to this topic.



**Figure 3: Categories of place-related, substantive, or procedural value in small group discussions (Topic 1).**  
**Note: x-axis denotes number of references coded.**

The most prevalent place-related category of value was *economic*, including specific references to the value of circular economy, and entrepreneurship or innovation. The most prevalent substantive value **was a net-positive outcome**, which is implicit in the following summary:

*Social and ecological wellbeing is the critical value in general and the key thing there is to have that purpose in mind from the outset of mining, and from the outset of transition... and to not compromise that when it comes to economic values. (Group 3 Facilitator)*



**Figure 4: Elements of system context in small group discussions (Topic 1). Note: x-axis denotes number of references coded.**

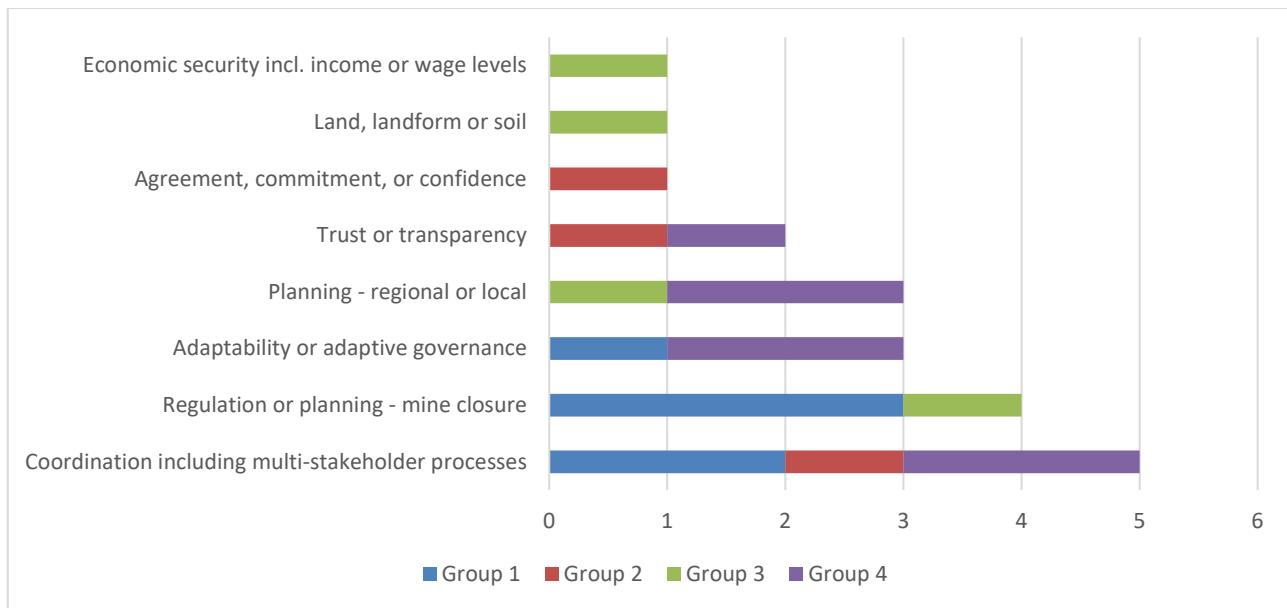
Participants also valued the substantive value of a **fair distribution of responsibility or liability**, and the procedural values of **affordability** and **effectiveness**.

Figure 4 shows participant interest in maintaining and leverage physical infrastructural assets (eg roads, airstrips) as well as valuing adaptability in mine closure planning and governance.

### 3.2 Considerations in realising key values

The importance of adaptive approaches to mine closure governance recurred during the second discussion topic ('considerations in realising key values') (Figure 5). The challenges of mine closure planning and governance were regarded as a tension between effectiveness, which required certain determinations, and future adaptability:

*there's a number of paradoxes... as we need to be able to provide some certainty for mining to be able to plan for that transition, at the same stage as recognise some fluidity to take into account... future land uses and policy that enables that flexibility and fluidity.... time changes the goal posts, what we might agree on today would not be the case in two or five or ten years down the track... some of the tensions were around, not just who to involve and to do it so effectively, but how do you manage that timeline in terms of being able to make an effective transition? (Group 4 Rapporteur)*



**Figure 5: Elements of system context in small group discussions (Topic 2). Note: x-axis denotes number of references coded.**

Participants considered that **greater multi-stakeholder coordination** – across government, as well as between government, communities, and licensees – as a policy instrument to help integrate mine closure and regional planning:

*[We had] further conversation about... [the need for] whole-of-government approaches, that the closure conversation is very much with one, or perhaps at most two departments – and it needs treasury it needs planning, it needs a whole range of engagements within a particular jurisdiction... also in regions like the Bowen or the Pilbara, we're in a position where there are multiple companies operating and so closure can't be a single company conversation with the regulator, or indeed the company conversation with the community. It has to involve multiple companies, involve a regional perspective. (Group 1 Rapporteur)*

One objective of multi-stakeholder dialogue would be to support consideration around post-mining development options. Participants recognised opportunities for CRC TiME to contribute through developing methods for informed and inclusive dialogue at a regional level:

*We spent quite a lot of time [considering] how do we have effective conversations... we need to perhaps have it managed at regional level, but bring in expertise to facilitate this dialogue... I think this is where the CRC could perhaps help, coming up with guidelines to effectively manage these [regional dialogue] conversations... one thing we were very clear about is ensuring transparency and that touches nicely upon something that [Group 2] talked about – trust – engaging early... to ensure that trust is sustained, that people understand, people have the chance to be heard, to have that full list [of post-mining development options], and then start winnowing it down, begin to do some different forms of analysis. (Group 4 Rapporteur)*

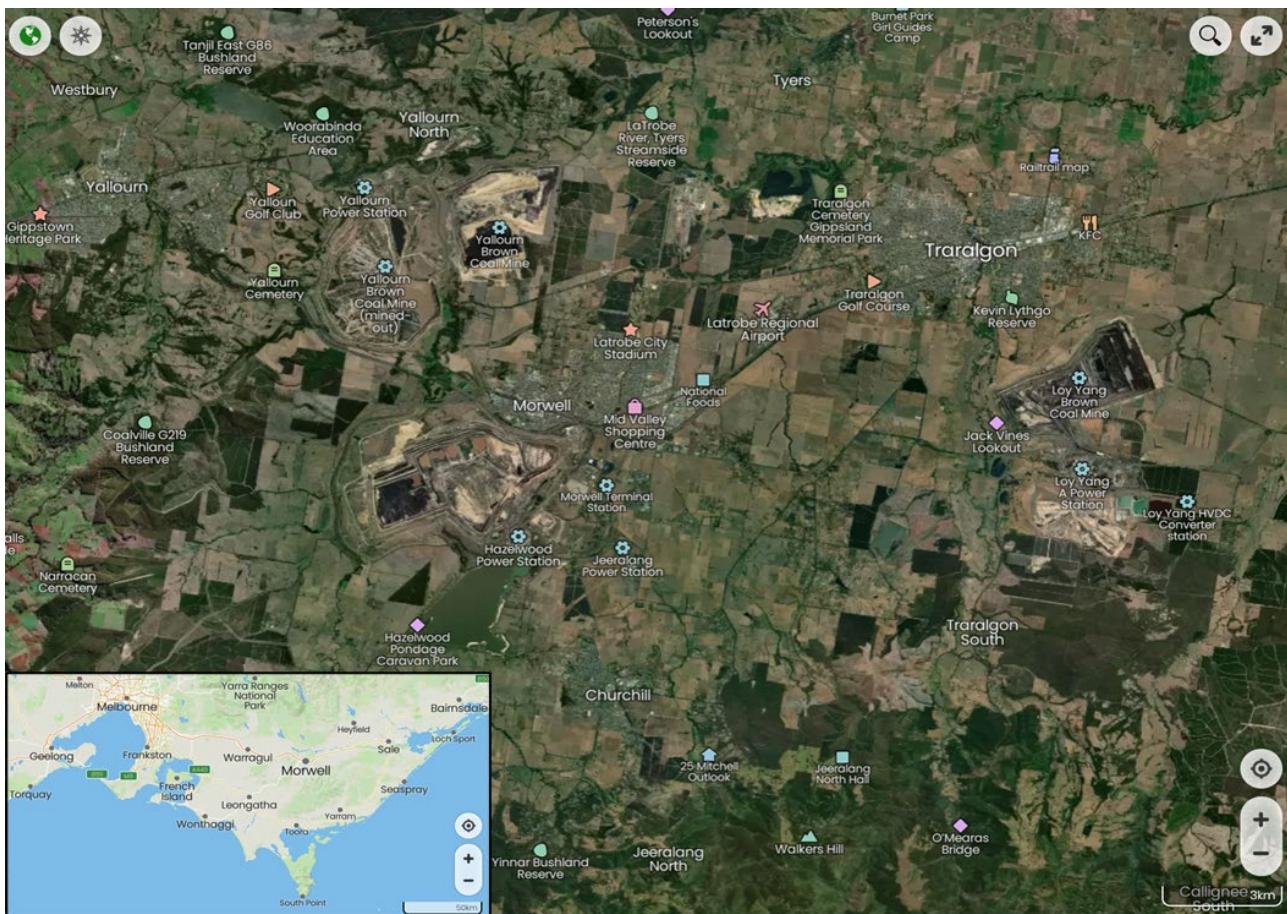
Participants considered foresight or scenario thinking to be relevant techniques of knowledge generation for such development options (Group 1).

## 4 Latrobe Valley, Victoria

### 4.1 Background

The traditional custodians of the areas now referred to as the Latrobe Valley in Victoria's Gippsland region are the Gunai and Kurnai ('Gunaikurnai') people, who named many landforms in the Valley, and have native title claims recognised across Gippsland (Context, 2019; GLaWAC, 2015).

Latrobe Valley (population 74,000) is the site of three large open cut lignite (brown coal) mines: Hazelwood (closed in 2017), Yallourn (closing 2028), and Loy Yang (scheduled to close by 2048) (Figure 6). Large scale coal mining dates to the early 20th century. It accelerated with the formation of Victoria's State Electricity Commission (SEC) in 1918, a state-owned vertically integrated utility, subsequently privatised in the mid-1990s. During the 20th century, coal mining and power generation (combined 4,716 MW capacity) transformed settlements in the Latrobe Valley from small agricultural townships into three larger towns: Moe, Morwell, and Traralgon (combined population 48,300). Employment at the three coal mines and power stations is estimated at 1,250, considerably lower than an estimate of >9,000 people in the 1970s (Context, 2019).



**Figure 6: Latrobe Valley in Victoria. Source: Mapcarta.com and Mapbox.**

Latrobe Valley's three coal mines face substantial and – in the case of Hazelwood and Yallourn – pressing uncertainty with respect to permissible and preferred options to rehabilitate their final pit voids. The current uncertainty has policy and political dimensions. It stems from diversity and divergence among the issue framing, values, and interests of government, private sector, and civil society stakeholders in the Latrobe

Valley and beyond around the *pros* and *cons* of the known landform rehabilitation options (e.g. water from the Latrobe River system; manufactured water; solid capping) and their local and regional effects.

Diversity in values and interests results in varying perceptions among stakeholders – including people interviewed by this research project – regarding the appropriate distribution of public and private responsibility for delivering post-mining land use (PMLU) outcomes. The above diversity can also be detected as different interpretations of responsibility to address the social, economic, and environmental legacies of coal mining in the Latrobe Valley. The uncertainty around potential and preferred landforms inhibits community and other stakeholder engagement in envisioning future land uses.

In principle, differences in interests and values could be explored and addressed through deliberative inquiry, exploring alternative post-mining development options, informed by knowledge of the costs, benefits and opportunities associated with each option. Such an inquiry contrasts with the risk mitigation perspective taken by mine closure regulation.

However, for concerned parties to participate, they must recognise the need for such deliberation, and suitable processes are required. In the past, Latrobe Valley stakeholders have engaged in important programmes of collaborative planning and action, particularly following the 2014 Hazelwood Mine Fire, and a 2016 decision by Engie to close Hazelwood mine five years ahead of schedule. At present, however, no planning process exists which provides a structured, substantive, and participatory multi-stakeholder inquiry into post-mining land use and development options on mined land and surrounding buffer zones.

The Latrobe Valley is a region characterised by multiple planning initiatives. Existing policy frameworks and initiatives include:

- Environmental regulation under proponent-led models (e.g. Environmental Effects Statement).
- Strategic planning principles published in the LVRRS (Latrobe Valley Regional Rehabilitation Strategy).
- The Central and Gippsland Region Sustainable Water Strategy.
- The Gunaikurnai Whole-of-Country Plan (GLaWAC, 2015).
- Regional development initiatives for Gippsland led by the Latrobe Valley Authority (LVA), Latrobe City Council and Gippsland Regional Partnerships.
- A 2022 Transition Plan initiative (proposed by LVA).

Notable gaps exist between these frameworks and initiatives. For example, the LVA initiatives have not thus far explored mined land rehabilitation as a growth sector, or explored future possibilities on mine license land. The LVRRS commissioned a preliminary land use vision in 2019 (DELWP, 2019) but has not yet built on this study by elaborating a spatial master plan for post-mining development options (including their relative costs, risks, and feasibility). Meanwhile, it is not clear whether implementation of the Sustainable Water Strategy will include new or enhanced platforms to resolve the depth of stakeholder contestation for water. The above initiatives thus led by different proponents, do not adequately explore post-mining development options, and appear to have limited coordination.

A recent study of values held by Latrobe Valley residents, and representatives of public and private stakeholder groups, found a need to establish a positive legacy for the sites and amenity benefit, avoiding social, environmental and economic burdens (Reeves et al., 2022). At this point in time, it would appear that need exists for supportive leadership and structured processes for diverse stakeholders to plan together.

## 4.2 Mining's impact on the region

Respondents' conceptions of mining's impact on the region can be considered from two perspectives: that of elements of the **system context** invoked by Respondents, and that of **place-related, substantive or**

**procedural, values.** Each perspective corresponds to a set of codes used in our content analysis. As noted above, the codes are not mutually exclusive – interview content could be assigned to codes in either or both sets.

The types of **place-related, substantive or procedural, values** invoked by Respondents were (in order of declining number of Respondents):

- Economic values of place (generalised)<sup>5</sup>.
- Impact on urban development or housing.
- Impacts related to the region's identity or historical legacy.

Respondents from all stakeholder categories (five out of eight Respondents) agreed that mining and power station development had caused transformative economic changes:

*Latrobe Valley would not be the place it is without having been in the centre of the State's power generation, the mining facilitated the power generation, obviously, and both of those activities have driven the economic development and structure of these regions. I think we'd be looking at a much more agricultural community, less densely populated... maybe there'd still be industry, but a much lower proportion of what it is – and not spread as much as it is across the whole landscape either. You might just have one large town as opposed to three relatively central, community centres. (Respondent 4)*

*The Hazelwood coal mine came in the late 1950s and then also through to Loy Yang in the late 1980s, from memory early 1980s, but really when all those sites were up and running the Latrobe Valley was essentially quite a community and mining and power station hub. I think the total employees within the Latrobe Valley at one stage was in upwards of 20,000 people, so that that allowed a whole different community to feed off that... so at one point in time, the Latrobe Valley was absolutely huge. I mean, that was just the place to be. (Respondent 8)*

Notwithstanding broad participation in mine-related employment, respondents noted socio-economic disparities:

*Aboriginal people in the Valley have worked with the mines... and now there is a level of employment that has come from the mines, whether that's a socially equitable distribution of wealth, that's something to be questioned. So it's not all good, but yes, there have been jobs provided. (Respondent 7)*

Mining's impact on urban development or housing was referred to by Respondents in three of six stakeholder categories (three of eight Respondents), including its restrictive impacts on development:

*... land was locked down for future coal use and Council couldn't win the battle to try and get an alternative land use. Land that has previously been locked up for future coal use and mine operations should be released for future planning and alternative uses. Small towns potentially could have grown further, but because of mine overlays, potential land was not realised.*  
*(Respondent 1)*

Not surprisingly, the region's identity or historical legacy was associated with mining and power generation, and this Respondent expresses concern with fairness of the region's historical development:

*There's a pride in the Valley too for being the power generators for Melbourne. But there's also a burden associated with that [as in] 'we've done this for Melbourne for so long, and we're left with having a cancer cluster, and we're left with this legacy of the mines as they're closing, so*

---

<sup>5</sup> Not including 'urban development or housing'.

*the impact is multi-level, boom and opportunity, and identity, and then this burden and legacy, both in the people in the community but definitely in the landscape and the waterways as well.*  
 (Respondent 3)

Elements of the **system context** invoked most frequently by the stakeholders were (in declining order):

- Economic security (five of eight Respondents).
- Health (three of eight Respondents).
- Aquatic ecosystems and water resources (two of eight Respondents).

Previous levels of economic security have been undermined by recent mine closure and concerns about forthcoming mine closures:

*I think mining development has also had a big impact on attitudes and expectations of the community in terms of economic outcomes, your personal sort-of wage, and social expectations, the expectation that you don't need to leave the region to study, or to get a job, that everything is available right close to home. (Respondent 4)*

Respondents expressed concern about air quality particularly in relation to mine fires (which occurred in 2009<sup>6</sup> and 2014):

*We had a mine fire in 2014 which sent toxic smoke across our community for over 50 days. There are still health studies now looking at the long-term effects. The risk is if you leave the mind void without putting anything into it or covering the coal seams there is potential fuel load in there to have another devastating fire. (Respondent 1)*

Mining has also impacted on aquatic ecosystems and water resources:

*So there's a physical presence [of mines], and with that the significant modification of the waterways in and around, and downstream. So changing of the water table but also really significant changing of the waterways like the Morwell River now goes around one mine and through another one.... this is all upstream from the Gippsland Lakes, planning modifications of the Morwell or the Latrobe of course impact the Gippsland Lakes as well. There is a significant amount of water that is used though for energy generation that's captured upstream of that in various reservoirs, so that has impacted flow downstream. Quality of water has been impacted as well. (Respondent 3)*

## 4.3 Best possible outcomes and significance of outcomes

The top three<sup>7</sup> types of **place-related, substantive or procedural**, values invoked by Respondents were:

- economic values of place (generalised)<sup>8</sup> (six of six stakeholder categories, seven of eight Respondents)
- safety and risk (three of six stakeholder categories; four of eight Respondents)
- mutual reinforcing benefits (three of six stakeholder categories; three of eight Respondents).

**Economic values of place** were expressed in terms of employment or livelihood security:

---

<sup>6</sup> The Churchill fire of 7 February 2009 (Black Saturday) killed 10 people and is described as an act of arson (Farnsworth, 2012).

<sup>7</sup> Ranked by number of Respondents in descending order.

<sup>8</sup> Not including 'urban development or housing'.

*I think near-term is that there is opportunity for people to change, find a career elsewhere within the region. It might not be the same as what they had before, but it still provides them with the ability to stay within the region and have a lifestyle that that they can be comfortable and give them meaning, and also helps the region to continue to grow. (Respondent 4)*

*The best possible outcomes for the community is that the mines are able to be used, or the historic mines at that point, are able to be used for jobs, for attraction to the industry, so the people that are losing their jobs can find something as well. (Respondent 5)*

For Respondents from Mining and METS stakeholder categories (as well as one of the two Researchers with a geo-technical background), the ability of rehabilitated mine land to support economic values was tied to concerns with **safety and risk**. Respondents from Mining and METS consistent in favouring the use of water to fill the three coal mine voids, as a means to address geotechnical stability challenges, as well as to enable optimal post-mining development.

*If you've got a landform that doesn't move, that isn't exposed to large fires and the like, then you could potentially build things like houses nearby, you can allow further development. You can allow use of these lakes in the long-term because you can gain safe access to these things. (Respondent 8)*

*I'm just thinking back to the Ruhr Valley in Germany where they've linked up a couple of old mines with a lock system. So you can go from one to the other in a lock and they have huge amount of tourism around the sides of it. And they have boats that take people on beer cruises and restaurants and, and you can go in between the two of them. And then... you can create cycle paths and all sorts of things all the way around it. You can create, white water canoeing, kayaking and surf places – we can create surf places in some of these things – you can make it a mecca for water sports and tourism. (Respondent 5)*

*So it's working through... how you go from turning something which has a number of risks attached, into something that takes care of those risks in the most practical way, because by doing that you allow the most beneficial number of beneficial end land uses and I've mentioned whether it's housing developments, whether it's nearby industry, you can, then it becomes really open, and you can do a whole range of different things nearby these lakes. (Respondent 8)*

The idea of **mutual reinforcing benefits** is suggested in the quote from Respondent 8 above. As the best possible post-mining outcome, this construct found expression in the following ways:

*I think the long-term aspiration is that these voids become a useful part of the landscape, that they're not just an economic drain but they become an economic good, but also a social good and an environmental good – a well-being good. (Respondent 4)*

However, the notion of mutual reinforcing benefits was invoked by a Respondent to refer to addressing pre-existing Indigenous objectives, as well as agricultural aspirations. Such visions require adequate allocations of water and are potentially competitive to mine void rehabilitation:

*There is a one-off opportunity really. With the water that's currently legislated for power generation– that water could revitalize environment, could revitalize the cultural values of the Gunaikurnai people. It could increase security for irrigators and therefore a regional future for the Valley. So there is an opportunity here if people take the long-term holistic view and the quadruple bottom line view. (Respondent 7)*

The idea of **net-positive benefit** – a summative evaluation not tied to any specific rehabilitation option – was clearly communicated by one Respondent who had previously studied community values in the Valley:

*There's a strong sense in terms of what's left behind: there must be an amenity of some sort. There must be a positive legacy. Now what that looks like in terms of landform and what that looks like in terms of land use is of course highly contested, but for me personally, as long as there is a positive benefit for the environment, surely we can only do better with the environment than what has been before, and it must be a positive legacy, but also that whatever is left is something that enables opportunity for the community that it is a benefit and a positive legacy for them to have, not the continued burden that they've already carried. (Respondent 3)*

Elements of the **system context** invoked most frequently by the Respondents were:

- Aquatic ecosystems and water resources (three of six stakeholder categories, five of eight Respondents).
- Economic security.
- Institutional arrangements.

Each of the latter two elements was referred to by three Respondents in three of six stakeholder categories.

Three types of institutional arrangements were referred to as mediators of the best possible outcome: water allocation among competing users; long-term regional planning; and land tenure. With respect to land tenure, the Respondent from a community organisation noted that:

*I think that Council, to a certain degree, has been locked out of the door on the control or discussion on land use, because it's considered to be land tied up in the mining license, of mining operators of private companies. So, is that land going to be handed over to the community?*

*Does the Council need to buy that land? What is going to be the purpose of it? We don't necessarily want other industries in there that are going to cause other major issues for us, for instance lead, or other sorts of industries, which might cause future harm to our community.*

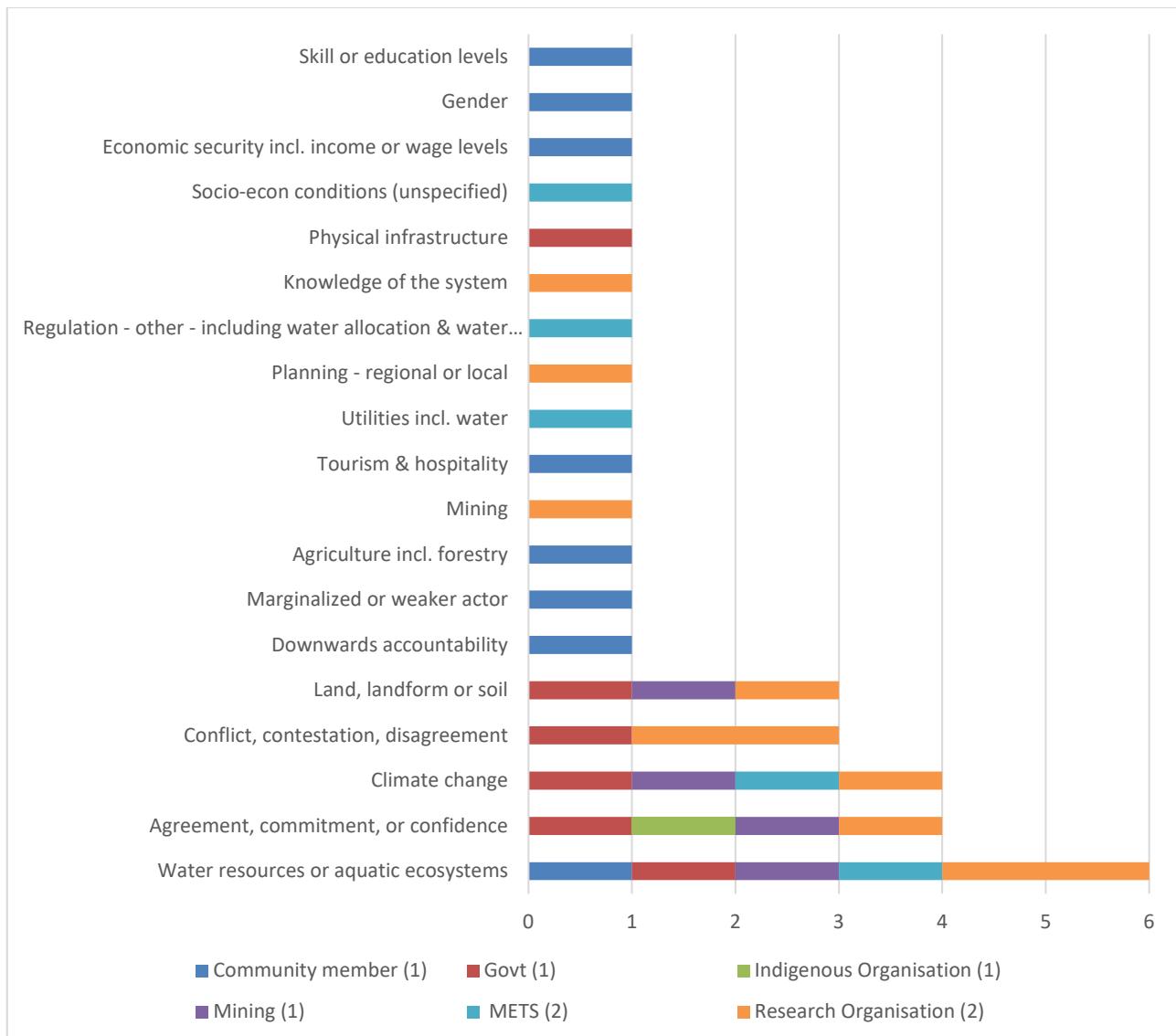
*(Respondent 1)*

Not surprisingly, there is a correlation between interview content we coded as economic values of place (generalised) (reported above) and content coded as economic security (an element of the system context). Likewise, content coded to the 'safety and risk' value of place, correlated with 'aquatic ecosystems and water resources' in the system context.

#### 4.4 Challenges to achieving outcomes

Figure 7 shows all elements of **system context** referred to by Respondents as challenges to achieving their best possible outcomes. The figure shows that challenges related to **water resources or aquatic ecosystems** comprised the most frequently referred to system element (5/6 stakeholder categories; six of eight Respondents).

The next most frequently invoked system categories were **attributes and relations of actors** and **environment or natural resource conditions**. Respondents expressed concerns about the following attributes and relations of actors: concerns about degree of agreement, confidence or commitment, as well as concerns about conflict, contestation, or disagreement. Two environmental concerns – about climate change, and land, landform or soil – were expressed with the same level of prevalence as the above attributes of actors.



**Figure 7: Elements of system context regarded as challenges to outcome achievement. Note: x-axis denotes number of respondents coded. Legend refers to stakeholder category of CRC TiME. Number in parenthesis denotes number of respondent per stakeholder category (cf. Table 5).**

The following quotes express the confluence of socio-political and ecosystem challenges:

*The biggest challenge is indeed, to really confirm that [filling the mine pits with water] is the best outcome... while there has been a short while ago, a strong consensus that water fill is the way to go, there has been quite a bit of upstir recently in terms of are we actually having enough water and, so there's a bit of scenario modelling happening, the community has some strong voices which want to have at least some of the pits being empty, so not water filled.*  
*(Respondent 6)*

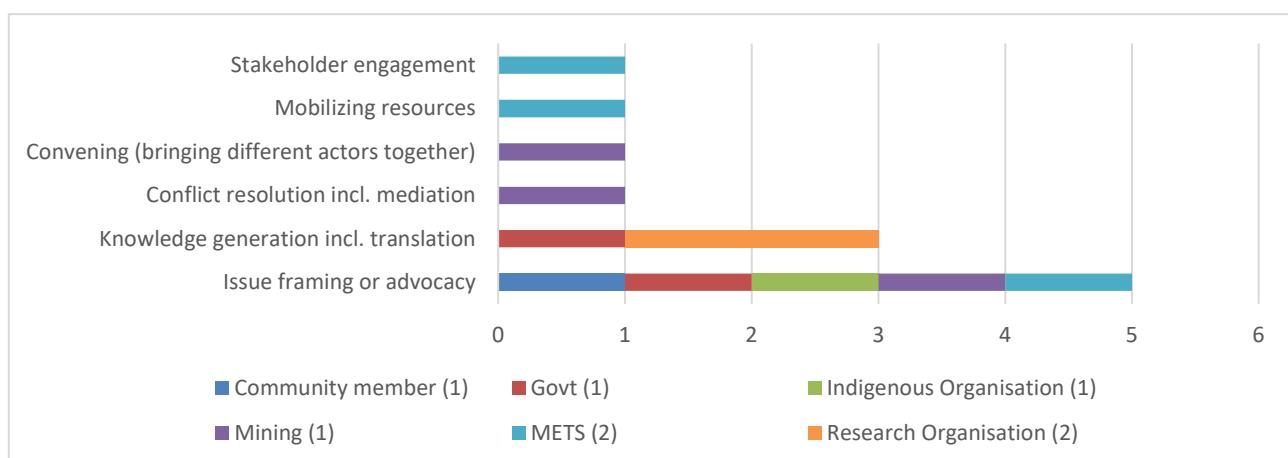
*The lack of certainty makes this difficult. So, at the moment, no one knows – the mines know that the only technical solution is water, whether we've got climate change or not. The only technical solution is water, there is not enough material to make our mines stable. So that's the only solution, but there's uncertainty on where we're going to get the water, what the cost is, everything else. So none of the business or private industries can be invited in to have those discussions early enough. (Respondent 5)*

*The biggest elephant in the room for these three sites is the use of water, they are massive holes... it's only going to get drier, not wetter, and so there's a huge amount of sensitivity around the role that water plays... Each of the mine closure plans have flagged water as being their preferred option. There's quite a lot of pushback from the community, but also from Melbourne in particular, that that amount of surface water cannot be justified going forward.... there's I think three government departments that have some say in what happens to the rehabilitation and they don't agree with each other. So there's decisions that are made at a state government level, usually in offices in Melbourne, that have a direct impact on what happens in the valley, and there's a very, very strong tension between Melbourne and the Valley because of that. (Respondent 3)*

The quote from Respondent 3 indicates that lack of interagency agreement at the state level could be regarded as reflecting lack of agreement among interests in Latrobe Valley over water, as well as contributing to tensions between people in the region and their state government.

## 4.5 Dimensions of actions taken

The two most frequently-referred to dimensions of action taken to address key challenges were: issue framing or advocacy (5/6 stakeholder categories), followed by knowledge generation (2/6 stakeholder categories)<sup>9</sup>. The two stakeholder categories from which participants described their action in the most multifaceted way were the Mining and the METS categories (three dimensions of action each) (Figure 8).



**Figure 8: Dimensions of actions to achieve outcome (Latrobe Valley). Note: x-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category.**

With respect to **issue framing or advocacy**, Respondents referred to particular processes, as well as outcomes as they considered necessary. Respondent 4 and Respondent 5 advocate for whole-of-government collaborative approaches with all mine licensees and power station operators in the Valley:

*We've engaged heavily with government and the LVRRS [Latrobe Valley Regional Rehabilitation Strategy]<sup>10</sup> about what they're doing and why they're doing it. We told them a while ago that they needed to engage with all 3 mines and to try and get us to a point where we can all collaborate and that was the government's job. Before we told them that... they weren't going*

<sup>9</sup> The word 'dimension' (not 'type') is used to refer to classify actions, reflecting the fact that a given action could have more than one function.

<sup>10</sup> An initiative of Victoria's Department of Environment, Land, Water and Planning (DELWP) and Department of Jobs, Precincts and Regions (DJPR).

*to do it... we will be lobbying them, continually lobbying them to say, 'Come up with different solutions. Get us around the table. Get us all talking and be realistic.' (Respondent 5) (Mining)*

*As a [government] organization, we have been encouraging – no, we would like to see – a whole-of-government perspective on this resolution. It seems unlikely that the licensees can rehabilitate their mine without actually having a collective understanding between themselves and government on what is an acceptable level of residual risk, so what risk profile would government be happy with. Because without that, I think they can't plan their landform, and then we can't have a discussion on land use and opportunity. (Respondent 4)*

Respondents 7 (Indigenous organisation) and Respondent 8 (METS) advocate for water-related interests which stand in tension with each other:

*Government has got a number of processes around the mine rehabilitation... we're not in all of them. We were on one of the committees, which we're now just there as an observer. And that's to protect the Gunaikurnai view from being a negotiated outcome with other user groups... DELWP's got a committee around the Implementation Item 3<sup>11</sup>... the premise was... that should not have a detrimental impact on existing entitlement holders. Now the problem is that the Gunaikurnai people are water users and have been for thousands and thousands of years, but their water was taken away from them so they're not recognized as water holders, even though it's their water that they never ceded. (Respondent 7)*

*I think it's about selling the outcome and selling what's possible, because if you get people to the point of being able to recognise physically what's out there and what's achievable, they'll then focus on, 'well, how do we get that?'... we actually try and help people visualise what the outcome can be and then it becomes more about 'well, I just want one of them!' So look I will continue to be advocating that the best way to solve this is to just see it now as an engineering problem, and find the water, and as soon as we get people to that point where... we've got all these people in Victoria and all of these smart people focusing on 'where's this water coming from?' we'll get to the answer. (Respondent 8)*

Beyond rehabilitation, Respondent 1 (Community) is concerned about the status of participatory processes for planning the Valley's future:

*I've spoken to... another Gippsland regional group that's connected with the government department and I've been saying to them, 'Who's taking this conversation with the community, who's going to lead this, is anybody going to lead this consultation?' It feels like there's a vacuum that no one's stepping up to lead the discussion or to lead the journey about our regional focus and our future. (Respondent 1)*

Respondent 1 indicates that the framing of the problem of post-mining development extends beyond the scale of the mined land to broader issues of regional transition. The quote from the Indigenous Respondent underscores the finding that actor disagreements over water constitute a challenge to achieving post-mining development.

The Mining Respondent saw value in having government convene different mine licensees and government agencies to debate and deliberate on options – that is, value in the actions of **convening, mediation, and dialogue or deliberation**. However our Respondents did not refer to such actions as those their organisations had taken to date. Rather, the Respondents had engaged in **knowledge generation**. For

---

<sup>11</sup> The third and fourth implementation items listed in the LVRSS involves DELWP and DJPR providing guidance on, and exploring feasibility of water sources and access arrangements for mine licensees to undertake rehabilitation (including but not limited to Latrobe River system water) (DJPR & DELWP, 2020, p. 30).

example, Respondent 4's organisation has contributed to knowledge on geotechnical stability outcomes and residual risk under different water availability scenarios.

A particular type of knowledge that some Respondents see the importance of generating is around which opportunities are possible, and desired, by stakeholders, as a function of how the mine pits are rehabilitated. After a community focus group discussion around mined land organised by their organisation, Respondent 4 reflected:

*The questions [community members] were asking were once again focused around opportunity. And someone was just saying, 'well, people are putting out surveys and asking say, do we want to a BMX track or do we want this? But we don't want a BMX track if it's going to cost us a million dollars a year just to maintain it because of the risk profile of the mine... It got me thinking, maybe we need to start having conversations about opportunities that you can have, no matter the risk, because there are some there. So maybe we need to actually start thinking about that and use that as the worst-case scenario, because there are some things, for example solar farms, you could probably have them across most of the mine license, no matter what you've done with the actual pit void itself.*

Thus, even as different Respondents advocate for different problem and solution framings, it appears that they share a common interest in the generation of knowledge about landform rehabilitation options, and impacts and implications of alternative options. Given high levels of disagreement and contestation, a need exists for modes of knowledge generation which bring actors together.

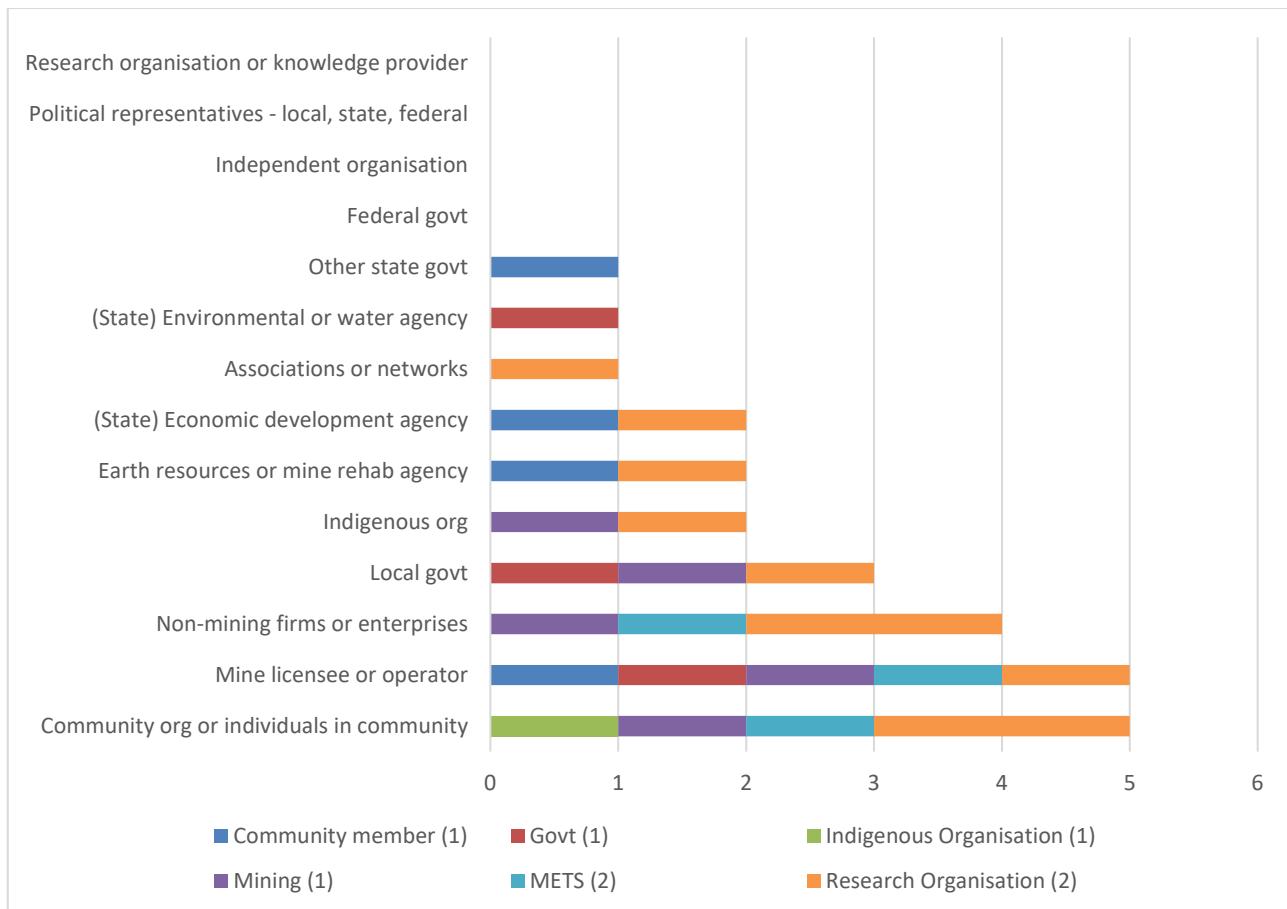
## 4.6 Other main stakeholders

Figure 9 shows the distribution of responses to Question 7 (conception of other main stakeholders). Respondents in four of six stakeholder categories referred to community organisations or individuals in community as the main stakeholders:

*The community as such, of course, is a stakeholder... the city of Morwell is only 500 meters away from the pit, there is a direct link, and they can be directly affected by that, by the outcome.*

Respondent 6 (Research)

*... recreational users, whether it's bushwalking, fly fishing, the windsurfers who can't wind surf anymore, all of those sorts of groups, birdwatchers, very keen environmental groups who are interested in this. Interestingly.. the Latrobe Valley feeds into the Gippsland Lakes through the fringing morasses there, and there's one of the largest field and game groups in Victoria, manage the environmental values of the Heart Morass. So it's one of the main field and game areas, and they've done decades of rehabilitation work there. And so, although they're downstream, they are deeply interested in what's happening in the Valley. Respondent 3 (Research)*



**Figure 9: Other main stakeholders (Latrobe Valley).** Note: x-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category.

Compared with references to the above types of actors, Respondents made fewer direct references to state government agencies as main stakeholders. Nonetheless, the references made to state government agencies indicates their importance, both as future public trustees as well as present-day regulators influencing the transition agenda:

*It's government, because they through the Mined Land Rehabilitation Authority, are potential owner of the land in the future, they need to know where the journey is going. And they're also responsible, of course, to the people, to the community. Respondent 6 (Research)*

*Now is the crux of the time when we can leverage off [mine licensees'] influence and about what they could be doing with the community but they can't make many moves because they're so focussed in on about what Earth Resources and government license requirements require of them. They can't proactively do much else than what they [currently] do in their mining and their rehab, they can't do other preventative measures, they can't sort focus on forward thinking, or their strategic plans looking into the future. They don't have much time left. Respondent 1 (Community)*

Local government, and firms outside the mining or METS sectors, were each referred to Respondents in three of six stakeholder categories. As Respondent 5 (Mining) put it, because of the importance placed on water for mine void rehabilitation 'anyone who wants to use the water becomes a stakeholder as well.'

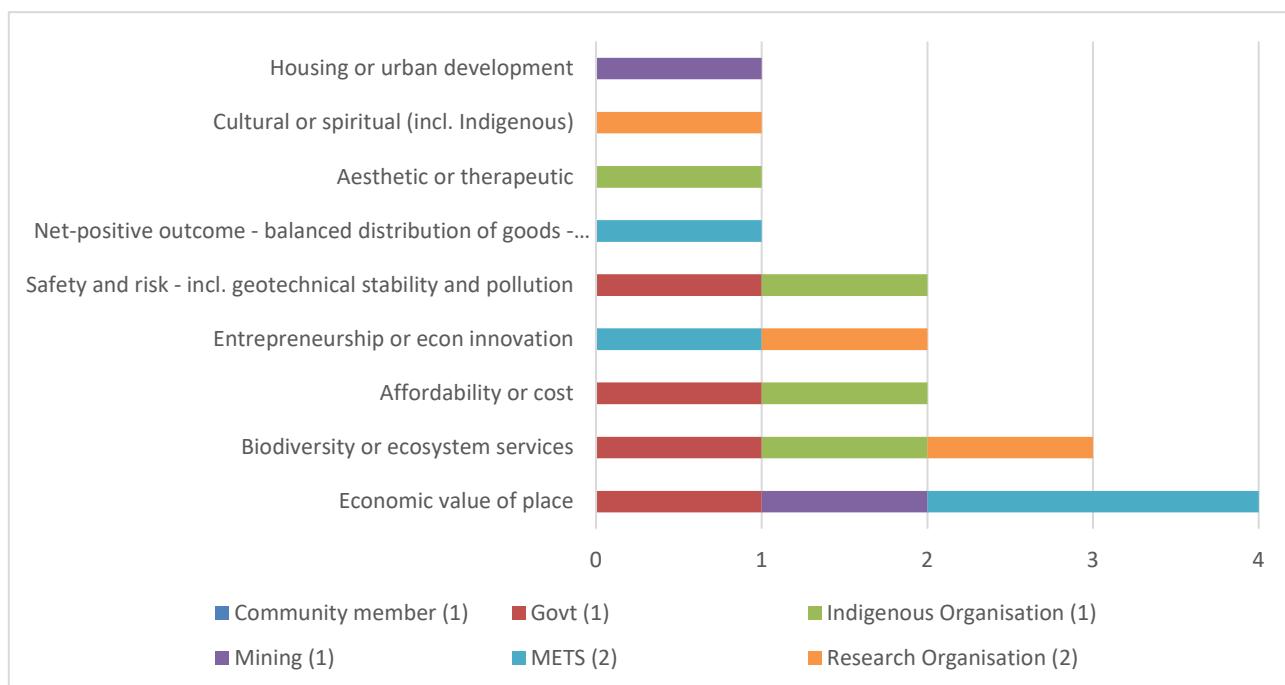
## 4.7 Understanding of other stakeholders' best possible outcomes

Figure 10 shows the distribution of responses to Question 8, which invited interviewees to express their understanding of best possible outcomes for two other categories of stakeholder. Respondents in three out

of six stakeholder categories referred to **economic values of place** (generalised) as a best possible outcome for other stakeholders. We received an additional three references to the specific economic values of: entrepreneurship or economic innovation (two Respondents), and housing or urban development (one Respondent). One respondent expressed the economic values of having a water-rehabilitated, accessible site as follows:

*We've had a number of community consultation sessions where I've said... 'Do you want a site where you can get access to it, you can go to it, there's cafeterias, there's community activities.*

*There's all this sort of good stuff, there's industry, there's hubs, there's townships in close proximity to these sites, and you're doing something with it. Do you want that, or do you want a nine-foot-high cyclone fence and you can't do anything with it?' So I think that the community will want something that they can utilise that they can earn a revenue off, if people can earn money, if there's jobs available, if there's supporting industries.... And then you've got the community where they've got something physically they can use in the longer term and the future generations, and they know it's stable and they know it's low risk. I think everybody wins but it's just getting to that point. (Respondent 8)*



**Figure 10: Respondents' understanding of other stakeholders' best possible outcomes (Latrobe Valley).**

**Note: Legend refers to interview respondent. X-axis denotes number of respondents coded. Number in parenthesis denotes number of respondent per stakeholder category.**

Stakeholders in three of six categories referred to **providing or enhancing biodiversity or ecosystem services** as a best possible outcome for other stakeholders. The following Respondent expressed concern for the loss of ecosystem services which would occur if river system water were used to rehabilitate mine pits:

*They're calling them lakes. They're not lakes. They're not going to be recreation bodies. No one will be able to swim in them, they're going to be freezing. And the quality is going to be negligible... It's actually just going to be something that's taking water away from something that's already beautiful. (Respondent 7)*

The tension between two sets of values – the values associated with mine pits de-risked by water fill, and the values associated with downstream aquatic ecosystems – is implicit in the following summary of best possible outcomes:

*I think the best possible outcome for government would be that they somehow managed to get... an outcome with a low risk profile, and just amazing economic benefits for the region... so it takes care of that whole transition economic growth question for [the region]. I think for the environmental, irrigator, community interest groups, the best thing is that, as well as no impact to downstream environments. For the licensees, I think the best outcome is that they have an affordable way of achieving rehabilitation that will actually result in an outcome where they can relinquish their mine license. (Respondent 4)*

In the above quote, a possible outcome is one that is also affordable. However, the definition of affordable cost, for another Respondent, was related to the broader issue of how natural resources were valued:

*There is another solution... bringing recycled water from the Eastern Treatment Plant to the Valley, that could have spin-off benefits all along the way, because you could have connections along the way for farmers, for new development and therefore saving water resources in other ways as well... at the moment that water goes out to Boags Rocks. And also other [recreational] users have been talking about that for a very long time, so that becomes a viable solution, unless you just look at it from a monetary sense because obviously it's a lot more expensive, because river water is artificially cheap. (Respondent 7)*

## 4.8 Key values and their alignment

### 4.8.1 Alternative water sources required for rehabilitation

Water resources were described as highly contested, differentiated, and at the mine pit level, requiring different types of technical management over time (Respondent 6). Respondents generally agreed that water was the preferred mine pit rehabilitation option. With the exception of one Respondent, interviewees considered the use of Latrobe River system water a politically infeasible resource.

The ability to access water for rehabilitation would enable multiple post-mining development options (with the range of options at the site level generally increasing in proportion to water quality). Conversely, if water were not available, landforms remain unstable, geotechnical rehabilitation is not possible (Respondent 2), and many post-mining land uses could be infeasible (eg recreational use and solar panels on slopes; Respondent 6).

The availability of water for rehabilitation of mine voids needs to be understood through a historically and politically informed systems perspective. Concurrently with mining, aquatic ecosystems in Latrobe Valley and downstream have been impacted by other historical developments, notably the construction of a water supply reservoir for Melbourne (Respondent 3). Commissioned in the 1980s, the 1068 GL Thompson Reservoir has resulted in lower than optimal flows in the river system. The value of water-based development on mined land was frequently described by Respondents in terms of socio-economic values. This set of values is in tension with the value of increasing ecological integrity in the catchment:

*I honestly don't think that people [are] going to be upset if they're left empty or if they have water in them. If they don't take away from the other values that they have. So obviously if water in the pits means that there's decreased water in the Latrobe Valley, and then you end up with acid sulfate soils in the wetlands and all the fish die in the birds don't come back, that's too much of a burden for having water in the lakes there, and I think everybody in the Valley would understand that.*

*Similarly, if water wasn't allowed and they were allowed to be dry, but they were unstable, or they were stable but couldn't allow development on them, so fences went around them, there would be amenity loss there as well. So people want to be able to engage with these places, so their sense of ownership, connection, which takes different forms – they still want this positive*

*legacy of: ‘this is something that’s done good, that it’s done well, it’s done for future benefit.’  
(Respondent 3)*

Socio-economic values focused on post-mining land use also stand in tension with Indigenous values related to distributional justice. Fulfilling the latter set of values means restoring aquatic ecosystems and rights to access their services which have been diminished since European settlement:

*There’s not enough water to continue using it the way we’ve been using it... there’s no water for the Gunaikurnai presently – there’s a couple of buckets of water that people say aren’t being used and everyone is getting excited on how they might reallocate that water, but that’s a false water accounting, that water is actually propping up the environment at the moment, which still doesn’t have enough... But the other thing is with those values, that the Gunaikurnai people have held for that area, that go back thousands of years there – connection to place, connection to Country, healthy mob, social cohesion, historic traditional and current connection, and it’s economic connection as well, both from past economic movement and trade, and also current aspirations.... Now the land has been completely changed, and no one I don’t think is purporting that it could go back to what it was, but there can be some restoration.... if you treated the Valley in a futuristic, ‘let’s look long-term’ way, those outcomes could benefit all people: the Gunaikurnai people, the environment, irrigators, the townspeople, people needing jobs. There’s that opportunity now. (Respondent 7).*

The remarks of Respondent 7 indicate that **socio-economic development is one element of restorative justice, along with ecological restoration**. The relation is one of a potentially productive tension, as opposed to binary opposition.

#### 4.8.2 Net-positive outcome

Both Respondents above invoke the idea of a **net-positive outcome** – a balanced distribution of ecological and social values. This value is a type of substantive good (Section 3.1.4). Achieving a net-positive outcome was also regarded as a key value in the 2021 conference session (Section 4.1). However, as the preceding discussion about water resources in a modified river basin reveals, the notion of a net-positive outcome going forward, is one that must take into account the objective of ecological restoration. This objective stands alongside mine pit rehabilitation.

Respondents recognised that the achievement of a net-positive outcome would require **enhanced institutional arrangements**. One dimension of enhanced arrangements would be to give community greater a voice in transition planning. Respondent 1, from the community, saw people in Latrobe Valley as less powerful actors who wish to make the best of their regional assets, and liabilities going forward, seeking to do so by self-empowerment:

*So, we know we’ve got a fabulous community and we’ve got some really great things, but we don’t want to just be known as that dirty Latrobe Valley from that brown coal era. We want to be given a chance to show and showcase our region of Latrobe Valley and then the broader part of Gippsland that we’ve got a fantastic asset... with some very talented people who want to stay in our community but what is it they’re going to be staying for, what’s the future going to look like? (Respondent 1)*

A second dimension is the ability to formulate multiple alternative options:

*And that’s why, I think for the community of the Latrobe Valley, it will be not critical, but very important to have a really good understanding in terms of what’s out there. We’ve touched on hydrogen, there’s other aspects as well, repurposing of sites and opportunities might be very different and there might be some surprise wild fact out in the near future that we currently not aware of, but to keep looking at those opportunities, and then looking at how they can be*

*applied here.... And I think ultimately, it'll come back to the commercial viability. Is it really – the options that we put out there – are they commercially viable? (Respondent 2)*

The formulation of alternative options for consideration by community members could be done by opening up state-led visioning and planning processes. Respondent 6 (Research organisation) characterised the first phase of the Latrobe Valley Regional Rehabilitation Strategy as producing a post-mining land use vision that did not meet expectations when compared to international practice:

*The final outcome of the LVRRS [Latrobe Valley Regional Rehabilitation Strategy] was to have a transition plan – how to close and what that would look like, and that was really done... like a consulting exercise. So achieving something which, I think was very premature, and didn't really allow a wide range of options to be at least discussed... I think it is not where it should be or has to be, and referring again back to... the 20 years of experience [in Germany] of how to transition a landscape, industrial use landscape into something else. They had, for example, an exhibition of possible land users coming in, and that is an international exercise and... idea collation, with the hope that maybe something falls out, which can be used from a strategic point of view. And I think the Victorian government is still in that very early stage to come to terms with what actually to do with the closed mine. And actually to get experience, we have to go [to international practice]... (Respondent 6)*

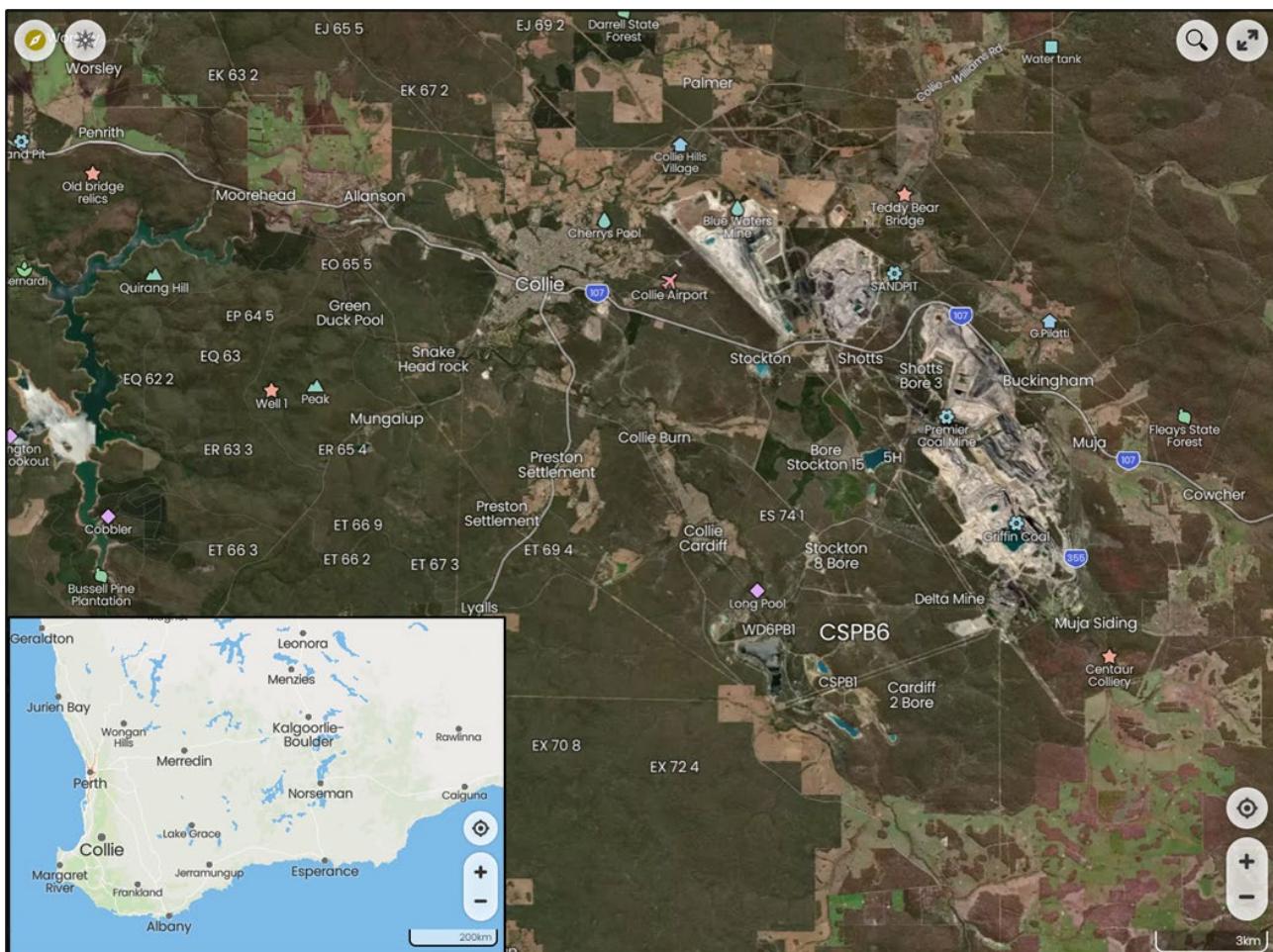
In addition to processes of knowledge generation, Respondent 6 noted that the processes and bodies which aim to enhance coordination – namely, the Latrobe Valley Regional Rehabilitation Strategy, and Mine Land Rehabilitation Authority – have emerged only recently compared to other states, and considered their aspirations to be high, but potentially consequential:

*Queensland or Western Australia have developed more profound rehabilitation law [than Victoria]... but having said that they have created through the LVRRS and now the MLRA... institutions, which are quite astounding I find in terms of what they try to achieve. Going through the Authority now, which is really lacking in all other states. So there is a kind of a catch-up and overtaking. (Respondent 6)*

## 5 South West Western Australia

### 5.1 Background

The South West Western Australia case study focuses predominantly on the coal mining area around Collie (Figure 11). Mining has taken place in Collie since the discovery of coal in 1883, and the town of Collie is a direct consequence of coal mining. In 1931 the first power station was constructed and as a result of both mining of coal and power generation, Collie has been a major contributor of energy for southern part of the state, providing up to 50% of required generation. This coal mining transition case study is supplemented by the perspectives of research participants whose professional experience relates to other forms of mining transition in the South West, notably mineral sands mining on the coastal plain.



**Figure 11: Collie locality in South West Western Australia. Source: Mapcarta.com and Mapbox.**

The historical trajectories of mining and post-mining transition and specific place-related impacts in the South West differ depending on whether the mineral is coal, mineral sands, or gold. Nonetheless, it is possible to identify a ‘mine closure planning policy regime’, with certain underlying values and general institutional arrangements which are common across different minerals (see Section 8.2 for discussion).

Coal mining has been a major source of employment and remains the biggest employer in Collie as well as supporting a range of other businesses. Alongside, and stimulated by the generation of energy, the town is also an economic hub contributing around 12% of the region’s Gross Regional Product (Collie Economic Development Task Force, 2017). At its most populous, Collie comprised around 9,000 people in the 1950s but has dropped to around 8,500 with around 25% directly employed by mining and power generation.

Collie is in the Wilman region, which is home to the Ganeang, Pinjarra and Wilman people of the Noongar Nation. The area is of spiritual significance, particularly the Collie River, Minningup Pool, and Jack Mears Spring.

There are currently two operating coal mines – Premier (Yancoal) and Griffin – and a combination of state-owned (Synergy) and private (Bluewaters) power stations. In 2017 Muja A and B (two of Synergy's power generation units) were retired, and by the end of 2029 the following state-owned units will close:

- 2022 – Synergy Muja Unit 5 (Stage C)
- 2024 – Synergy Muja Unit 6 (Stage C)
- 2027 – Synergy Collie Power Station
- 2029 – Synergy Muja Units 7 and 8 (Stage D).

As of August 2022, the privately-owned Bluewaters Power Station does not have a scheduled closure date, but is facing closure as a result of contractual supply and offtake arrangements concluding over the next few years.

As part of the announced closures, \$500 million has been promised by the State for the decommissioning of the power plants, a Collie industrial transition fund and training initiatives. As noted by Mark McGowan (Premier of Western Australia) ‘We owe it to Collie. They’ve done a lot for the state over the last 130 years and we want to make sure this town and community have a long-term, viable and prosperous future’ (Mercer et al., 2022).

The Collie area is situated in a dense jarrah forest with extensive tourist opportunities including excellent mountain biking and walking trails, water bodies suitable for recreation (Lake Kepwari, Stockton Lake, Wellington Dam, Black Diamond Lake), and historic exhibits. The latter include a mural trail reflecting the town’s history, a steam locomotive museum, Coalfields Museum, and a historical research centre. At the same time, the impacts of mining in the Collie area have resulted in considerable modification of groundwater and surface water resources (Department of Water, 2009).

Recognising the imminent closure of both coal mining and power generation (due in part to a commitment to renewable energy alongside financial considerations) a ‘Just Transition’ working group was established in 2018 bringing together industry, community, unions and state and local government. The working group is focused on 2020–2026 and seeks to address four key areas: (i) maximising opportunities for affected workers; (ii) diversifying the local economy, (iii) celebrating Collie’s history and promoting its future, and (iv) committing to a Just Transition (Department of Premier and Cabinet (WA), 2020).

## 5.2 Mining’s impact on the region

Respondents reflecting on the range of different impacts triggered by mining, identified three overarching categories of impact. These were impacts relating:

- to the environment (e.g. creation of mine pits, impact on the water).
- to the economy (notably, providing stable employment).
- to identity.

These three categories had implications for one another and were not mutually exclusive.

In terms of the **environment**, mining has had both a direct and indirect impact. The direct impact centred on mining disturbing landforms (for example, soil removal, vegetation removal) creating mine pits, and at times resulting in the diversion of rivers. Of these, the impact referred to by all eight respondents related to the creation of mine pits, which in many cases had resulted in pit lakes (including for abandoned mines such as

Black Diamond). These coal pit lakes required rehabilitation predominantly due to concerns regarding injury or drowning risk to recreational users (Respondent 1), as well as contamination:

*The lakes were drowning people on the average of one person every 5 years. There were multiple drownings in Collie multiple quadriplegic accidents from Black Diamond [pit lake], jet ski accidents...*

*Many hundreds of meters high of overburden that produces pH3 leachate when it rains, and 100 years later no vegetation has grown. All the water is contaminated with zinc and manganese.*

(Respondent 1)

*You are talking about dumps just being left on virgin ground not rehabilitated. Not managed, you've got inter-burden and overburdens. So, you've got material here, you've also got leachate production. I think about 60 to 70% of the landform has been altered within the Premier [coal] sub-basin as a result of mining, we've got vegetation loss. (Respondent 2)*

Mining's impact on environment however depended on the form of mining, with Respondent 5 noting that the impact of mineral sands mining could be unapparent to an untrained observer.

The impacts of mining on water (as a specific element of the system context) was discussed in depth by two respondents, and touched on by four others. In addition to acid mine drainage within certain underground voids, Respondent 2 noted that the coal mining practice of 'dewatering' resulted in surplus groundwater being disposed to surface streams, which in turn became regarded as a valued resource: 'less coal mining means less de-watering, which means less surplus water, so less disposal, flows are [unfortunately] starting to reduce in town.'

Coal mining also has altered surface water – groundwater interactions:

*We've had so many underground mines dug, and in the Cardiff [coal] sub-basin, the aquifer system is now like a pin cushion... we don't know the exact contribution of the mining in terms of turning that surface water to groundwater relationship on its head and all the surface water contributing now and replenishing the groundwater system, as opposed to flowing through and topping up the Wellington reservoir.*

*From the AMD [acid and metalliferous drainage] perspective, we're going to get to a point in time where the risk around acid mine drainage, discharging [into] the surface water systems that flow into the mine [and] Wellington dam is going to be a significant management consideration both in Cardiff [sub-basin] on the South Branch, and East Branch in the Premier [coal] sub-basin. (Respondent 2)*

**Economic security**, the second category of impact (and system context element) was referred to by all eight respondents. Coal mining has created a town that wouldn't have been there otherwise. It brings in not only mine workers but associated industries and services, all reliant on the mining employment, and has done so for an extensive period of time:

*A lot of contracting companies and businesses and things like that have either gravitated here because of the mines, or they've set up businesses associated with the mine because that's where a lot of the work is. (Respondent 6)*

The mine accounted for a significant percentage of the total workforce. Coal-fired power stations, coal mines and companies directly servicing these industries account for about one quarter of employment in Collie<sup>12</sup>.

---

<sup>12</sup> A portion of the coal mining, power station and associated industry workforce however resides outside of Collie (eg in regional centres such as Bunbury (60 km by road) and its surrounding areas.

The third category of impact related to mining was one of identity – both from an individual perspective (two out of eight respondents) and from the perspective of a resident of the town or local area (six of eight respondents). This impact has been influenced by the stability of employment noted above.

*You go into some of the mining houses, and you'll see awards on the wall for 40 years of service with the Griffin coal mine, multi-generations have worked in these mines. (Respondent 1)*

*The Collie community traditionally has been very, very wedded to coal mining and power generation. So, the whole of the community is of a mindset that is completely dependent upon that. (Respondent 4)*

*[A mine worker is] very knowledgeable about what he does and very soon that'll be worth nothing, so it's a grieving process for those guys. It's their life's work and for some of them, their families' generations life's work. (Respondent 3)*

Mining was seen to be part of the town's cultural fabric as well as individual self-worth (associated with their profession). The legacy of mining further influenced how some respondents believed Collie was perceived by the external world. This interpretation of external perceptions reflected some of the changing societal values regarding coal mining and mining in general:

*It's not just that your industry is closing up and moving on. It's also that you're vilified for it. In the press. (Respondent 3)*

In addition, there were also cultural considerations around coal mining's impact on the identity of the area (the Collie river was diverted to allow for coal mining), indicating interactivity between the three categories of impact:

*The Collie River, the entirety of the Collie River is an Aboriginal heritage site. This represents the Collie River Waugal, the hairy-faced serpent... [we need to] resurrect those and help support recovery of those Story lines. (Respondent 2).*

Respondents recognised that mining had positive impact (employment) alongside negative impacts, but overall, considered that mining was not a zero-sum game. When considering negative impacts, particularly in relation to mine pits, four of eight respondents pointed out that there had been a number of other impacts on the land. For example, native forests had been cleared for farming and forestry, and as such mining wasn't always starting with a pristine environment. Related to this was the view that towns are always in transition, from a remote farming community to a mining community, and now potentially transitioning to a tourist and lifestyle community:

*The holes where there never was, have been filled with water and they've become an asset to the community. Our community doesn't necessarily see mining as a blight on the community. Certainly, it's the backbone of our economy and has been for a long time. (Respondent 3).*

Overall, it can be concluded that impact is multi-faceted with some respondents focusing on the positive (economic) benefits and others focusing on the negative (contamination). This split could potentially be explained by those who (a) had deep technical knowledge and (b) did not live in the area, having a more nuanced understanding of the negative impact of mining on the environment, and those who lived and worked in the area valuing the employment opportunity (although they were more exposed to impacts on local identity).

## 5.3 Best possible outcomes and significance of outcomes

There were five types of **place-related**, **substantive**, or **procedural** outcome values raised by respondents, and as with the impacts discussed above, these impacted one another, again deserving a systemic understanding. These were:

1. The need for an integrated approach to transition (six of eight respondents).
2. Ensuring a vibrant town and local economic sustainability (seven respondents).
3. Management of human capital (four respondents).
4. Management of historical, physical, or landscape assets (historical, five respondents; physical or landscape, three respondents).
5. Restoring sites with cultural or spiritual value (four respondents).

Ensuring that an *integrated approach* to the transition was undertaken constituted taking economic, environmental, social, and cultural values into account. The integration took two dimensions. The first dimension was a **procedural value** – relating to processes of stakeholder engagement (five respondents). The second dimension was more **substantive**, oriented towards the resultant outcome.

*It all needs to work together because it all interacts. Environmental outcomes need to be married with economic outcomes... [this requires] a holistic approach, and probably having a long-term planned approach. (Respondent 1)*

*The Just Transition working plan has four platforms to it – economic diversification, training, work opportunities and planning, and celebrating history. (Respondent 3)*

*There's a huge amount of engagement internally also – with the tech service teams, the long-term planners, the life-of-mine planners – to work out what kind of landforms we've gotten, how we can best design areas to achieve the outcome that we're after. (Respondent 5)*

Ensuring an integrated approach was strongly aligned with the need to ensure that those designing future of the town built in *economic sustainability* (a substantive value). Respondents were keen to ensure that they didn't repeat the past and rely on one industry. Economic diversity required rebranding of the town's image (relating to the impacts on identity noted above), and the generation of evidence-based options which took into account mining's impacts:

*Science-based outcomes which can deliver future viability for the Collie area from an economy perspective. (Respondent 2)*

*Our employment profile was very much skewed towards trade, labour... we've had to change the perception of Collie from a dirty coal mining town in order to attract decent and sustainable investment in other sectors. (Respondent 3)*

Both the integrated approach and economic sustainability were seen to ensure that the town would remain *vibrant* (both a **procedural and substantive** value) enabling a range of desired services, diversifying the employment opportunities beyond trades and related labour, and by providing a future for youth (Respondents 3, 7, 8).

As one means of enabling economic sustainability and giving the town a vibrant future, respondents noted the importance of managing a variety of assets. These assets typically arose from:

- The transition of mining to pit lakes, renewable energy generation, or other uses (six of eight respondents).
- Associated development due to State support during transition (eg development of recreational trails, and alternative business development opportunities).
- Potential opportunities based on the area's economic history).

Whilst these human, ecosystem, and physical assets were seen positively, some Respondents expressed concerns regarding their maintenance and management.

*The workplace experience of those people is quite specialized. So, to capture that before it changes or before they leave, or before those skills are repurposed in some other way is probably the one thing that really does need to [realize] advantage. (Respondent 4)*

*There is a substantial infrastructure around the place with high-voltage power lines, transmission lines that obviously today power comes out of the power stations, but that infrastructure can be used for power to come in as well. (Respondent 8)*

*We want to leave behind something that is positive. So, we don't want it to be a negative legacy that we've abandoned this giant hole on the ground that is polluting and unstable, we want to leave behind something that's returned to its natural state, state forest or something that is a usable asset. (Respondent 6)*

*I think a real potential story is to recognize some of the history of mining, power generation, the timber heritage, and milling and mining and the fire control story and turn it into a living museum. (Respondent 4)*

Diversity of assets implies a diversity of potential options for post-mining development. Respondent 1 observed: 'I think the biggest risk to Collie is that there is a tremendous opportunity here.' The 'risk' arises from the lack of insight regarding which option, on balanced consideration of short – and long-term pros and cons, should be pursued.

In addition, there were cultural or spiritual place-related values as illustrated through the regeneration of song lines and traditional trails, returning the river to its original path:

*Miningup pool, which is just to the immediate south of the town side, adjacent to the existing golf course, is where the Wargyl, the mythical Wargyl rests. (Respondent 4)*

*Why don't we build original [aboriginal] trails back up, and use them for tourism, for aboriginal people. (Respondent 7)*

Overall, there was considerable agreement in relation to taking an approach that engaged all stakeholders and was evidence-based (procedural values), with the aim of achieving holistic and integrated outcomes (substantive values). With respect to process, consultative processes substantiated by evidence could support determination of which of the many opportunities to focus upon. Addressing cultural and social considerations was construed as a positive outcome of post-mining transition.

## 5.4 Challenges to achieving outcomes

The major challenges as viewed by respondents were:

- **Financial costs** of rehabilitation/restoration (six of eight respondents).
- Lack of **coherent and integrated engagement** with agencies (five respondents).

The affordability (*financial costs*) of transition was a key concern with further implications for uncertainty. As regulatory requirements had changed over the 100 years of operation, uncertainty was perceived as a challenge in terms of what was required to meet such requirements. These aspects, combined with changing markets/demand for coal impacting financial viability, left coal mining companies in a difficult position:

*It's not always economically viable to rehandle all this dumped material over here, back into the pit. It costs too much, it's a significant cost. Because you're not getting a resource at this point, you're moving this waste as rehandle, you're not getting any value from it. (Respondent 6)*

*Coal mining is operating on a knife's edge financially which is unfortunate because it impacts rehabilitation activities and ultimately closure outcomes. (Respondent 2).*

Adding to the challenge was the issue of what to do with legacy mine land:

*You cannot ignore the legacies, they are huge and with the [South West region's coal] mining industry in decline there is not the opportunity to offset that risk. (Respondent 1)*

*If we were going to go back and include legacy sites and do rehab properly in terms of landform design, rehabilitation, reducing risk for public access, etc, etc.... that'd be well up over \$500 million easily. (Respondent 2)*

The last quote conveys the enormity of the task.

Respondents perceived a lack of **coherent and integrated engagement among government agencies** – each agency pushing in potentially different directions, with no clear coordination, and no overarching direction from the government, as well as personnel turnover:

*Even within agencies, they're often quite big differences of opinion or, or approach, which can make things quite tricky. Especially with annual turnover as well. You might talk to one particular person and go down one path, and then they move on and leave and then the next person comes in, sits in that chair, and they've kind of got a different take on things. (Respondent 6).*

*The just transition work to support the community and drive economic development is working well however, there is no strategic whole-of-basin strategy or policy for rehabilitation and closure, which adds risk to the holistic approach. (Respondent 2).*

*It suggests that there's some things that are missing within the broader puzzle and that engagement, that whole systemic overview, that discussion around closure, and how it's going to be effective for Collie is sort of missing – but it's building, it's changing mindsets. (Respondent 2)*

*A whole-of-government strategy for closure at Collie will provide a framework for everyone to engage and discuss but also provides the advice and the guidance that industry are so desperately seeking from government. There's a need to bring the just transition and rehab closure frameworks together. (Respondent 2)*

However, seven of eight respondents appeared to be dissatisfied with mine closure regulatory practice. Regulatory requirements were described as inconsistent with scientific knowledge, or not matched to current social demands. Both mining industry respondents regarded closure criteria (ie performance standards to be met as a condition of lease relinquishment) as inflexible, and practically unattainable:

*We need to resolve or negotiate a variable outcome or in some cases, it's a matter of risk acceptance. All land uses have risk, they have risk before you start mining, and they'll have different levels of risk after you finish mining... I think that just seeking a zero-risk outcome is unrealistic, what is required is a net-beneficial outcome. (Respondent 5) (Mineral sands)*

*Regulators... need to be able to approve whatever we're going to produce at the end. If they're not open to anything else, then we're going to be stuck going in a certain direction. And the same with the business as well. If we're not open to looking at alternative options and just keep going down one path, then that's going to limit us. (Respondent 6) (Coal)*

The net result was a lack of clarity among licensees and other stakeholders, and occasionally (as Respondent 6 indicated) within a mining firm.

Related to the above concern about closure criteria, respondents expressed concern around subsequent management of the rehabilitated assets:

*There is a concern about [a state government agency] being linked with management of these lakes, as well as all of the closure landforms, they have to manage them and if they're not rehabilitated properly... some of the problems they had with Lake Kepwari were... safety concerns. (Respondent 1)*

*Collie is really dependent upon its paying ratepayers, and the urban footprint as I indicated is relatively small. And so our ability to pay for a lot of these infrastructure projects is compromised. And so is the workforce. (Respondent 4)*

*We have to be able to effectively complete our rehabilitation to a standard where beneficial land uses have been reinstated and outweigh any residual liability. (Respondent 5)*

The financial and liability responsibility for relinquished assets is thus an important challenge, as local shires do not have adequate resources to manage them. The combined effect of multiple closures and change initiatives compounded the challenge. As Respondent 4 put it: 'there's some real challenges that sit from an organisational perspective, an actual capability to be able to respond to everything else that's going on.'

Another challenge that emerged was related to the **process** of closure – *designing closure and the future*. There was an apparent tension between starting early – to involve all stakeholders and plan effectively – and avoiding workers seeking alternative employment due to the uncertainties (Respondent 6).

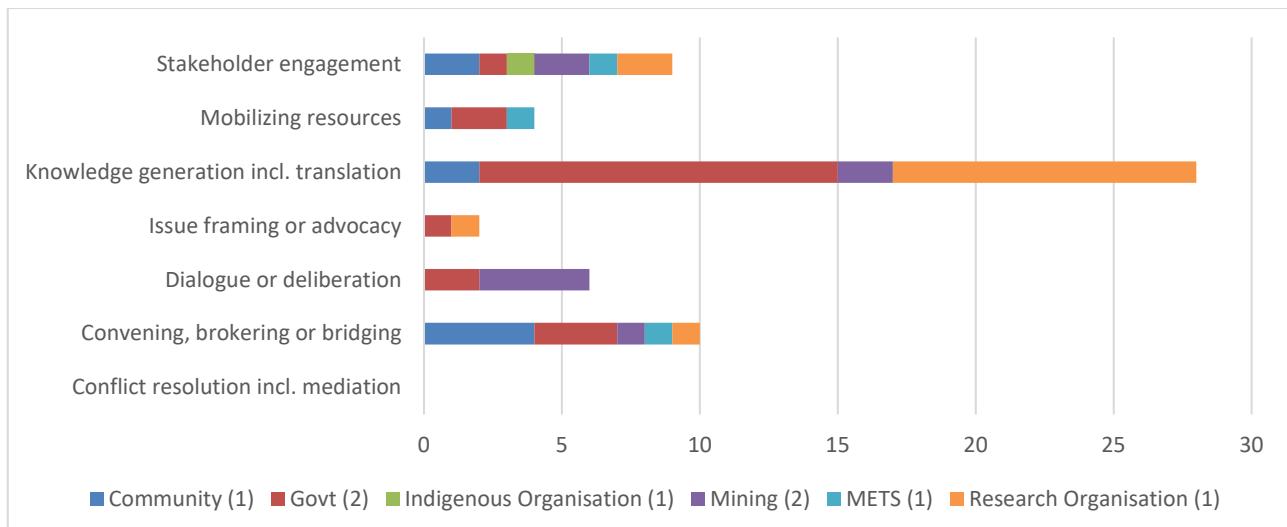
Adding to this was the consideration of who to involve in the planning process (touching on the valued outcome of inclusiveness). Respondents considered that ensuring the right people were included, partly for a processual reason of helping change mindsets, and partly in terms of managing the complexity of closure. In addition, respondents referred to the need to accommodate diverse political interests, ranging from concerned residents to elected representatives (Respondents 2, 3, 7, 8).

The final challenge centred on developing *a shared understanding* among non-specialists of the biophysical nuances associated with the complexity of mine land rehabilitation:

*The community... can see what we've done and what's been delivered. But there's not an appreciation of what the alternative was. And the alternative was going to be a void of water with deteriorating water quality devoid of any life. (Respondent 2)*

## 5.5 Dimensions of actions taken

The three most frequently referred to dimensions of actions taken to enable closure, manage challenges, and move forward were: **knowledge generation, translation or exchange** (six of eight respondents); **stakeholder engagement** (six of eight respondents); and **convening** (bringing different actors together) (five respondents) (Figure 12).



**Figure 12: Dimensions of actions to achieve outcome (South West WA). Note: X-axis denotes number of references coded. Number in parenthesis denotes number of respondent per stakeholder category.**

**Knowledge generation, translation or exchange** ties in with the valued intermediate outcome of stakeholder engagement. It refers to the importance of sharing what is going on, how best to manage the transition, and exchange of scientific evidence underpinning restoration of mine lakes:

*Good case studies. Everyone loves a good story... You can throw in some little critiques of how something was done. It's the usual 'criticize privately, praise publicly', but that's the opportunity to show off the companies. (Respondent 1)*

*The community has, through one of the not-for-profit organizations, done a feasibility report on that land considering what might be used in the future, had a deeper look at the land tenure issues and also considered the possible ownership structures, whether it's DBCA [Department of Biodiversity, Conservation, and Attractions], whether it's Shire, whether it's private land, whether it's used for public use or leased to a private entity, or a combination of those.*  
*(Respondent 3)*

*A lot of research is going on around future employment needs. A lot of that based on ICT. And so the government framework, which is the Collie Delivery Unit and the South West Development Commission, and a series of partnerships between key industry players and the Shire and other interest groups [are] all working towards really packaging and understanding all of that.*  
*(Respondent 4)*

**Stakeholder engagement** (a value introduced in Section 6.3 as supporting best possible post-mining outcomes) was the next frequently referenced dimension of action, whether related to workforce redeployment or regional development opportunities:

*It's a difficult one because some people [workers] are on very different parts of that journey. Some have their date already, some know that they're being made redundant in the first tranche of closures that we already know about. We did sit down with the state government and say please tell us the plan. Even if it's bad news, people would prefer to know so that they can plan their life. It's like a cancer diagnosis, right? And we saw that because they're not stupid... they know their industry (Respondent 3)*

*I think in part some of that is going to be more engagement into the Indigenous community and Indigenous rangers and better management of that land. Back to the way that it was managed in the generations previous prior to European settlement' (Respondent 4)*

*The Chamber of Commerce in local government, the Shire held a ‘what’s down the track’ [type of] event where they shared information on new businesses that are coming into town, people that are exploring new businesses. For example, there is a business that’s involved in manufacturing batteries, another business exploring being here is a medicinal cannabis business that has leased some land and a processing plant. The South West Development Commission has brought in someone, that’s been to me directly just to have a chat, that is looking at a refinery in the Collie region. And, they are doing a very good job at facilitating those conversations and helping change that mindset. (Respondent 8)*

*I’m very cautious about speaking on behalf of future generations. What they should have, because we’re living now with what previous generations thought we should have. Things change, opportunities change, technologies change, expectations change, and that discussion needs to be had [with all stakeholders]. (Respondent 1)*

**Convening** (bringing actors together) touched on coordination (eg the actions referred to by Respondent 8 above) but also included the formation of the Just Transition Working Group, alongside the Collie Coal Mines Environment Committee (CCMEC), and other bodies focusing on transition. It also reflected the need for the different state and local governmental bodies to meet and develop an overarching direction (cf. the challenge of policy and administrative coherence described in Section 6.4). Convening also reflected a need for each of these bodies to work together to ensure a coherent way forward, which attends to all the necessary scientific and human considerations:

*There’s a point in time when they’ll need to come to the table and the others will start to not be needed at the table. So that table will change depending on what phase we are at. Right now we’ve got around the table, the major employers of the impacted workforces, plus South 32 is another major employer because they are somebody who could bring some of those guys on. (Respondent 3)*

*What they need to do is change policy because the only thing stopping that [project] from happening is policy. So this is where government needs to think differently. Trying to get government agencies together, because you are crossing across a whole bunch of agencies there. (Respondent 3)*

*And this is where I’m currently working, trying to bring together that CCMEC and Just Transition Working Group because they’re beavering away over here going, ‘we are going to replace that with industry, we’re going to do this’ and there’s us over here saying, ‘Well hang on guys. There’s some pretty significant issues you need to consider and understand in context of closure and legacy.’ (Respondent 2)*

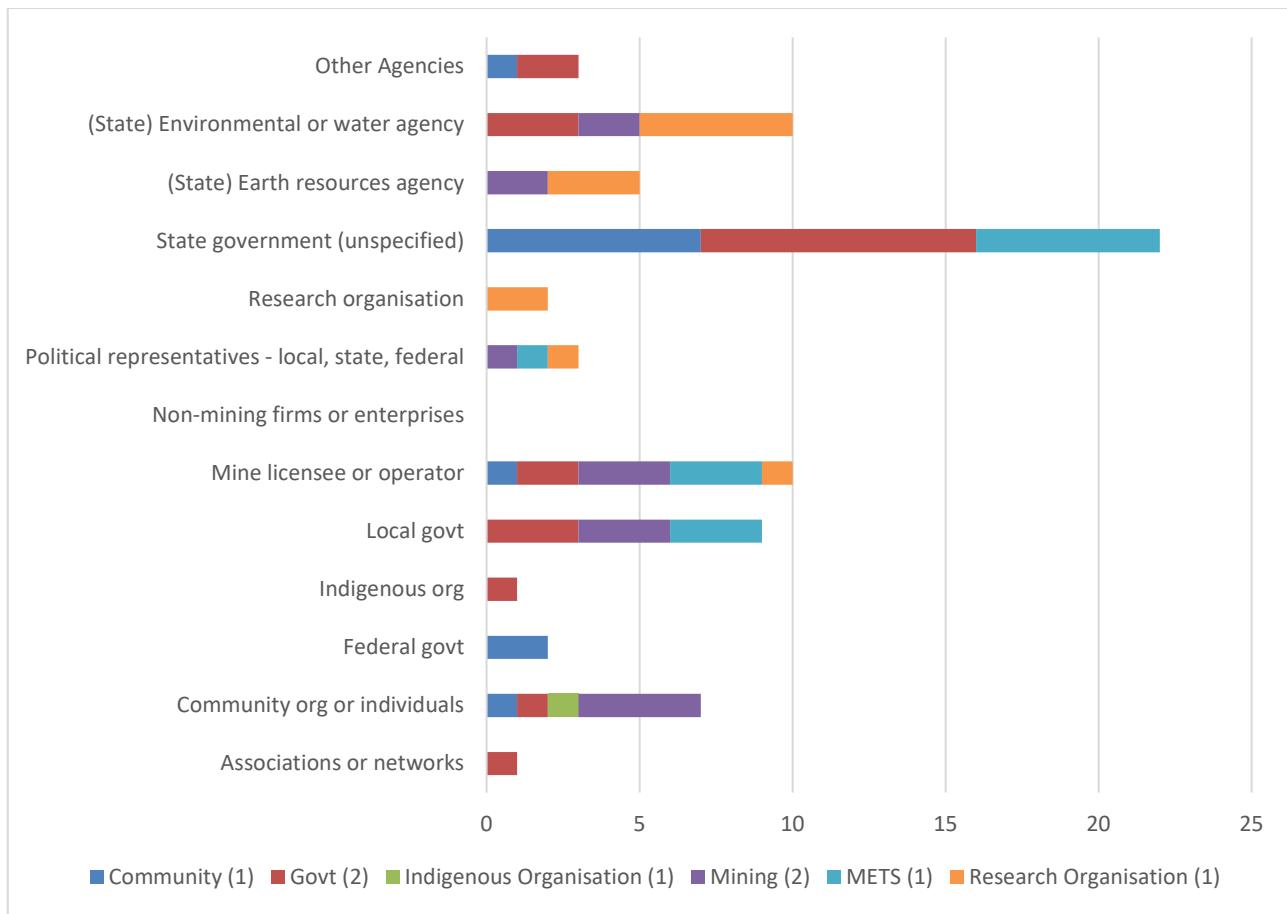
Notwithstanding the interdependence of actors, and tensions implicit in remarks from Respondent 3 and Respondent 2 above, there was little reference to conflict resolution as a dimension of action.

## 5.6 Other main stakeholders

The two categories of actors referred to as ‘other main stakeholders’ by our interview respondents were:

- Mine licensees or operators (nominated by five of six categories of respondent [seven of eight individual respondents]).
- Community organisations/individuals in the community (nominated by four of six categories of respondent; five of eight individual respondents).

In addition, state environment or water agencies; state government (unspecified); and local government were each regarded as main stakeholders, by three of six categories of respondent.



**Figure 13: Other main stakeholders (South West WA).** Note: X-axis denotes number of references coded. Number in parenthesis denotes number of respondent per stakeholder category.

Figure 13 shows that state government (unspecified) was the category of actor receiving the highest number of discrete references (i.e. remarks) in interviews:

*I think the state will need to play, and I think accelerated through climate change decisions around the role of coal in the national agenda. I think there needs to be a continued if not increased presence of the state into this area and so that will mean that the South West Development Commission and the Collie Delivery Unit through Premier and Cabinet and JTSI [Department of Jobs, Tourism, Science and Innovation] will need to continue their journey with us for more time to come. And I think that the current commitments in the order of \$100 million will probably need to be sort of stage two. I think the critical part is that we can't let government walk away without a continued and longer-term presence to make sure that this transition does take effect. (Respondent 4)*

*So, the role of the Premier and Cabinet down through the Collie Delivery Unit, which is an all-agency type of network, but JTSI particularly in terms of the heavy lifting that they've been doing on funding the analysis of those areas. (Respondent 4)*

*So you've got all three levels of government. Right now we've got a very involved and invested state government. It would be great if we had a more involved and invested federal government in this space and obviously local government plays its part. (Respondent 3)*

*JTSI, DWER [Department of Water and Environmental Regulation], DBCA, and DMIRS [Department of Mines, Industry Regulation and Safety] – we have to engage with all of them (Respondent 5) (Mineral sands)*

*So local businesses would be a big one, and that covers a broad range. You've also got things like schools, shopping centres, and all that in town, if there's a big exodus of employees.*  
*(Respondent 6)*

*And that's why I think there needs to be a core number of locals at the table because they will have to live in whatever the outcome is – good or bad. Whereas people who are coming from the outside in with good intentions, they're trying to do good jobs, but if it doesn't go well, they'll just move on to something else.* (Respondent 3)

*We need to ensure diversity of inclusion – there isn't a single 'king', a single view. We have the same people on the committees – a lot of rogues in our community who have not done a day's work in their life. It is important to talk to many, break out from the familiar faces.*

*(Respondent 7)*

For mineral sands mining transition in the South West, additional nominated stakeholders include agricultural landowners or managers. In State Forest land mined for mineral sands, DBCA are the land manager and regulator; other key regulators include DMIRS and the Radiological Council. Engagement with local community and shires was also regarded as important (Respondent 5).

Overall, Respondents gave considerable significance to investment and attention by the Department of Premier and Cabinet, which enabled infrastructure (trails) to be developed, providing incentives to attract business but that this attention needed to be maintained for some time.

In addition, and as reflected on when considering challenges, the diversity of regulatory bodies – notably, DMIRS, DWER, DBCA – made mine closure challenging as each had different objectives. As with water, it is hard to draw a boundary in terms of who is a stakeholder, as Tourism WA and Oz Industries also could be considered, as well as education (school and TAFE colleges) and researchers. And it is key to consider the values of those who will be the recipients of the transition.

## 5.7 Understanding of other stakeholders' best possible outcomes

As noted above, we invited interviewees to express their understanding of best possible outcomes for any two other categories of stakeholder, whose values they wished to discuss. Table 9 summarises the values associated with responses to this question.

**Table 9: Respondents' understanding of other stakeholders' best possible outcomes (South West WA).**

RESPONDENT	OTHER STAKEHOLDER NOMINATED	OTHER STAKEHOLDERS' VALUE
Respondent 3 (Community)	Workers in community	Employment
Respondent 2 (Government – State)	Government – State (generalised)	Fair distribution of responsibility and liability Safety and risk
Respondent 4 (Government – Local)	Government – State (Department of Premier and Cabinet)	Economic values of place (generalised) Physical infrastructure
Respondent 5 (Mining industry – mineral sands)	Government – Local	Realisation of regional LU plan
Respondent 6 (Mining industry – coal)	Local businesses	Employment or Recreational value
	DBCA	Biodiversity values with low liability
	Government – Local	Economic innovation
Respondent 8 (METS)	Miners	Employment
	Government (State and Local)	Net-positive outcome

Direct responses to this question were obtained from interviewees in four out of the six stakeholder categories (six of eight individual respondents). Table 9 shows that five of the six Respondents (in three of the four responding stakeholder categories) referred to **economic values of place** as a best possible outcome for the stakeholders they nominated. Specific expressions of this value ranged from a concern with redeployment of mining and associated industry workers (Respondent 8) to the value of business-ready industrial estate land, which requires business case analysis and state government commitment to invest in necessary infrastructure (Respondent 4).

In some cases, the best possible outcome for other stakeholders depends on knowledge of what is possible. For example, Respondent 5 (Mineral sands industry) believed that local government in the South West would like ‘reinstatement’ of their predominately agricultural regional land use plan as the post-mining land use. The Respondent however also acknowledged that in non-agricultural areas there are other land use opportunities, whose feasibility remains uncertain:

*We have by-product disposal facilities associated with processing plants for which we haven't yet determined our final land use. We'll need to do more work to determine our strategy for achieving a beneficial land use from those facilities in the long term. (Respondent 5) (Mineral sands)*

Implicit in the above comment is the value of a **fair distribution of responsibility and liability**.

Given the region’s challenge of rehabilitating legacy mine sites (Section 6.4), a belief that addressing liability fairly is a best possible outcome for the state is apparent in the following comment:

*We need to improve engagement between the various stakeholders so the beliefs and expectations are known alongside some of the legacy risks and environmental issues.*  
*(Respondent 2)*

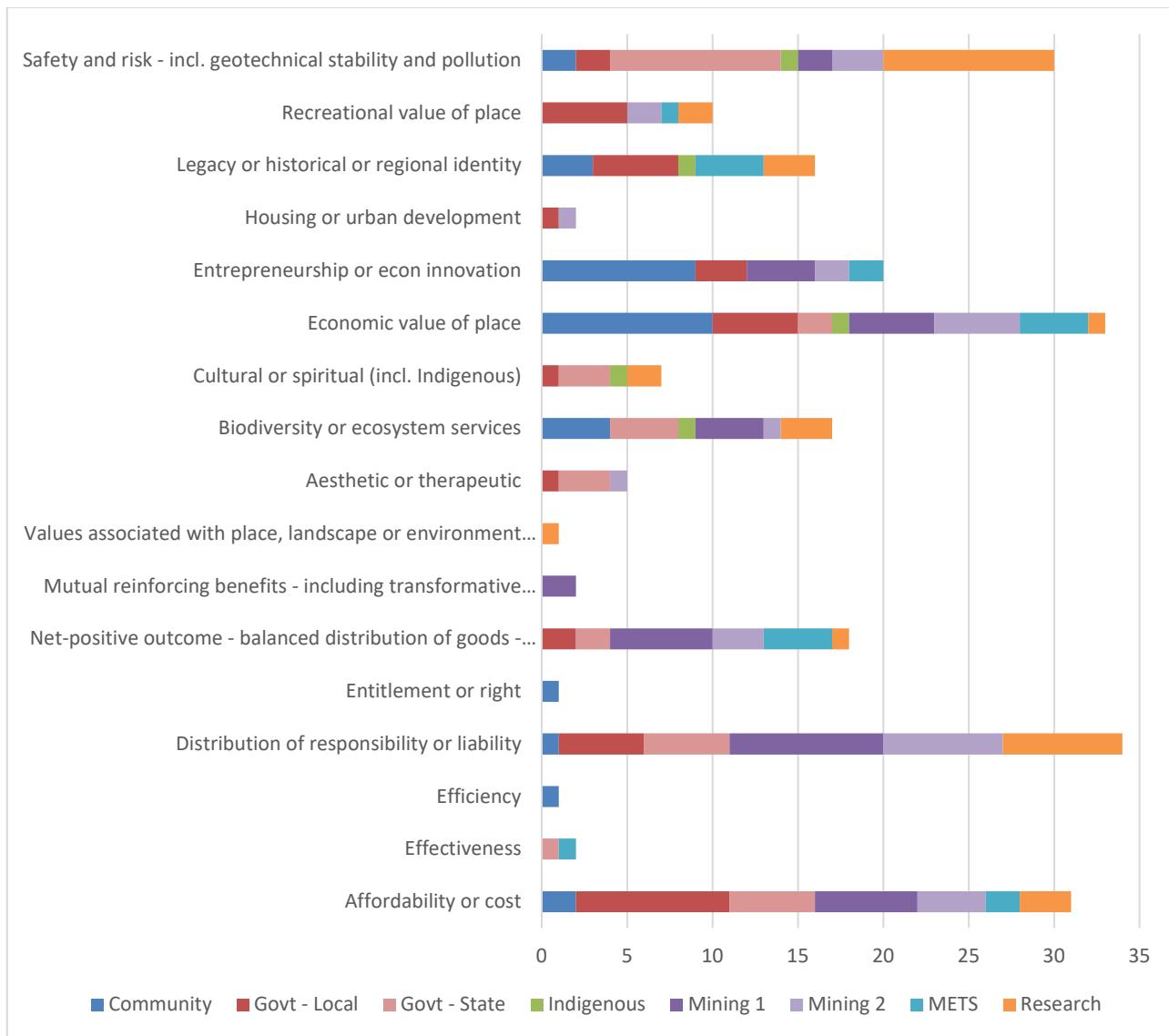
The achievement of a fair distribution of responsibility and liability presumably would realise the values of **community support** (ie policy legitimacy) and **net-positive outcome**. These two values are clearly expressed by Respondent 8 as a best possible outcome for miners and government respectively:

*[Miners and government seek] the perception of the wider community... that they are seen to be doing the right thing, in that community is supportive of what the end looks like... from a state and local government point of view... they want their community to be comfortable that the decisions made along the way, and the outcomes have been the best and all they could ever hope for. (Respondent 8)*

## 5.8 Key values and their alignment

### 5.8.1 Place-related values

Touching on the earlier discussion regarding the best possible outcomes (Section 6.3), the place-related values that dominated the discussions were: **Economic value of the place** (all eight respondents), **safety and risk** (seven of eight respondents), and **Biodiversity or ecosystem services** (six of eight respondents) (Figure 14).



**Figure 14: Distribution of place-related, substantive or procedural values by respondent (South West WA).**  
**Note: X-axis denotes number of references.**

### 5.8.1.1 Economic values

Economic value as viewed by the Interviewees extends from the past and present, out to the future, taking into account system context elements consisting of: the region's existing population, natural resources, human population, industry critical mass, and commercial recreational sector.

*We [a METS firm] looked at [Collie] from a point of view of population and potential access to population. We knew that the [workforce] we would be training would be predominantly FIFO to the Northwest and FIFO is not only Perth Metro residents, there's also a significant population in the southwest. And we knew that the likes of Rio and others were either utilizing or looking to use Busselton and create that as an alternate FIFO area as well. So, we figured that a South West location from an impact point of view... and the availability of funding was a good decision to bring it down here. (Respondent 8)*

*There are opportunities for [mineral sands mining] process by-products (i.e. 'waste') to become a beneficial product – that's been very encouraging. We've got an iron oxide by-product, which had been stockpiled as a waste for many years. Now that we've dealt with its handling issues it's making money for the operation, being exported as an iron concentrate product. Similarly, we*

*had char waste that represented a closure liability, but is now a valuable product, being sold into the activated carbon market. (Respondent 5)*

The community organisation respondent noted that place-related values which enable tourism also make a place ‘liveable’ to workers:

*Tourism... makes the job of attracting investment much easier. And when you’re looking at people who are investing decent amounts of money and want to [attract and retain] a decent workforce, they’re also very interested in liveability. Tourism has helped with that as well in terms of improving the liveability and the perception of the town in order to tip over to that ‘yes’ investment decision for some of the other bigger projects that we’re chasing. (Respondent 3)*

#### 5.8.1.2 Safety and risk

We found a clear alignment of values in terms of making the pit lakes safe for people to enjoy, and in terms of management of pollution caused by AMD. References to waste management (noted by seven of eight respondents) reveals the important benefit of continuing to be open to new ideas. One notable project is developing local manufacturing of geopolymers cement, making beneficial use of fly-ash. Fly-ash, a by-product of coal combustion, otherwise requires safe disposal:

*[There is an] eco-concrete project as well – Collicrete. So instead of having to bake the Portland cement at 1,200 degrees, which is incredibly energy-intensive, [the project has] a chemical geopolymers process, which is exothermic in itself, so it creates its own heat, rather than having to put it in the kiln, so it happens at ambient temperature. It’s using fly ash which is a waste product from power stations. (Respondent 3)*

#### 5.8.1.3 Biodiversity or ecosystem services

A proposed post-transition landscape, whilst not returned to a prior state, can provide benefit:

*These mine rehabilitation plans don’t give the best habitat, but they have habitat. If you can put back some habitat and that habitat will buffer some of the better habitat, for example, will provide corridors for just managing that habitat and will protect other habitat in the area.*  
*(Respondent 1)*

In the context of wetland conversion occurring at wider scale, a transition from coastal pine forest to aquatic ecosystem, at the end of mineral sands mining was valued:

*There had been a lot of clearance of wetland ecosystems across the Swan coastal plain. So it was agreed at the time [1980s], that rehabbing from a pine forest to a series of wetland lakes would be a good outcome. And so that’s what happened. Following the mining of the pine forest, the [mineral sands] mine pits were retained to form a series of lakes, which now provide good habitat for aquatic ecosystems. (Respondent 5)*

Realisation of biodiversity or ecosystem service values aligned with sustaining landscape assets (Section 6.3, best possible outcomes).

#### 5.8.2 Substantive or procedural values

The realisation of innovative biodiversity or ecosystem service values referred to above implies a need for multi-stakeholder collaboration. As we saw in Section 6.5, the action of convening multi-stakeholder dialogue was perceived as effective for catalysing innovative action. Yet, as indicated by references to need for whole-of government integration (Section 6.4) such action is not supported by prevailing institutional arrangements.

The institutional arrangements around mine closure appear to be dominated by values of **risk mitigation**, as opposed to **adaptability, pragmatism, and risk-taking** related to post-mining land use:

*Historically we agreed to a quasi-native habitat, which was a pragmatic view, but in more recent discussions they're far more inflexible, and they're calling for a pristine state and bear in mind, this was pine plantation. So that's where we've been at loggerheads. (Respondent 5) (Mineral sands)*

*There is a disincentive to rehandle all this waste, and basically to backfill all of your pits. It would be cost prohibitive to the point where you couldn't afford to. It's a fine balance between not just rehabbing and operating in certain ways.' (Respondent 6) (Coal)*

*Regulators] are not going to accept any risk because they might get burned. But it results in this zero-risk approach... They're not interested in considering what's the best use of that land for the community, they just want to follow their rulebook'. (Respondent 5) (Mineral sands)*

*We might already have sign-off from the farmer. He's accepted the land 10 years ago, and as far as he's concerned, mining's long gone. But the final relinquishment by the regulator, is rarely worth the effort. (Respondent 5) (Mineral sands)*

Respondent 5 indicates that in certain situations, licensees regard the option to cease operations and retain the lease (keeping the site under care and maintenance) as preferable.

### 5.8.3 Summary

As illustrated throughout the case study, a re-occurring theme when considering mine closure and transition, was the importance of **taking a systemic, integrated, approach**. Economic value was intertwined with considerations relating to the environment, and to social and cultural considerations. It is important to embrace this complexity in a manner that is manageable. In turn this demands the design and development of processes that effectively facilitate closure.

Another theme relating to mine closure planning centred on the **planning process** itself. Timing is important and given the complexity, planning early is important. Planning would reduce uncertainty and if managed appropriately avoid workers leaving prematurely. This then touches on the need to ensure inclusive planning where all stakeholders have a working understanding of the breadth and nuance of the different challenges, options and values. This includes understanding an option's technical requirements and timeframe.

**Rehabilitation of mine** sites requires taking a nuanced approach, reflecting not only the challenges relating to rehabilitation (e.g. acidification of water, subsidence, etc.) but also to maintenance and liability of the resultant asset. There is an important opportunity to relate this to socio-cultural 'rehabilitation', as residents shift mental conceptions and emotions. Involving stakeholders in the closure process helps build ownership in the outcomes and manage the 'grief' of transition.

By involving a wide range of stakeholders **creative and innovative thinking** can take place, allowing for example for ideas such as the conversion of waste products into useful resources, the conversion of mine pits into motor-cross tracks and autonomous trucking driving learning spaces, and other options.

# 6 Gove, Northern Territory

## 6.1 Introduction

### 6.1.1 Gove Peninsula landscape and history

Understanding the unusual landscape and history of the Gove Peninsula (hereafter, ‘the Peninsula’) is crucial to understanding its future transition. The Peninsula lies on the North-eastern corner of the mainland of Arnhem Land in the Northern Territory (Figure 15). This region has been occupied by Indigenous people for many tens of thousands of years and the inhabitants speak various dialects of the Yolŋu language group. They are divided into at least 13 clans, which are the basis for a complex system of the ownership of territory, and whose members must ‘marry out’ into other clans according to complex cultural rules. This results in residential populations with diverse clan cultural affiliations. The main landowning clans on the Peninsula are the Rirratjingu, Gumatj, and Galpu clans.



**Figure 15: Gove Peninsula. Source: Mapcarta.com and Mapbox.**

The overall landscape type is tropical savannah, with a range of diverse local habitats, and geologically, the Peninsula holds substantial surface deposits of bauxite, which has been the sole basis for commercial mining in the area. The landscape is imbued with deep cultural significance for its Yolŋu owners and this significance and the development of mining in the region, have both had substantial impacts on the Australian nation as a whole.

Yolŋu people had considerable contact with non-Indigenous people prior to colonisation compared with many other continental Indigenous Australians. Macassan trepangers from the Indonesian archipelago

journeyed to the Arnhem coast for centuries prior to 1770 and this contact involved trade, seasonal residence, and other diplomatic relations (MacKnight, 1976). This experience continues to shape Yolŋu responses to ongoing colonisation. The region experienced some violent colonial incursions in the 1800s and early 1900s, but no long term colonial residence was established prior to World War I.

In response to colonial massacres in this region and in other parts of Australia, Arnhem Land was made a protected reserve in 1931, technically closed to outsiders with the exception of Anglican and Methodist missionary societies (Dewar, 1992). Other than some historically noteworthy encounters with fishermen (Egan, 1996), the Reserve remained comparatively well protected from the more extensive ongoing colonisation occurring elsewhere. In 1935, a Methodist mission was established at Yirrkala and the missionaries encouraged members of the Yolŋu clans dispersed throughout the region to centralise their residence at the mission. The mission emphasised Western education and mainstream economic participation, but was also tolerant of Yolŋu cultural beliefs and practices. Centralising residence both created and exacerbated inter-clan tensions, partly as the land on the Peninsula is primarily owned by only some of the clans from the wider region. During World War II, an air base was built, increasing connectivity between the Peninsula and the wider Australian nation.

### **6.1.2 Peninsula mineral development, Yolŋu resistance, and Indigenous land rights**

In 1952, substantial bauxite deposits were found by the Australian Aluminium Production Commission in Melville Bay, north of Yirrkala. The Commonwealth Government then enabled changes to mining-related legislation to enable the Administrator of the Northern Territory to grant mining rights to companies on Aboriginal reserves<sup>13</sup>. The Commonwealth Government approved plans for mining in 1963, excising 362 km<sup>2</sup> from the Arnhem Reserve. In response, Yolŋu clan leaders, facilitated by mission staff, produced the 1963 Bark Petition to the Australian parliament, stating that they were residents of the land that was removed and had been unaware of the developments. The petition further declared that the area contained vital sacred sites and hunting grounds. The petition led to a parliamentary select committee and remains on display in the foyer of Parliament House in Canberra, but its central concerns were largely ignored. In 1968, the Commonwealth government granted permission for the mining consortium Nabalco to build a bauxite mine and treatment plant.

Yolŋu traditional owners then launched legal action in the Northern Territory Supreme Court. *Milirrpum vs Nabalco Pty Ltd* is the first Indigenous land ownership and land rights case in Australian history (Williams, 1986). Justice Blackburn ruled against the Yolŋu, finding that their rights had been invalidated by colonisation by the Crown. Nabalco was able to continue its operation, establishing the bauxite refinery and the mining town of Gove (Nhulunbuy).

The negative court decision and further Yolŋu articulation of their position led directly to the Aboriginal Land Rights Commission (known as the Woodward Royal Commission) and then to the Aboriginal Land Rights (Northern Territory) Act of 1976. This was the first piece of legislation in Australia that specified a process for recognising and granting Indigenous traditional ownership. It also required the creation of major regional land councils who are independent statutory authorities of the Commonwealth. They have designated functions to assist Aboriginal people to acquire and manage their traditional lands and seas, consult with traditional landowners and other Aboriginal people with an interest in affected land, and ensure that landowners give informed consent before any action is taken to affect their lands and seas. The Northern Land Council performs these functions for Traditional Owners across the northern mainland of the Northern Territory.

The actions and cases undertaken under the Aboriginal Land Rights Act would further enable Australian legal understanding and experience of Indigenous culture, custom, and law. This in turn supported subsequent

---

<sup>13</sup> <https://www.nma.gov.au/explore/features/indigenous-rights/land-rights/yirrkala>

recognition of native title by the High Court of Australia in the 1992 Mabo decision, leading to the Commonwealth Native Title Act 1993 that has provided a mechanism for recognising Indigenous rights in country across large areas of the continent. As a result, Yolŋu resistance to mineral development on the Peninsula is a crucial precursor to these national developments in the legal, political, and organisational recognition of Indigenous rights.

### **6.1.3 Gove Peninsula mining type and mining methods**

Bauxite production on the Peninsula started in 1971. The bauxite lies on a layer at the surface and so the mine type is a strip mine in which the trees and thin overburden are removed and then a layer of bauxite several metres thick removed. The lowered area is then revegetated. This distinctive type of mining has a large footprint on the landscape compared with other mining types. However, provided revegetation is undertaken with pre-existing plant species, an inexperienced observer may not detect the final impact on the landscape when compared with pit or open cut mining. On the Peninsula, revegetation has been progressively undertaken throughout the recent life of the mine, reducing the apparent landscape impact at any one point in time. Nevertheless, the volume of mineral removed in bauxite mining is substantial: 11.8 Mt of bauxite was exported from the port in 2021<sup>14</sup>. The associated alumina refinery was a condition of the original lease but was closed in 2013 due to poor operating viability, partly as it operated on diesel power. Rio Tinto intends to cease all mining operations entirely by 2030 at the latest, and potentially earlier.

### **6.1.4 Town creation, homelands, and regional demography**

The decision to create a town to support the mine was consistent with the prevalent operating model for the minerals industry at the time the mine commenced. It was also consistent with Commonwealth Government approaches to regional economic development in Northern Australia that focused on large scale and established industries rather than the small scale and artisanal emphasis adopted by the missions. Data on the pre-existing Yolŋu population of the region prior to mineral development is scarce and/or inaccessible, but a well-known response to the arriving of mining and the mining town was the homelands movement (Morphy, 1991). This movement involved clan-based groups leaving Yirrkala and other missions and returning to their original clan territory to establish small Indigenous-only communities of between 10 and 150 people. This enabled them to avoid the worst of the social and cultural impacts of a comparatively large number of non-Yolŋu arriving in the area and particularly of the wide availability of alcohol which had previously been very restricted. Homeland residence remains an important feature of life in the area.

Census data shows the residential and demographic effects of these influences. Data from 2001 (well prior to the refinery closure) showed a region-wide population of 13,080, of which 40% were non-Indigenous and 29% were resident in Nhulunbuy. 2016 regional data is not fully comparable, but the corresponding population figure for Nhulunbuy was 3,240, indicating the decline of the town population following the refinery closure. Data from the 2021 census shows a population of 3,267 in Nhulunbuy, indicating a stable overall population since 2016<sup>15</sup>.

## **6.2 ‘A new journey together’ – wider stakeholder commitment to the transition vision of Traditional Owners**

### **6.2.1 The Gove Peninsula Futures Reference Group**

Following the Gove refinery closure in 2013, the Northern Territory Government (NTG) commenced a series of internal planning steps to begin preparation for eventual mine closure. In 2019, the NTG convened the

<sup>14</sup> <https://www.riotinto.com/en/operations/australia/gove>

<sup>15</sup> In the 2021 census a comparatively high number of respondents (over 20%) did not state whether they were Aboriginal and/or Torres Strait Islander, making it difficult to estimate any changes in this regard.

Gove Peninsula Futures Reference Group (GPFRG). This stakeholder-based group supports communication, planning and decision making with regard to the future of the Peninsula and by extension the wider Arnhem Land region within which it lies. Table 10 identifies the members of the GPFRG and their interests in the transition process<sup>16</sup>.

**Table 10: Gove Peninsula Future Reference Group: selected roles in mine transition.**

GPFRG MEMBER	MEMBER DESCRIPTION AND GENERAL ROLE	ROLE IN MINING TRANSITION
Northern Territory Government	Governance of the Northern Territory through devolution of Commonwealth government powers <sup>17</sup>	<ul style="list-style-type: none"> <li>– Oversight of mine closure</li> <li>– Facilitate post-mining planning to offset loss of services and subsidies provided by the mining company</li> <li>– Enable future service provision and alternative economic development</li> </ul>
Rio Tinto	Large multinational mining corporation that has owned and operated the Gove mine since 2007	<ul style="list-style-type: none"> <li>– Bauxite mining until scheduled cessation</li> <li>– Refinery decommissioning and site rehabilitation</li> <li>– Mine closure and site rehabilitation</li> <li>– Fulfill post-mining legacy responsibilities</li> </ul>
Northern Land Council	Independent statutory authority of the Commonwealth with responsibility for assisting Aboriginal peoples in the Top End of the NT to acquire and manage their traditional lands and seas	<ul style="list-style-type: none"> <li>– Meet obligations and responsibilities under the Land Rights Act (NT), including Traditional Owner identification and consultation</li> <li>– Facilitation and management of activities, leases, and tenure arrangements on land rights land</li> <li>– Support and advocacy for Traditional Owners</li> </ul>
Gumatj Corporation	Corporation representing the Gumatj clan – Traditional Owners for parts of the Gove Peninsula – and focused on business and community development	<ul style="list-style-type: none"> <li>– Traditional Owners and managers of key territory on which the mine operates</li> <li>– Major recipients of royalty payments from current Rio Tinto mining</li> <li>– Owner/operator of a small bauxite mining operation and mine-training centre</li> <li>– Fostering economic development through owning, managing, and/or enabling diverse businesses and enterprises</li> </ul>
Rirratjingu Corporation	Corporation representing the Rirratjingu clan (Traditional Owners for parts of the Gove Peninsula) and focused on economic independence and financial self-sufficiency for the Rirratjingu community	<ul style="list-style-type: none"> <li>– Traditional Owners and managers of key territory where non-Yolŋu people reside and/or mining operations occur</li> <li>– Major recipients of royalty payments from current Rio Tinto mining and from the Yirrkala town site</li> <li>– Owners of Rirratjingu Mining which operates the Gove blue metal quarry</li> </ul>
Commonwealth Government	National government with responsibilities identified in the constitution including defence, immigration, taxation, air travel and social services payments, as well as a funding role for many State and Territory services	<ul style="list-style-type: none"> <li>– Provides the majority of NT government revenue<sup>18</sup></li> <li>– Sets policy and provides social and welfare services payments to the highly social security dependent regional Arnhem Land community</li> <li>– Oversees the Federal Aboriginal Land Rights (NT) Act and the land councils the Act requires</li> <li>– Major role in key infrastructure (roads, ports, air services)</li> <li>– potential influence through decisions about defence, immigration, taxation, etc.</li> </ul>

<sup>16</sup> See Beer et al. (2022) for an earlier account from the CRC TiME of stakeholders in the Gove Peninsula transition.

<sup>17</sup> States are responsible for all matters not identified in the Australian Constitution as Commonwealth Government responsibilities. Australian Federal Territories are not States, although their governments perform similar functions to State governments based on the devolution of Federal (Commonwealth) powers. The Federal government retains certain powers to override Federal Territory parliamentary legislation and government decisions.

<sup>18</sup> Projected as 69% of total revenue in 2022–2023: <https://budget.nt.gov.au/budget-papers/where-does-the-territory-governments-revenue-come-from>

In addition to the formal members of GPFRG, Developing East Arnhem Limited (DEAL) is responsible for leading key economic development activities for the group. DEAL is an independent not-for-profit company with the mission to drive economic development and diversification in East Arnhem including housing, strategic infrastructure investment, data gathering and analysis, and governance and administrative support.

### 6.2.2 The Traditional Owners' Vision for the future of the Peninsula

In 2021, the GPFRG facilitated the production of a document that outlined the Traditional Owners' vision for the future of Nhulunbuy and the Gove Peninsula (GPFRG, 2021). Entitled 'A new journey together', the document provides some background to the GPFRG, the history of mining on the Peninsula, and Traditional Owners' previous responses to mining. Based on the views of the Rirratjingu clan and Gumatj clan Traditional Owners as the two primary landowning clans on the Peninsula<sup>19</sup> it outlines the vision for the future as follows:

*The Gove Peninsula is one of the most special places in Australia. Our vision is to rejuvenate the region. It will be a place for us to share our culture, and a business and services hub for all of Arnhem Land. We will work together to create a stronger and more secure future for generations of Yolŋu and Njäpaki [non-Aboriginal people] to come. (GPFRG, 2021, p. 6)*

The rest of the document then provides key elements of the overall vision (Table 11) and some guiding principles for the transition that the Traditional Owners ask all stakeholders in the Peninsula transition to observe (Table 12).

**Table 11: Key elements of the Traditional Owner Vision. Source: GPFRG (2021, pp. 6–7).**

KEY ELEMENT	FURTHER EXPLANATION
Recognition of Traditional Owners	Yolŋu are recognised as Traditional Owners of the Gove Peninsula, and people who come to this region will respect our land and our culture.
Yolŋu and Njäpaki together	Yolŋu and Njäpaki will live and work together in harmony in Nhulunbuy, as a leading example for the rest of Australia.
Connecting with culture and country	Mining has changed our lands, but Yolŋu history and song lines remain. Nhulunbuy will be a place for us to share our culture with the world.
A diverse economy	The Gove Peninsula will be a place for new business ideas, building on its special location and history. We will have a diverse economy with a choice of jobs.
Nhulunbuy as a services hub	Nhulunbuy will be a hub for people from across Arnhem Land to access education, training and health services.
Rejuvenating Nhulunbuy	We want to keep everything that is good about Nhulunbuy, and improve it. Our vision is to maintain a sustainable population and create an exciting, well-managed community.
Infrastructure ready for the future	We will have reliable, affordable essential services and quality infrastructure to support a good quality of life and a strong economy.
Town, communities and homelands strong together	Yolŋu will be able to live safely, happily and with dignity in nearby communities and homelands. The whole region will be connected.

<sup>19</sup> Yolŋu territorial ownership patterns are complex and most local areas, particularly coastal areas, comprise a 'patchwork' of land and waters belonging to different clans. This patchwork is both constituted and traversed by the Ancestral beings who created the landscape and continue to dwell within it (Morphy & Morphy, 2006; Williams, 1986). The 2021 GPFRG vision document does not describe the methods used to elicit the Vision. Yet the document is explicit that it derives from the two primary clans it refers to directly, rather than being sourced from or endorsed by the other 13 clans from the wider region, at least some of whom also have historically held territory that is impacted by mining development.

**Table 12: Guiding principles from Traditional Owners for the Peninsula transition. Source: Collated from GPFRG (2021, pp. 14–15).**

GUIDING PRINCIPLE	FURTHER EXPLANATION
The Traditional Owner vision must be at the centre	We invite all stakeholders to support Traditional Owners to achieve this vision, in recognition of our rights as custodians of the Gove Peninsula. By putting this vision at the centre, we can plan and invest for the long-term.
We will work together with unity among the Clans, and in partnership with Njäpaki	Through the Gove Peninsula Futures Reference Group, we will work in a spirit of trust and openness. Our Clans must have an ongoing voice in decisions, and we will need the best information to guide us.
We should start making decisions now, to create certainty for the future	To achieve our vision, we must not wait until mine closure. Traditional Owners will put in place new land tenure arrangements as soon as possible to provide certainty for residents and businesses. Other stakeholders must do their part by investing in infrastructure, developing new industries and creating pathways for Yolŋu into jobs.
Transition should create opportunities and not problems for Yolŋu	Mining began without Yolŋu having a say. We do not want to be left with problems after it ends (such as poor housing or infrastructure). We are working together with Rio Tinto under the Gove Peninsula Traditional Owners Agreement to make decisions about rehabilitating land, retaining assets and creating opportunities for Yolŋu businesses during transition.
We must empower our young people, who are future leaders	Our young leaders have helped write this vision. They will be our voice in the future. We should provide support for them to develop as leaders and involve them in making decisions.
We should think in new ways	The history of the Gove Peninsula is unique, and we are beginning a new journey. Stakeholders must embrace new ideas. Yolŋu and Njäpaki have different knowledge and world views. We will share our knowledge, and we ask others to listen and understand us.

The Vision document has been endorsed by all the GPFRG stakeholders as providing strategic direction for transition. This GPFRG commitment is partially a pragmatic response to the fact that the land will revert to Traditional Ownership – that Yolŋu will be the final decision makers on this land. Yet it also reflects alignment in the visions of different stakeholders for the future of both Nhulunbuy and the Peninsula. Five work streams are identified by document to begin implementing this vision and supporting transition. These are discussed in further detail. Key principles and categories from the Vision document are used where appropriate in the analysis that follows to highlight alignment between participant interview content and the Vision.

## 6.3 Mining's impact on the region

### 6.3.1 Social and economic changes

Across the interviews, respondents generally prioritised the social and economic changes wrought by mining in the Gove context. The first question asked about changes to both the community and landscape, and respondents in six of the seven interviews began with social, cultural and/or infrastructure changes rather than landscape or environmental ones. In five of the seven interviews, a follow up prompt to consider landscape changes was required to elicit a response about such changes. This may be a consequence of both the cultural and community specificity of the Peninsula, as well as the specific type of mining undertaken there.

Within the responses about social, economic, and community changes, respondents in two interviews noted that mining at Gove had significantly influenced Indigenous land rights struggles – answers consistent with the history provided above. A majority of respondents also identified the large number of non-Yolŋu people

who moved to the region and some major effects of this<sup>20</sup>. These effects can be summarised as the creation of a series of cultural, geographic and economic divisions – divisions between Yolŋu and non-Yolŋu, between the Gove Peninsula and the rest of Arnhem Land, and between the Yolŋu homelands and the much larger town of Yirrkala that emerged from the former mission. Two further effects are the establishment of important physical infrastructure, and Yolŋu people having enhanced understanding of, and participation in, the mining industry. Examples of these are discussed in turn.

#### 6.3.1.1 Intersecting cultural, geographic, and economic divisions

The early arrival of alcohol with the mine had a significant impact on Yolŋu society, and alongside the negative social and health effects, respondents linked this directly to the outstation or homeland movement in which most Yolŋu clans established small communities away from Yirrkala from the early 1970s onwards:

*... the death rates of young people, men in particular, just went up and up and there was no possibility of processes of adjustment because the mining town, in a sense, did prioritise itself for a long period of time in terms of access to alcohol. (Respondent 10)*

*During the 60s, mining was coming up, the township of Nhulunbuy, and Yirrkala was slowly changed. But the problem was nanatji [alcohol], alcohol and drugs. That's why the Yolŋu wanted to have Yirrkala separate as a dry community. And [the] same with homelands, they need to be a dry community. They didn't want to live in regions with people that disturb privacy – the Yolŋu lifestyle. (Respondent 1)*

The 17 km geographic separation between Yirrkala and Nhulunbuy was also a cultural and an economic division, as this respondent noted:

*Until quite recently, there's been two pretty well distinct societies here, the white and the black, and they didn't really intermingle very much. So Nhulunbuy was the mining town and they're all white workers, pretty much, and then the Aboriginal people lived here [Gunyangara] or in Yirrkala or other places, and there wasn't much Indigenous employment in the mining at all. (Respondent 6)*

The creation of a royalty system from the mine, combined with the lack of Yolŋu employment, also generated economic inequalities within Yolŋu society:

*[There was] the introduction of a class system, because the royalty regime doesn't favour all the area affected. The vast amounts of the royalties go to a very small subset of the local population, and that has had profound and ongoing social effects. (Respondent 9)*

*... there's been a bit of greed and unequal sharing, from what I've seen, so some people have done a lot better than others. (Respondent 6)*

*From that you could argue that maybe 20% of the population has been favoured by being able to build an investment portfolio into the future which others don't have access to. (Respondent 10)*

A further consequence of the royalty distribution system, and to a lesser degree the resettlement from the mission entailed by the homelands movement, is an economic and a geographic division within wider Yolŋu society in Arnhem Land:

*... There's obviously a lot of wealth that's been generated as a result of the mine here, not only for Yolŋu businesses and Traditional Owners, but also for non-Yolŋu businesses. That economic*

---

<sup>20</sup> One respondent noted that the Dhimurru land management office was created to manage the effects of non-Yolŋu recreational use of the surrounding landscape. This was one of the first Indigenous land management offices created in Australia.

*inequity that you see between the Gove Peninsula and the broader region is certainly something that plays through in the conversations with communities and homelands off the Gove Peninsula. (Respondent 8)*

In one interview, respondents noted that the historical divisions and inequalities partly derived from government assumptions about what mining development would bring and hence, a lack of policy and action to manage its effects:

*Government policy diminished the importance of local initiatives... they failed to focus on development initiatives, resources and everything else, on Yirrkala and the homelands. So they took for granted that somehow employment was going to be in the town (Respondent 10)*

*The mining town shifted government's view away from what the mission had in mind, which was the internal development of a regional economy towards, 'oh well! that would be catered for by Nhulunbuy'. I think that was a really major thing. When we first of all arrived at Yirrkala, the number of Yolŋu actually employed full time in different things was enormous, so the shop, which was a very successful store, was almost entirely Yolŋu-run. (Respondent 10)*

The nature of economic activity, and the concentration of wealth in the non-Yolŋu community has had other social and economic consequences. One respondent noted that decades of mining had led to some local non-Yolŋu people expecting high incomes without substantial educational qualifications or extensive work hours – such people were known locally as 'Gove specials'. Historically, the industry has employed more non-local males without higher educational qualifications than is the case in many other industries, further influencing community dynamics. Two respondents in this study reported that it was currently unclear how much of the disposable income created by mining development was spent in the town, and therefore what benefits from that income accrue locally. Higher income earners in mining may not purchasing many goods and services locally compared with lower income earners with fewer purchasing options. These considerations indicate the more subtle social and economic impacts of mining development in a region such as Arnhem Land.

#### 6.3.1.2 Infrastructure development

In five of the seven interview responses reflecting on changes, respondents referred to the significance of the local infrastructure that mining had brought. Key comments about this infrastructure included that it was used by all, not just the company; that it was substantial for the size of the town; and that residents had become accustomed to this comparatively high quality of service:

*... the mining town isn't just a mining town, it's also the regional service centre. So things like the hospital, there are all kinds of facilities there that simply wouldn't have been there if it hadn't been for the mine, and people have got used to those things being there. (Respondent 9)*

*Nhulunbuy is our service provider area; school, fuel, barge, Qantas landing and the road to Golumala. So all of us are servicing that, all of us are using that. (Respondent 1)*

*... (it's) a significant level of infrastructure investment that you wouldn't see generally in a population of this size in a region. So things like large airports that can take jet planes, ports – a town that's incredibly well serviced for the size of its population. (Respondent 8)*

*... the Indigenous populations are really reliant on Nhulunbuy as a services hub, and you see that in the [Traditional Owner] Vision obviously, that they want Nhulunbuy to remain strong. The Traditional Owners do because they see it as essential for their way of life up here as a services hub now, but 50 years ago it wasn't the case. (Respondent 5)*

### 6.3.1.3 Increased Yolŋu knowledge of and participation in mining

In three of seven interviews, respondents referred to improvements in Yolŋu knowledge of mining practices, and further of Yolŋu involvement in mining, as a social and economic consequence of the mine at Gove. This was a phenomenon of more recent history, particularly dating from the arrival of Rio Tinto in 2007 and the 2011 Gove agreement:

*... Rio Tinto, the third mining company, came in and it changed a bit when we signed our Gove Agreement 2011, that opens access for Yolŋu to work in the mine. Work training, [there were] big changes there, and this opens up access there for [clan name] Traditional Owners to have contracts with the Rio Tinto. (Respondent 1)*

*... [there is] a broader awareness of mining and what mining can bring from a positive and negative sense amongst Traditional Owners and communities that you might not see in other places that are as remote as this, and probably a deeper understanding and engagement with the mining industry. There's continuing conversations with other mining operators that are looking to mine here. The Gumatj people who are one of the Traditional Owner groups of the Gove Peninsula have established their own mining operations which arguably never would have happened if there wasn't the bauxite mine here. (Respondent 8)*

*In 2007 when I left and having worked closely with Yolŋu people for the previous eight years, the attitude towards mining was more or less 'this is a whitefella business. They do the mining [and] yeah we get some royalties and some benefit from it, but it's basically they're stealing our land, they're running their business on our land and they're taking it'. But in coming back just over ten years later I've seen a lot more engagement with the local Aboriginal people and a lot more benefit flowing to, particularly the Traditional Owner groups in the region. (Respondent 7)*

As the above quotes show, respondents identified growing Yolŋu understanding of the mining industry, and direct engagement in it, as an important recent social and economic change created by that industry.

### 6.3.2 Landscape changes

Respondents identified a series of landscape or environmental changes wrought by mining, at times in response to prompts about landscape change and/or the type of mining used on the Peninsula. The Gove mine is a standalone facility – the next nearest mine on Groote Eylandt, over 200 km away in a direct line, is inaccessible by road, and on land belonging to Traditional Owners of a different language family. As a consequence, some respondents compared the distinctive impacts of Peninsula mining with other mining contexts elsewhere, others answered based on their local understanding. Two primary sources of impacts were identified – those from mining operations and those refining operations.

#### 6.3.2.1 Changes caused by mining operations

The strip mining process has two major effects – it creates an impact across a wide geographic footprint and it enables a progressive, ongoing rehabilitation process for areas that have been mined, rather than rehabilitation predominantly occurring at or near the end of mine life. Both aspects of this impact were noted by respondents.

*[we've] been doing progressive rehabilitation. Compared to a lot of other kind of mines, the expression and what you see on the surface after the mine has gone through an area is less than hard rock pits and arguably less than the impact that coal sites have. (Respondent 5)*

*[It's] a much more vast area of land. But it's almost like, remove three or four metres so it drops down in its height or elevation, but then the rehabilitation process basically puts topsoil and seeds on top of the newly exposed surface, and it's allowed to regenerate. (Respondent 7)*

*It's difficult to pinpoint the older areas of rehabilitation from the virgin bushland next door.*  
 (Respondent 3)

*I was quite struck by, in some ways, how limited the impacts are on the landscape, being that they effectively strip almost up to eight metres down. It's not as though it's a coal mine where you have a massive pit. So in that respect, it's somewhat light on the environment, although I do understand it does change the landscape quite dramatically.* (Respondent 4)

However, the effects of this kind of mining are still evident, and particularly so for the Traditional Owners who know the country best.

*The landscape physically has changed and you basically see the scars on the earth, particularly when you fly in and out of Nhulunbuy.* (Respondent 7)

*It's a mixture, not natural trees, it's a mixture. And the soil, it was placed, they ripped [it out], so there is rough ground. So the ground, the bushes and the trees are sort of mixed in that area. It's not like when I first go into the natural environment, it's different from the mining area. So that's the difference. So if you walk through that you maybe break your leg or ankle because it's rough, rocky, even though they are growing bush back.* (Respondent 1)

#### 6.3.2.2 Changes caused by refining operations

Respondents identified the environmental impacts of the refinery process as a more challenging legacy to manage than the landscape effects from mining. Respondents noted that the refinery itself is highly visible, but the company believes this site can be successfully rehabilitated:

*Obviously the refinery process has changed the landscape here hugely. The refinery itself out on the Peninsula at the port is a very substantial small city of infrastructure, equipment, pipes and whatever else.* (Respondent 3)

*We will demolish the refinery and bring this back to natural vegetation and you broadly won't really be able to tell 20 years from now that there was a refinery here, short of a bit of a retained infrastructure that we're talking to the Traditional Owners about handing over – tanks and a few other things that may remain.* (Respondent 5)

A more significant issue acknowledged by the mining company and by many other respondents is the refinery residue disposal area, known as the red mud ponds.

*The biggest impact on the landscape is the residue disposal areas where for many years, red mud – it was a by-product, a waste of the refinery circuit itself. There's caustic red mud within those residue disposal areas or tailings facilities that continues to exist. We reprofile them and we flatten the slopes and we put a liner over the top cap and then revegetate. But it'll never look like a natural setting out there.* (Respondent 5)

*... that's a legacy that's going to be there forever and a day, probably. So they seem to be doing it right, engineering good solutions, but there's already been a fair bit of damage to the environment around the residue disposal area. So there's been seepage under the walls and on an aerial image you can see where it's affected, trees are dead. It's only relatively small areas, but there's definitely damage.* (Respondent 6)

As the comments above show, understanding and prioritisation of the refinery residue issues was highest amongst those directly involved in the industry, and the government as a regulator. However, community and Indigenous respondents also noted the significance of the red mud ponds as a landscape impact.

### 6.3.3 Key values expressed

The distinctiveness of the Peninsula case shows the importance of understanding the system context, and particularly the historical context. This is partly why a longer history of the region and its influence was provided for this case study. Respondent consideration of landscape and community changes on the Peninsula shows the pre-eminence of social, cultural and economic considerations in mining impacts because of this context. Values highlighted include the significance of justice (in the form recognising both historical dispossession and contemporary Traditional Ownership) and the associated cultural and spiritual values of the landscape. Concerns about safety, risk, and the distribution of liability emerged in considerations of the impacts of the red mud ponds. One comment from a Traditional Owner addressed biodiversity in relation to strip mining impacts, but environmental values were not strongly emphasised in initial considerations, reflecting the type of mining and the progressive rehabilitation process enabled by this form of mining.

## 6.4 Best possible outcomes and significance of outcomes

The next question asked respondents to provide their best possible outcomes from a transition to post-mining, and how those outcomes were important to themselves and/or their organisations. Given the GPFRG commitment to the Tradition Owner Vision, it was expected at least some respondent views expressed in this study would reflect key aspects of the Vision document. To assist local understanding and impact, the following section uses subheadings derived from the Vision in places where they align with respondent commentary, as well as identifying where some gaps exist.

### 6.4.1 ‘Recognition of Traditional Owners’ – stakeholder commitment to the Traditional Owner vision

A Yolŋu respondent in the study strongly asserted the primacy of Traditional Owner power and authority in the process of transition:

*We don’t want parliament down there, the bureaucrats running us – our community, our lives – under their plan. [We need a] local plan. This is just ngarraku (my) my feeling and my thoughts for future. [It should] come to Yolŋu’s control in different areas.*

*Yolŋu is the decision maker. For Nhulunbuy, it has to be Rirratjingu decision maker[s], final decision maker[s] – Rirratjingu. Before [the] Commonwealth government, [the] Northern Territory government come in and [the] Northern Land Council come in, or any business people come in. We’re the final decision maker. The foundation is Rirratjingu. Djalkiri not rupiyah<sup>21</sup>.*  
*(Respondent 1)*

Strong statements of commitment to realising the Traditional Owner vision for the future of the Peninsula came from government and community organisational respondents, in part because of an alignment of perspectives:

*... our commitment is to the TO [Traditional Owner] Vision and that’s government policy now... the Vision articulates a pretty bright future, and so I think it’s a great roadmap... we had a position that pre-dated the Vision, but the Vision in itself, without government influence, came up with a very similar story. So it was actually just an alignment of goals too. (Respondent 3)*

*We’re very aligned, as our vision is shared not only by our organisation and other stakeholders, it aligns closely with the Traditional Owner vision for the future of Nhulunbuy. (Respondent 8)*

---

<sup>21</sup> Djalkiri has a series of meanings but in this usage can be translated as ‘foundations’ in a cultural and kinship sense. Rupiyah is the Yolŋu word for money, derived from the Macassan word for the same.

Other stakeholders are already obliged to take Traditional Owner direction:

*... we're here to represent the interests and aspirations of local Traditional Owner people. So for me that's front and centre and it's one of the key reasons why the Northern Land Council exists.*  
*(Respondent 7)*

Without directly referring to the Vision document, other respondents indicated understanding of the relative importance of Traditional Owner views and aspirations. The mining industry respondent referred to 'working back from what the Traditional Owners want' as a means for thinking about best outcomes, and the METS respondent commented that 'none of it can happen unless the local Indigenous [people] want it to happen, so they'd have to be on board with it'. Reflecting on good outcomes, a Traditional Owner highlighted three aspects – linguistic and cultural continuity, community safety, and good business relationships with other stakeholders:

*[The] language I'm talking is not to be fading away, to carry on talking. Language. The skin need to be as it is, not going to change into that [white] colour. Enough? Your identity, your surname need to be carried on. They are the main ones. Gurrutu [kinship] interlinked on your father's side family and your mother's side family. [We] need to bring them in. (Respondent 1)*

**We need a safe community and peace[ful] community, and good relationships business-wise.**  
*Bilinya (like that). The Northern Land Council, the Northern Territory Government and Commonwealth Government have to work with us [and] to work with the other business people.*  
*(Respondent 1)*

#### 6.4.2 ‘Yolŋu and Näpaki together’ – intercultural relationships

Following the transition, Yolŋu Traditional Owners will still be embedded within a wider system of governance, infrastructure and services that require non-Yolŋu people in the area. This intercultural relationship between Yolŋu and Näpaki is a dominant theme across the entire Peninsula transition process. The return of land to Yolŋu hands has the potential to ‘address some past wrongs’ as one respondent expressed it, but rather than enabling simple co-existence, Rirratjingu and Gumatj have a more ambitious aspiration:

*Yolŋu and Näpaki will live and work together in harmony in Nhulunbuy, as a leading example for the rest of Australia. (GPFRG, 2021)*

Having noted this aspect of the Vision, one Näpaki respondent demonstrated the potential of this approach:

*... this is a really amazing place in Australia to live, and to be, it's a really humbling place as well, if you open your eyes and you're willing to have cultural experiences, and talk to people. I think it's also really important in terms of strengthening the regions as well, and having a strong regional hub up here. It would be a loss to Australia, if you were to lose a place like, Nhulunbuy.*  
*(Respondent 4)*

Reflecting further on a positive future transition, this respondent also looked forward to existing local geographic and cultural divisions easing:

*At the moment you could very much probably draw the cultural lines between Nhulunbuy and Yirrkala, and Gunyangara. The hope is there will be greater connection between Nhulunbuy, Yirrkala and Gunyangara<sup>22</sup>, acting as a Gove Peninsula area as a whole, rather than three very distinct, very culturally distinct areas. (Respondent 4)*

One respondent identified that Yolŋu leadership had an increasing business and commercial focus, reflecting enhanced engagement within the town and Yolŋu understanding of the need to generate economic value

---

<sup>22</sup> A Yolŋu community close to Nhulunbuy that is smaller than Yirrkala but larger than the homelands further out.

from their land. A Yolŋu participant noted the two-way intercultural learning required for corporate activity, and that Indigenous corporate activity can in turn strengthen Indigenous cultural identity:

*We got [trainer name] here doing governance training. So we're asking them to [help] understand a bit of business knowledge for our corporation going through. And then also telling them to understand [the] cultural awareness program. So we need to wear a business hat and a cultural hat. Because our Yolŋu cultural beliefs is strengthened by this corporation.*

(Respondent 1)

A future state of harmonious intercultural relations -'Yolŋu and Njäpaki together' – is supported by Njäpaki awareness of the distinctiveness of the Yolŋu context, the easing of local geographic and cultural divisions, and the growing corporate and commercial capacity of Yolŋu organisations. Again, this emphasises the values of fairness and justice, highlights convening and collaboration as key actions for the transition process and emphasises relations between a prior and future owner and those residing and working on that land, rather than a stakeholder process.

#### 1.10.10 ‘A diverse economy’

Economic diversification is another important component of the Vision and of stakeholder responses in this study. A Yolŋu respondent identified the willingness to receive new business approaches:

*We are already working closely with Rio Tinto and with the stakeholders here in Nhulunbuy, to be part of that business development strategy going forward after Rio's gone... The land would be open, for any business people to come in, who can negotiate properly – a proper agreement.*

(Respondent 1)

Further comments about diversification below highlight industry diversification, as well as greater diversity amongst owners, operators, and beneficiaries.

##### 6.4.2.1 Diversifying industries

Diversification of the economic base was supported by many other respondents, with options such as tourism, health and education services, and fishing mentioned as possibilities:

*We need to diversify the economy because mining is going to finish, so that's not an industry that they'd be looking to go into. Opportunities around tourism, art and culture, and really genuine cultural experiences for people, I think that's an opportunity going forward.*

(Respondent 7)

*... this becomes how we move away from a mining area into a services area, government services in particular, and we become a training and services hub for the region. (Respondent 4)*

*There are also some really strong opportunities around that diversification of industries, and I think that a lot of people would say that mining hasn't necessarily brought the jobs and benefits particularly for Yolŋu, that people might have wanted to see out of mining in the region. So a rebalancing of what the industry makeup is here and how do those industries meet Yolŋu aspirations in terms of business and employment and benefits for their communities?*

(Respondent 8)

Reflecting on future options, Respondent 6 identified smaller scale Indigenous mining, tourism, port services, commercial fishing, health and education services, and defence as aspects of a diversified future economy. The mining respondent also noted the significance 'doing our best with getting whatever industries or small businesses in' to offset the departure of their industry.

#### 6.4.2.2 Diversifying owners, participants and beneficiaries

Diversification of the economy involves more than increasing the types of economic activities undertaken. It also involves diversifying the owners, participants, and the beneficiaries from those activities. On the Peninsula, this means altering the economic focus from Njäpaki to Yolŋu.

*If we establish a new entity for grants, those grant[s] will go into that Yolŋu decision making.*

*That way it will flow down from Yolŋu decisions ga [and] Yolŋu control – it can be Yolŋu independent, Yolŋu funding. That money should go into a Yolŋu entity and do the roadwork, plumbing, house electricity, education hub. [It] should go into Yolŋu and it flows down. Ngarraku (mine), that is my thought. (Respondent 1)*

*In that Yolŋu and Njäpaki together story is the idea that the benefits of the post-mining economy don't just accrue to certain sections of the community, that they are broadly, the opportunities exist for all, in business, in jobs... it's not integrated culture, but like a culture which is more respectful of each other. (Respondent 3)*

*... a different range of jobs and opportunities, in different industries. Some focused training and development, which is more geared towards having more Yolŋu people in the jobs that perhaps Njäpaki are in now. All of those benefits can be kind of enlivened by a transition process, which actually positively takes account of those things. (Respondent 4)*

*It's a matter of using this opportunity to transition, almost like a shifting power between mainstream economic and business development, and business ownership by non-Aboriginal people, towards a community which has Yolŋu at the forefront of economic development, control and ownership. Which is their right because they own the land that the whole community sits on. I think over the next sort of 5, 10, 15, 20 years I would hope to see a lot more Yolŋu participate in not only the mainstream workforce but in real strong business ownership and opportunity. (Respondent 7)*

Respondent 1 proposes that government funding for roads, schools, housing be provided to a Yolŋu local government, which would then award contracts to Yolŋu businesses. Local service provision by Indigenous organisations currently exists at Yirrkala and the homelands, but only to a limited extent at Nhulunbuy. This is a clear area of future opportunity. Increasing Yolŋu business ownership implies leveraging the advantage of owning the land, but also making strategic investments. Indigenous community respondents stated that this is already occurring:

*Respondent 2: [education and training] is half the business. The other half is accumulating investments to help fund after Rio leave. We own a lot of property in town with long term leases... we actually are building infrastructure in town. Not just for ourselves but for others to use, which is newer. Then people are willing to go and rent those spaces to make sure that we've got income as well after the mine goes. So long term tenants is a big thing for us... and then not trying to invest in things that may not be around, if things change.*

*Respondent 1: Yalala [later] that mining when it stops, we can survive as business.*

*Respondent 2: And that being said, you're investing outside here a lot now as well. So there is risk mitigating factors that have been put in place just to make sure that if things do go south from here, after the population dies, they've still got assets elsewhere as well.*

Reflecting the emphasis above, one key guiding principle in the Vision for the transition is that 'Transition should create opportunities and not problems for Yolŋu' (GPFRG, 2021, p. 15).

### 6.4.3 ‘Infrastructure ready for the future’

Three further components of the Vision relate to infrastructure and service provision. These are ‘Infrastructure ready for the future’, ‘Nhulunbuy as a services hub’ and ‘rejuvenating Nhulunbuy’. Consistent with this, retaining and enhancing infrastructure and associated service provision was strongly emphasised by respondents in imagining positive futures:

*Because of all those facilities and buildings that exist on the land, we need to work together. Because Rirratjingu is the landlord now. This is our service provider area. We don’t want to close it and go Darwin or Cairns or wherever. This is our home. We want to work with the locals here.*  
 (Respondent 1)

*... the curtailment of the refining operations really provided an opportunity for more regionalisation of services and there’s now a lot more government and non-government service providers based within the region... so the ability to retain that same service level, retain those people who are regionally based and in fact potentially grow that, will be a really important part of the transition. (Respondent 8)*

*... it’s less about the population of Nhulunbuy and it’s more about the services that are linked to that current population....if we’re maintaining schooling, healthcare, access to groceries and fuel, renewable power and water for the region, those are the basic needs. So that I think is kind of the fundamental first outcome. (Respondent 5)*

*If Nhulunbuy doesn’t remain as a sort of government service centre and [have] things like the hospital and so on, people are going to be much, much, much more remote than they are now.*

(Respondent 9)

Reflecting further on infrastructure, a Traditional Owner respondent commented that the infrastructure in the town needed to be handed over in good condition and well maintained, noting sewerage and housing as two key examples.

### 6.4.4 ‘We must empower our young people, who are our future leaders’

One principle guiding transition in the Vision emphasises Yolŋu youth and future leadership potential. This is reflected in respondent comments about the future:

*We need to talk to those kids and our young ones, give them training, government competence training, understanding what business are, understand our cultural living on country programs are, we need to stick to that. Otherwise their minds will go off the track... (Respondent 1)*

*So we do have social programs that we’ve started. So there is a strong push towards young Yolŋu people, getting any help they need to grow. (Respondent 2)*

*Australian universities have been incredibly, incredibly slow at recognising that they’ve got to move their education into Indigenous domains, so there’s a sense in which lots of universities are beginning to think this but don’t know how to at the level of the Chancellery... (Respondent 10)*

*It’s something Yolŋu have always asked for, ‘we don’t want to have to go away; bring it to us here and we will consume it’. And I would like to see much more of that kind of thing in the future. (Respondent 9)*

Long-term non-Indigenous residents also think about how the work they are doing creates opportunities for their descendants.

*... my eldest might want to stay on here, who has grown up here, gone to school, likely to do finishing school here, and potentially want to go into other jobs and opportunities in the region.*  
 (Respondent 3)

#### 6.4.5 Site rehabilitation

In responding to the question about ‘best possible outcome’, no respondent referred to rehabilitation of the mine and refinery site as an initial response. This is consistent with the Vision document, which does not refer directly to site rehabilitation as a major aspect of transition. As noted above, mining areas have been progressively rehabilitated throughout the life of the mine and the refinery is in the process of being demolished. One respondent commented that once rehabilitated, the mined areas would ‘come back’, but did not elaborate further. In considering the role of the company in the future, one respondent did identify how important the rehabilitation aspect was:

*Rio is still going to be in the mix. Because we’re not going to let them go, are we? They’re going to have to fix the Red Mud Ponds. They might be here for the rest of their business lives.*  
*(Respondent 2).*

When prompted about this aspect of best possible outcomes, the mining industry respondent provided more detail about the company’s ongoing legacy responsibilities, again emphasising the social and economic outcomes – how that was integrated with Yolŋu employment goals:

*So we hold that facility and maintain it in perpetuity. It’s called a post-relinquishment management area. So we will relinquish and we will hand it back to the Traditional Owners, but we’re working with Rirratjingu, and we will be continuing to work with them, on how we establish them to be able to run that facility. (Respondent 5)*

*... the employment that the ongoing operations and maintenance of the RDA [Residue Disposal Area] can represent for Yolŋu people, it’s an important part of our plan. (Respondent 5)*

#### 6.4.6 Corporate reputation

Site rehabilitation is an important aspect of a wider social issue – corporate reputation. The industry respondent went on to discuss this element of the outcomes sought, and that this was the primary driver and motivation from a company perspective.

*... there’s no revenue at the end of this. It’s for a social and environmental outcome only. I guess if I were to sell it internally to Rio, I’d be saying this is a big – if we do this right – opportunity to help us with our social reputation. That is probably the way if I were to look through it with internal glasses. I mean it’s also just happens to be the right thing to do as well and it’s absolutely necessary I think to avoid a really negative legacy moving forward. (Respondent 5)*

#### 6.4.7 Key values expressed

Key values expressed in relation to best possible outcomes include: justice and fairness through recognition; collaboration across cultural boundaries; the cultural and spiritual values of places as Traditional Owners understand them; the economic values of place – diversification, business innovation, and infrastructure supporting robust economies; and an emphasis on youth and younger workers. From a mining company perspective, environmental conditions, safety and risk at the impact sites are important. Yet it is the social impacts and opportunities for Yolŋu that are emphasised more strongly as influencing their future reputation.

### 6.5 Challenges to achieving outcomes

The Vision document is framed positively, outlining key goals and the principles guiding the transition to enable these goals to be achieved. It does not directly address challenges, so these need to be inferred from what the document does say. In this study, interview respondents identified several key challenges affecting future desirable outcomes. These can be summarised under: wider stakeholder involvement and

engagement; alignment in transition; isolation; governance and institutional capability; and services and infrastructure issues. Further information about these are as follows.

### **6.5.1 Stakeholder involvement and alignment in transition**

#### **6.5.1.1 Stakeholder involvement**

A challenge identified by some respondents was the need to involve other stakeholders or actors in the transition who have not yet been substantially engaged. At the most challenging end are long-term Peninsula community residents – stakeholders in any transition – who may resist working with Traditional Owners. For these people, accepting equality between Yolŋu and Njäpaki on the Peninsula may be difficult, let alone prioritising a Traditional Owner Vision as the key goal of transition:

*... how [do] we overcome some of those, unfortunately, existing prejudices that are here, that are probably quite deeply embedded, to be able to see that equality between both Yolŋu and Njäpaki? That will be a particularly tough one, because it will require social capital change, or social capital and change that is different, less tangible than building infrastructure.*

*(Respondent 4)*

*When I first moved here it was very much a mining town and most of the population wouldn't have known that they were on Aboriginal land, wouldn't be engaged with Yolŋu in any meaningful way. (Respondent 8)*

Other important residents may not necessarily be as resistant to a process grounded in the interests of Traditional Owners as future landowners, but they may still find it hard to see value or relevance in the early stages of transition planning:

*But to the residents of Nhulunbuy, to the business owners of Nhulunbuy in the Gove Peninsula, there's not as much visibility and often in the early stages of these significant planning processes [such as for mining transition], there's not a huge amount of tangible things that you can point to, to say 'this has been achieved and this means X for you'. So continued communication and bringing businesses and residents along on the journey so you don't lose investor or resident confidence, particularly [with respect] to the industries and businesses and resident types that we're trying to retain in the region. Those are probably the biggest challenges. (Respondent 8)*

The Vision directly refers to the regional Yolŋu homelands – ‘town, communities, and homelands strong together’ – emphasising that ‘the whole region will be connected’. A respondent noted the longstanding challenge of effective recognition and servicing of homelands communities:

*For me, the homelands are critical and if government support the homelands, which they say they do, then they need to back that up with finances and with flexibility in the way they deliver their services to those homelands. From what I see, the homelands, both the communities physically themselves and the people – to I suppose a lesser extent – are treated like second-class citizens. (Respondent 7)*

Achieving a higher standard of servicing for homelands generally, and enabling homeland community involvement in Peninsula transition specifically, remains a challenge for achieving best outcomes from that transition.

A third stakeholder that presents challenges for engagement is the Australian Government. It has multiple responsibilities, but one respondent noted that if the Peninsula is framed purely as a mining transition, it potentially limits engagement on other important strategic issues:

*... settings like this are unique, in that there are obvious intersections of Indigenous policy, there's the strategic considerations of a deep water port in the north. So there are hooks for*

*Australian government involvement, but it's a challenging space to engage them in mining transition work. (Respondent 3)*

As the above quotes show, engagement with the long term Njäpaki resident community, the Yolŋu homeland communities, and the diversity of relevant actors within the Australian Government were identified as potential engagement challenges in post mining transition.

#### 6.5.1.2 Stakeholder alignment in transition

Within stakeholders already engaged through the GPFRG, respondents noted challenges with implementing the Vision that had been enabled and agreed by GPFRG. Moving to implementation highlighted differences in understanding and alignment within that overall agreement:

*One of the main challenges is that we have a TO Vision document which sets out high level goals. But its perhaps the alignment of every key member, at least in the Futures Reference Group, about what the next steps are to achieve those goals, that's a challenge. Because everyone has different ways of viewing how you think you get from A to B. (Respondent 4)*

*As we go through a transition in this community, I'm starting to see the various stakeholders start to, as they always have, view the current and the future from their own perspective, both now and what could this look like in the future. (Respondent 7)*

*There's going to be some huge challenges and negotiations in that process that exist, whether it's Traditional Owners making decisions over tenure, whether it's Rio Tinto in their expectations of assets that are handed over. But the end goal is pretty clear. It's just the questions will be who pays, who has control, who lets go control at different points. So there's this really interesting, fascinating exercise to go through there. (Respondent 3)*

The previous quotes show how multiple respondents Identified engagement of a broader set of stakeholders, and alignment between existing stakeholders focused on implementation, as key challenges in transition.

#### 6.5.2 Isolation

As noted above, northeast Arnhem land occupies a central place in wider Yolŋu culture. It has a rich history that includes trade and diplomacy predating Australian colonisation and more recent direct Yolŋu engagement with national institutions such as the Australian parliament and the High Court. The Garma Festival (held on the Gove Peninsula) has been a significant date on the Australian cultural, political, and corporate calendar for decades. Partly as a consequence, the Vision does not describe the region as remote or isolated. Yet certain forms of isolation – logistical and economic – were identified by respondents in this study as key challenges:

*The Isolation Is a big one – cost of freight and mobilisation of people and equipment in and out of the place. But that makes it more attractive for tourism in a lot of ways, and probably makes it strategically a good Navy base... But I guess the cost of airfares, that's another, because it's isolated, that's the main problem with it. (Respondent 6)*

*One of the things that's a really big challenge here is just the tyranny of isolation and distance. It makes it very difficult to bring sustainable jobs in. Even when we're trying to build, let's say, sustainable housing or sustainable power, it's all the more complex and difficult because of how isolated we are up here. So that's one of the biggest difficulties that we have....anytime that you want to produce something here, you have to think about how you're going to ship the base inputs in and also ship whatever you're producing out. That just really starts to add up and make it difficult to access markets from such an isolated spot. (Respondent 5)*

*... when push comes to shove, the problems that Yolŋu face are actually the problems that all people in Australia who don't live in the major cities have. It's the kind of country Australia [is] – it's this vast continent where the majority of the population lives around the southeast coast and it's like, how do you manage the lives and make sure that people have decent lives in the whole of the rest of that vast continent? (Respondent 10)*

Crucially, the isolation these respondents identify is primarily logistical and economic, rather than social, cultural or political. This is an important distinction in a transition that seeks to use a Traditional Owner perspective as its foundation.

### 6.5.3 Governance and institutional capability

Some respondents identified governance and institutional capability challenges that may affect transition. One of these was the absence of appropriately structured Yolŋu-wide and Yolŋu-led institutions:

*... Yirrkala is kind of hostage to the shire. Now that there's no longer a town council<sup>23</sup>, you've got this shire which is basically not a Yolŋu organisation at all, sitting as their only real institution. (Respondent 9)*

*At the moment, Rio Tinto effectively runs the Nhulunbuy Corporation which looks after the town. So it'll be [asked] what becomes of that governance? Is it a council? Who runs those municipal services? And what does it look like? And how are the people of the town represented, as well? (Respondent 4)*

*There isn't a coherent Yolŋu-run institution with wider Yolŋu interests at heart that kind of sits there. I think that needs to develop in some ways, otherwise, once again, any development that happens there is going to be top-down, it is not going to be led in any coherent way by Yolŋu. (Respondent 9)*

*... one is going to have to create Yolŋu-based local systems of governance which have a degree of power that then links in with an organisation – Aboriginal organisation – in Nhulunbuy that is somehow going to take on the effective functions of a regional local government entity, which doesn't exist at the moment at all for all sorts of reasons... (Respondent 10)*

One respondent commented on the importance of there being broader representation of clan groups outside of the formal corporate structures. There are Yolŋu-led organisations involved in transition discussions, but the two which participate in the GPFRG are each explicitly based on one clan. Reflecting on decision making about the town, a Yolŋu respondent identified Rirratjingu Corporation as one venue for discussion and resolution of key issues amongst Yolŋu people. Yet further comments by that respondent also showed the potential for tension within Yolŋu clans about the transition and how some Yolŋu-to-Yolŋu relationships may need to be understood as primarily commercial rather than cultural.

*Rirratjingu, it is a big umbrella, or a big tree, [or] shade – because of the Land Rights Act. So we understand it as a tree or shade [where] other clan groups can sit under the shade and we share things. We share it and we plan for the future. Good leadership, one mind, one spirit, one unity. (Respondent 1)*

*If Yolŋu are willing to share Nhulunbuy, cultural side, they can come in. They [should] not play politics – just [acknowledge] Rirratjingu land. But if you're willing to negotiate in a business way, for example tourism or set up retail shop, anything, that's a proper way of being. (Respondent 1)*

---

<sup>23</sup> This is a reference to the creation of new and geographically much larger local government entities in 2008 across the Northern Territory. In many places it created local government for the first time, but in others such as Yirrkala it resulted in the loss of a previous (Yolŋu-driven) authority.

Creating new Yolŋu-led institutions and/or adapting existing institutions to address new needs and requirements represents an important challenge in transition. Should governance and implementation institutions be created, respondents noted further challenges of staffing capability.

*There's too much training for training's sake, and people have not been equipped educationally to run their own affairs in this kind of society, when they're an encapsulated minority in a massive settler state, and until that changes, they are not going to be self-determining.*  
*(Respondent 1)*

Another respondent highlighted how natural staff and leadership turnover can affect long term planning and implementation.

*... you go through different cycles of leadership within Rio Tinto, within the government, within our Traditional Owner groups as well. You know I think we've all sat in the room together and at times have noted that probably none of us will be here in that same room ten years from now when the keys are handed over. (Respondent 5)*

Finally, there are substantial resource constraints upon key institutions. As the mining company withdraws, government – particularly the Northern Territory Government – will become an increasingly important institution to fill the space created. Yet that government operates under serious constraints, as one respondent noted:

*... they're broke, they got no money. They rely on the Commonwealth Government to fund just about everything. So, for local Territory government stakeholders to have to go to Darwin and rattle their can and say we need X amount of millions of dollars is a pretty difficult thing for them to ask for. (Respondent 7)*

#### 6.5.4 Services, infrastructure and physical assets

As noted above, the infrastructure and service provision functions of Nhulunbuy are crucial aspects of the Vision, and the town infrastructure is ageing. So it is not surprising that respondents noted these as key challenges for the transition:

*... building a sustainable post mining future around very aged infrastructure will be a challenge. A lot of things that are really critical to the operation of the Gove Peninsula, the town of Nhulunbuy, but also that service the broader region, are probably at the end of life, some of it might have been for some time. How do you invest, spend the money or not and make those decisions around what to keep, particularly when it's critical infrastructure you want to retain but obviously there's not endless streams of money flowing in to resolve some of those issues?*  
*(Respondent 8)*

One respondent described the importance of connecting infrastructure – maintaining the sustainability of air services, improving the road to reduce reliance on expensive sea freight, and creating stronger digital connections. They then noted the housing challenge, in which the current situation of maximum occupancy made it hard to attract new businesses to offset the drop in demand as mining wound down. Underlying these specific examples is the funding model:

*The town is a fundamentally subsidised town, either by government or by mining and so structurally, the economy has to move to be sustainable away from reliance on mining and related subsidies, to a more sustainable footing. (Respondent 3)*

The Vision outlines one goal as 'Rejuvenating Nhulunbuy'. One respondent did not see the plans so far as going far enough in representing this:

*What I don't see at this point is some really big picture thinking about what the opportunity is. Not just to maintain the community so that it slowly over time survives, but use the exit and the*

*rejuvenation of the community [as an opportunity] to really create a modern regional community that uses its energy sustainably, has really good management, control of its environment and its water, and all of those sort of things. (Respondent 7)*

#### 6.5.5 Key values expressed

Identifying the need for engagement with wider stakeholders in the transition – Njäpaki in Nhulunbuy, Yolŋu in homelands, and the Australian Government are the examples given here – shows the importance given to collaboration by those already involved. It also emphasises effectiveness as a key principle – the transition cannot be achieved without these important contributors from different cultural and geographic contexts. The need for collaboration and the importance of effectiveness also underpin respondents' identification of potential stakeholder misalignment at the implementation phase – agreement of the Vision is necessary, but not sufficient to achieve successful implementation. The isolation that needs to be identified is of a specific kind – logistical and economic – indicating a concern with efficiency and cost effectiveness. These two shape comments about physical infrastructure. Concerns about governance and institutional capability reflect how fairness and the distribution of responsibility are valued across stakeholders.

### 6.6 Dimensions of actions taken

The creation of the GPFRG and its work to enable the Vision represents an important collective action by key stakeholders in the transition process. More specifically, the Vision document contains five workstreams intended to support its realisation. A sixth workstream, 'Yolŋu and Njäpaki together to support community strengthening', has been added to the GPFRG activity schedule since the document was produced (NTG, pers.comm.). These six workstreams are summarised in Table 13.

The GPFRG secretariat is provided by the NTG and Rio Tinto. The NTG in particular has a substantial interest in ensuring the workstreams are delivered, as one respondent noted:

*There's a risk that if government doesn't engage early and effectively, at some point, there's going to be these pressures to transition, and the mine will want to close. And if we haven't dealt with them up front and managed the risks around in that transition, we end up running the risk of paying for it, no matter what... (Respondent 4)*

**Table 13: Workstreams to enable the Traditional Owner Vision. Source: GPFRG (2021).**

WORKSTREAM	KEY ACTIONS
Land Tenure	<ul style="list-style-type: none"> <li>– Supporting effective transition from the current town Special Purposes Leases to new tenure arrangements under the Aboriginal Land Rights (Northern Territory) Act 1976.</li> <li>– Master planning for Nhulunbuy</li> </ul>
Economic development and transition	<ul style="list-style-type: none"> <li>– Maximising the benefits to the region from mine closure work, town transition and long-term monitoring</li> <li>– Supporting existing businesses to grow and diversify</li> <li>– Building the capability of the local workforce</li> <li>– Facilitating investment in new industries</li> <li>– Ensuring housing for industry growth</li> <li>– Fostering respectful partnerships with Yolŋu businesses</li> </ul>
Essential services and infrastructure	<ul style="list-style-type: none"> <li>– Transition of essential services to new authorities, including power generation and distribution, water, and sewerage</li> <li>– Securing and improving enabling infrastructure such as key roads, telecommunications, ports and airports</li> </ul>
Community and government services	<ul style="list-style-type: none"> <li>– Sustaining and strengthening core government and community services to support Nhulunbuy as a regional services hub for East Arnhem</li> <li>– Supporting regionalisation of government services</li> </ul>
Town governance	<ul style="list-style-type: none"> <li>– Supporting the transition of Nhulunbuy into a gazetted Local Government Area</li> <li>– Putting in place new arrangements for town governance and municipal services</li> </ul>
Yolŋu and Näpaki together <sup>24</sup>	<ul style="list-style-type: none"> <li>– <i>Workstream and actions not specified in original Vision document</i></li> </ul>

The Vision document provides a collective framework for actions and responses by stakeholders in the GPFRG. In this study, respondents identified further actions taken by themselves or the organisations they were part of. The following examples encompass planning and strategy, developing new collaborations, using different approaches for Peninsula compared with homeland communities, and organisational repositioning:

*... last week we had a three day meeting as a team to completely update a strategic Gove closure strategy document. (Respondent 5)*

*... we've actually formed a company with one of the Indigenous groups here, and we are looking to work with them on future projects supporting transition. (Respondent 6)*

*... the economic activity at the moment is on the Gove Peninsula, but if we are looking at removing mining from that, we really need the broader region to be contributing and participating actively in the economy. There's a lot of interest in doing that. But equally, [we must be] making sure that there are different approaches to support businesses. Working with businesses on the Gove Peninsula are very different to the support and engagement that is needed in communities and homelands. (Respondent 8)*

*... it is restricted to a degree around the Land Rights Act with its mandate, which is basically to help facilitate things, not so much to upskill and educate Traditional Owners, either individually or as a group. But we are changing our mindset internally so that we can be more hands-on and more able to really sit down and communicate, educate and inform Traditional Owners around the steps that they need to take. (Respondent 7)*

---

<sup>24</sup> Not included in the original Vision document.

## 6.7 Other main stakeholders

Respondents were asked to identify other stakeholders in the transition process. Table 14 shows how often stakeholders were identified by respondents in particular interviews.

**Table 14: Nomination of stakeholders by other stakeholders.**

STAKEHOLDER	NUMBER OF TIMES IDENTIFIED ACROSS INTERVIEWS
Traditional Owners	7
Northern Territory Government	7
Commonwealth government	7
Mining company	6
Nhulunbuy or regional community	6
Northern Land Council	5
Business community	4
Homelands	2
External investors	1

The core stakeholders acknowledged by all are the Traditional Owners and the respective governments. The mining company, Nhulunbuy regional and business communities, and the Northern Land Council were also identified by a clear majority of the respondents. Augmenting the summary table above are respondent comments that highlight three aspects of stakeholder identification: the complexity within Yolŋu society; the long term non-Indigenous residents; and the external investors who may be yet to invest:

*... Traditional Owners first and foremost from my perspective, the two main groups, the Rirratjingu and the Gumatj. Galpu to a lesser extent. The Galpu's a harder group because they have very little organisational structure and so they're a more difficult stakeholder.*  
*(Respondent 7)*

*There's the existing communities that go beyond the Traditional Owners, and there's 14 clans with families in Yirrkala. There are challenges around the [different] views of Traditional Ownership on the Gove Peninsula as you're probably aware, and so there is really a strong need to engage the homelands, Bapurru<sup>25</sup> [other clan] families, and other groups, with what the NLC [Northern Land Council] might term as interested groups, rather than affected... there is definite need to build a consensus more broadly than just the two significant TO groups here on the Peninsula. (Respondent 4)*

This complexity, combined with formal legislative obligations to recognise it, also makes the regional Indigenous broker and contact organisation very important.

*The NLC [Northern Land Council], without them at the table, it would sometimes be incredibly difficult to perhaps engage with some of the TOs. Because we have them at the table in order to properly engage with the TOs, but also some of the land tenure things that are more easily resolved at a Northern Land Council level. (Respondent 4)*

*[The] Northern Land Council represents Rirratjingu as the Traditional Owner of Nhulunbuy, and [the] Northern Land Council is also representing Gumatj country. Then through [the] Northern*

<sup>25</sup> 'Bapurru' means 'everyone else' from the perspective of the speaker.

*Land Council we get Northern Territory rupiyah (money) or Commonwealth rupiyah to help towards development, to establish going forward after mining is gone. (Respondent 1)*

In thinking of other stakeholders, respondents also recognised Njäpaki individuals and families who were heavily invested in the town:

*... there is a quite large proportion of the population who have businesses here, have raised multiple generations of family here, are heavily invested from a property and business and community perspective and they're a really key stakeholder group. That's one of the ones that probably need to be brought along on the journey, that won't necessarily have, at the outset, have a seat of the table, but will be really critical to that post-mining transition and the investment and commitment to the town that will see people here in the future. (Respondent 8)*

*Those key group of Balanda and Njäpaki<sup>26</sup>, individuals that are non-traditional owners that live in Nhulunbuy. Whether they're small business owners or long term residents, they are a really key stakeholder in all of this as well. (Respondent 2)*

*Well, most of them will leave, but there will be some long-termers who would be prepared to invest. (Respondent 6)*

A third category is external people who are yet to move to or invest in the area, but may be willing to do so:

*the external investor one is particularly interesting as one that we probably don't think about enough sometimes in these situations, perhaps which are potentially transformative if you identify the right people in the right places. (Respondent 4)*

*Westpac is obviously heavily leveraged in this town with a range of mortgages and business loans and other things, and they've got a lot of local customers... [we are] engaged with the finance sector specifically, not just as investors, but as a stakeholder, who have a got stake in the town. (Respondent 3)*

In summary, the identifications of other key stakeholders in the transition were relatively consistent across the respondents, reflecting the high level of engagement between members of the GPFRG. Responses also highlighted the internal complexity of Yolŋu society, the significance of the regional Northern Land Council, how key long term non-Indigenous residents are positioned, and the potential role of external finance and investment.

## 6.8 Understanding of other stakeholders' best possible outcomes

Respondents were asked to show their understanding of others' positions to provide insight into levels of alignment between self-understanding of goals and interests and how others perceive those goals and interests. Following are examples of responses for three key groups of other stakeholders – the Traditional Owners, the Northern Territory Government, and the mining company.

### 6.8.1 Best outcomes for Traditional Owners

Respondents identified remaining on country and preserving customary ways of life as important aspects of their understanding of Traditional Owners aspirations.

*The bottom line for Yolŋu is that they want to stay on country. They do not want to migrate en masse into the centres of the population... They would obviously aspire to a more comfortable and less poverty stricken life than they have now, but it's not actually the driver...*

---

<sup>26</sup> Balanda and Njäpaki are alternative Yolŋu words for 'white person' or 'European'. 'Balanda' has a Macassan origin, referring to contact with the Dutch - 'Hollander'.

*They want to stay being Yolŋu, which means they need to have that Yolŋu way of being on country secured and safe. (Respondent 9)*

*They want to have their favourite fishing and hunting places. They don't want to be bumping into caravans and tourists when they go there, so they want a minimal impact on their traditional hunting grounds and fishing grounds. (Respondent 6)*

Other responses identified the acknowledgement of past wrongs, and the need for Näpaki in the area to be respectful of the principle of Traditional Ownership, as important goals for Yolŋu people.

*Another big one would be better understanding of their culture and sharing of it. Because they've been discriminated against, it's not too long ago in the past when there was massacres in this area. (Respondent 6)*

*A really big focus for Traditional Owners as well is around that cohesion, that community, and the right people being here – people who understand and respect that they're on Aboriginal land and that that's what the future of this town is. Success for them really is that those principles are embedded in everything that is put in place for the future of the town. (Respondent 8)*

The service provision role of Nhulunbuy and the need to generate economic opportunities were also highlighted as central to Traditional Owner and wider Yolŋu goals for the region.

*The best possible outcome for them – they want their people employed and they want sustainable employment for Yolŋu people, particularly once revenue from royalties dries up. So for Traditional Owners it's the sustainable employment and whether we maintain all of the services that we currently have in the region. They're kind of the top two, if you distil it all back to their absolute needs, those are the two things. (Respondent 5)*

*Even though we've treated them terribly, one way or another, over the years, they seem to understand that you need an economy, and the employment and training opportunities are good, because the old ways are not really sustainable anymore and they haven't been for a long time. I think they'd like to see opportunities for their children. (Respondent 6)*

Respondents did not refer directly to the Vision document when considering the goals and aspirations of Traditional Owners, but they did demonstrate understanding of Traditional Owner views and perspectives that are consistent with the Vision.

### 6.8.2 Best outcomes for Government

Respondents focused on the Northern Territory Government rather than the Australian Government when considering government as a stakeholder. Respondents view of key government motivations and best possible outcomes emphasised cost effectiveness in service provision.

*From a state government perspective they'll be looking at the services that they're obliged to provide to the community and what does that look like. Speaking purely politically here, they're looking to take that on as seamlessly and as simply and as cheaply as they possibly can, to then continue whatever the community looks like into the future. (Respondent 7)*

*So they want to see a thriving Nhulunbuy with a town population as large as it is right now, or larger. And for the economy that sits behind that, because when we're talking about providing the services, they need those taxpayers and the users of the services in Nhulunbuy itself to be maintained. (Respondent 5)*

One respondent also highlighted the relationship between centralisation and decentralisation as a central question for government in assessing outcomes.

*The Northern Territory haven't really seen that there's an advantage to having the so-called 'wilderness' populated by Indigenous people. But they would probably rather not have everybody suddenly flocking into town and becoming long-grassers<sup>27</sup>, basically, which is what would happen. (Respondent 9)*

Respondents identified resourcing and resource constraints as a key motivation for government. The Northern Territory Government's commitment to the Vision is unusual, but no respondent commenting on the Northern Territory Government position identified this commitment as the primary outcome the government was seeking from mining transition.

### 6.8.3 Best outcomes for Mining industry

In assessing the best possible outcomes for the mining company, other stakeholders noted ongoing corporate reputation as a key driver. This supports the company's underlying need to maintain social license and keep operating elsewhere in the future.

*A lot of people would be watching this to see that they do an honourable handover and try and leave a good legacy, because they're a worldwide mining operation, and public relations-wise, they'd be aware that a lot of people would be watching. (Respondent 6)*

*For them, internationally, and nationally, being able to point to a region where they have really successfully rehabilitated and exited with a positive plan in place, is of value to them financially and reputationally into the future. (Respondent 3)*

*Rio's a global mining company. So Rio Tinto leave and yes, they'll leave behind some legacy benefit to the community, but perhaps they'll leave some legacy detrimental impacts as well. But they're working towards their exit and they'll leave and they'll move on and they'll continue to do what they do elsewhere. (Respondent 7)*

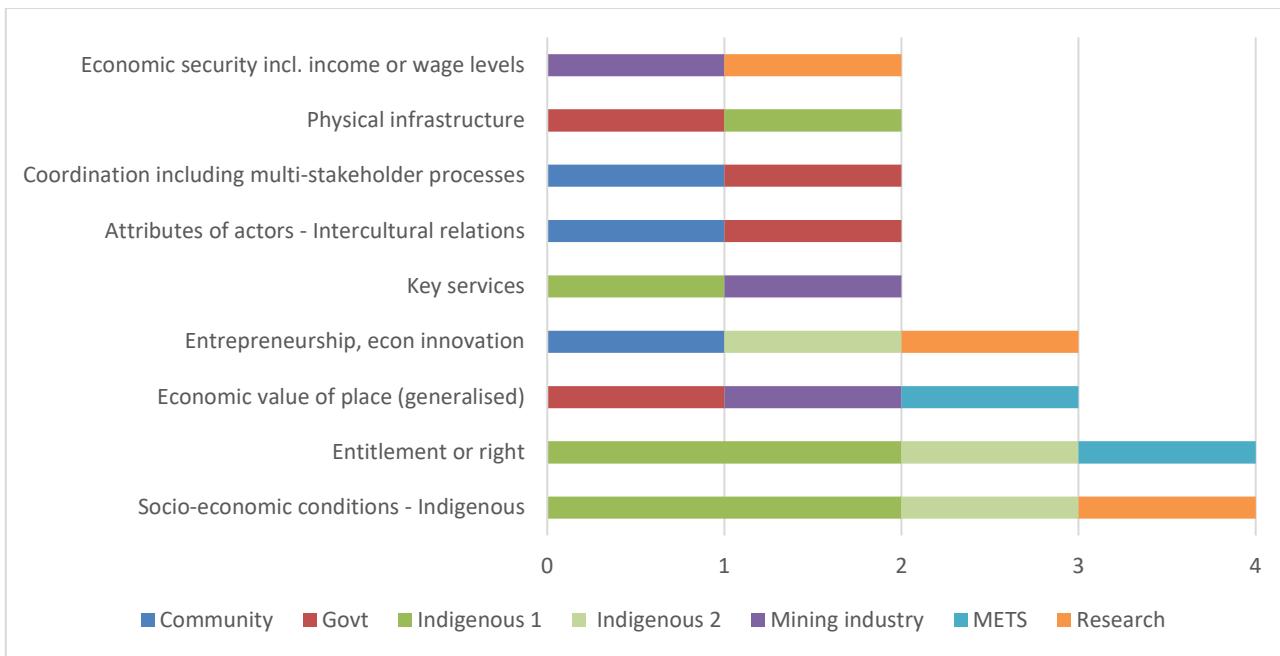
Respondents noted a level of self-interest in the mining company's position and desire to maintain their reputation and wider social license to operate. Yet they also acknowledge that this self-interest is aligned with key outcomes from transition desired by others focused on the Peninsula transition.

## 6.9 Key values and their alignment

In the final stage of each interview, the researcher identified particular themes or issues that had emerged in the interview and tested those with the respondent(s) for further comment, correction, and/or endorsement. These themes were not intended as comprehensive or even brief summaries of the values expressed, but rather a way of checking major themes, points of interest or emphasis and examining potential relationships between different responses in the interview. Figure 16 and Table 15 summarise some key themes raised at the end of each interview.

---

<sup>27</sup> Northern Territory vernacular reference to living in an informal settlement.



**Figure 16: Summary of key themes by category of stakeholder (Gove Peninsula case).** Note: Figure shows themes raised by more than one category of stakeholder. Themes consist of categories of value and elements of system context (detailed in Table 17).

**Table 15: Summary of key themes/emphases by respondent interview (Gove Peninsula case).**

INTERVIEW NUMBER	KEY THEMES/EMPHASES ABOUT TRANSITION IN INTERVIEW
1 (Respondents 1 and 2)	<ul style="list-style-type: none"> <li>– Traditional Owner control of the country and of the town</li> <li>– Effective Yolŋu involvement in transition decision making – currently very few Yolŋu in GPFRG</li> <li>– Maintaining key infrastructure and services in Nhulunbuy</li> <li>– Yolŋu as central to economic development and new industry creation</li> <li>– Retention and protection of Yolŋu culture</li> </ul>
2 (Respondents 3 and 4)	<ul style="list-style-type: none"> <li>– Adopting the Vision as policy and as guiding action</li> <li>– Infrastructure enabling regional development</li> <li>– Decentralisation of services is an opportunity for growth</li> <li>– Timing is critical and actions need to be coordinated</li> <li>– Demographic changes in transition – new composition of the regional Näpaki community</li> <li>– Yolŋu and Näpaki – importance of reconciliation and strengthened community</li> </ul>
3 (Respondent 5)	<ul style="list-style-type: none"> <li>– Social outcomes of transition as a primary objective – infrastructure, services, employment</li> <li>– Ensuring environmental and rehabilitation obligations are met</li> <li>– Values of other stakeholders align with organisational self interest</li> <li>– Massive investment by mining company in effective transition to meet reputational goals</li> </ul>
4 (Respondent 6)	<ul style="list-style-type: none"> <li>– Re-assertion of Traditional Owner control that is economically productive</li> <li>– Ongoing value of relationships with Traditional Owners</li> <li>– Retain amenity of existing Peninsula lifestyle</li> </ul>
5 (Respondent 7)	<ul style="list-style-type: none"> <li>– Reassertion and recognition of Traditional Ownership</li> <li>– Highlighting the business and economic implications from Traditional Ownership</li> <li>– Current transition over-emphasises population maintenance, responsibility minimisation and/or service provision compared with entrepreneurialism, opportunity, and sustainability</li> </ul>
6 (Respondent 8)	<ul style="list-style-type: none"> <li>– Significance of Yolŋu and Näpaki relations</li> <li>– Tight timing and the effective staging of key actions</li> <li>– The East Arnhem region providing a wider non-mining economic base</li> <li>– Involving the Australian Government – the levers for engagement and the greater impact of policy post-mining</li> </ul>
7 (Respondents 9 and 10)	<ul style="list-style-type: none"> <li>– Extensive historical impacts of mining – Land Rights, wealth inequality, proportionally less Yolŋu employment, alcohol and social problems</li> <li>– Policy inadequacy due to government assumptions about how benefits of mining will occur</li> <li>– Opportunities of new post-mining economy – natural and cultural resources, digital engagement</li> </ul>

Figure 16 and Table 15 highlight strong alignments as well as some variations amongst stakeholders.

With respect to alignment, of particular note is the **recognition of Traditional Owner control** and their associated Vision in guiding the future course of transition. Related to this, **intercultural relations** between Yolŋu Traditional Owners, other (predominately) Yolŋu Indigenous people, and Njäpaki (non-Indigenous) people – is also an important theme across all of the interviews.

One component of intercultural relations is the need to **enable diverse forms of economic participation** by Yolŋu people, another is the **collaborative effort to retain infrastructure and services**. A couple of the respondents directly commented on the high level of alignment amongst GPFRG members:

*Broadly the values of a lot of the different stakeholder groups while they're very varied, are quite aligned at a principled level. (Respondent 8)*

*... We may have some nuances in different outcomes with NTG [Northern Territory Government] and with Traditional Owners, but broadly we're all after the same thing. Success in this case for the Northern Territory Government and the Traditional Owners, we can talk about the very, very specifics that we may differ on at times, but we want this place to be self-sustaining. We want it to be returned back to as best state as we possibly can and that it's not polluting the environment. We want the Traditional Owners to be happy with the outcome, being the most important stakeholder at the end of this. We want them to be able to move forward and thrive up here in East Arnhem. So all of us want that and that's the best thing for [organisation name]. (Respondent 5)*

The Peninsula is an unusual context when considering values that are of primary importance across a group of what are considered equivalent stakeholders. This is for two related reasons:

1. The reversion of land ownership to Traditional Owners once the mine departs.
2. The collective commitment by other key stakeholders to the Traditional Owners' Vision – the values of one 'stakeholder'.

Effectively, the Gove Peninsula example highlights the limitations of a stakeholder model in circumstances where a prior and exclusive claim by Indigenous Australians has legal and associated social and moral force. This is a situation that many other Indigenous Australians would likely find desirable – to be part of and supported by a stakeholder process but also considered prior to and foundationally separate from it. The research undertaken here provides evidence that some values, goals, priorities and principles expressed in the Vision are taken seriously by other key stakeholders – that they are in some senses shared or at least aligned. No aspect of the Vision appeared to substantially and directly conflict with the values and goals expressed by other respondents in this study. Yet it is clear that particular values and goals were prioritised more by particular respondents, and other values in the Vision remained dormant or unexpressed in the conversations. This points to the need for models of governance that recognise the historically prior status and future power of Indigenous Australians, yet at the same time enable dialogue across a wide set of diverse stakeholders to identify points of commonality and difference, and then generate ways of resolving differences. Doing so can support inclusive and resilient outcomes for all involved in the transition process.

# 7 Discussion

---

We begin by discussing values held by research participants which inform best possible post-mining outcomes (Section 8.1). This is followed by a discussion of system-related ('policy regime') constraints on outcome realisation, and opportunities to address those regime constraints (Section 8.2). We then reflect on strengths and limitations of the project's methodology, and propose a set of future research questions (Sections 8.3–8.4).

## 7.1 Values informing best possible post-mining outcomes

For three mining regions across Australia, our research participants voiced aspirations for greater fulfilment of a set of economic *and* non-economic values associated with place. Particular elements of this joint set of values varied between respondent and between case. For example, deeper engagement with traditional owners and other Indigenous stakeholders was valued by participants in all case studies. In the Gove Peninsula case, however, we found strong and explicit attention to Indigenous participation in business as an element of economic diversification, as well as explicit attention on opportunities for youth. These priorities reflect the Peninsula's relatively youthful and Indigenous population.

In general, however, respondents' values – understood as desirable trans-situational goals (Section 3.1) – can be described as seeking **significant, net-positive outcomes**, and a **balanced and just distribution of responsibility** between relevant actors with different roles and resources.

At the beginning of data analysis, the concept of '**net-positive outcome**' was defined as:

- a summative evaluation of development outcomes in a region.
- in which multiple types of value are realised.
- in a just manner.

Informed by our research interviews, conference session, and additional literature, we propose that the concept of a net-positive outcome contains additional dimensions, namely that such an outcome:

- arises from the feasible, deliberate transformation of a region's assets and liabilities, and opportunities and risks, accumulated over its history of mining.
- is guided by principles and practices of sustainability<sup>28</sup>.

The concept of significant net-positive outcomes is not a pleasant-sounding abstraction. The manner in which this value is expressed varies by Respondent, but the core concept is unmistakeable:

*[Referring to the Gove Peninsula] I think this is a really amazing place in Australia to live, and to be, it's a really humbling place as well, if you open your eyes and you're willing to have cultural experiences, and talk to people. I think it's also really important in terms of strengthening the regions as well, and having a strong regional hub up here... I think it would be a loss to Australia and... the levels you could experience, what you could do here, if you were to lose a place like Nhulunbuy. It's got a lot of potential to be something really quite amazing. (Gove Respondent 4)*

*I think the best possible outcome for government would be that they somehow managed to get a low residual risk, so an outcome with a low risk profile, and just amazing economic benefits for the region,... that provides jobs that people want to have... so it takes care of that whole*

---

<sup>28</sup> A significant literature exists on use of sustainability principles for the purpose of assessment (eg Gibson, 2006; Morrison-Saunders et al., 2022).

*transition economic growth question for [the region]. I think for the environmental, irrigator, community interest groups, the best thing is that, as well as no impact to downstream environments. For the licensees, I think the best outcome is that they have an affordable way of achieving rehabilitation that will actually result in an outcome where they can relinquish their mine license. (Latrobe Respondent 4)*

*What I don't see at this point is some really big picture thinking about what the opportunity is. Not just to maintain the community so that it slowly over time survives, but use the exit and the rejuvenation of the community [as an opportunity] to really create a modern regional community that uses its energy sustainably, has really good management, control of its environment and its water, and all of those sort of things. (Gove Respondent 7)*

*[Miners and government seek] the perception of the wider community... that they are seen to be doing the right thing, in that community is supportive of what the end looks like... from a state and local government point of view... they want their community to be comfortable that the decisions made along the way, and the outcomes have been the best and all they could ever hope for. (South West WA Respondent 8)*

The above expressions of aspiration show us that net-positive outcomes are those which provide **mutual reinforcing benefits** (ie synergistic gains between values) (Gibson, 2006).

We can think of the balanced and just distribution of responsibility among actors as a valued *intermediate outcome*, which enables future net-positive outcomes in a region. By ‘balanced and just distribution of responsibility’ we mean the distribution of reward and risk, which is required to define and mobilise investment by public and private actors in sustainable development outcomes. Consistent with the above expressions from our research participants, our argument that these two concepts constitute overarching values is intended to spur innovative thinking about outcomes and responsibilities to act.

## 7.2 System-related constraints on realisation of outcomes

### 7.2.1 Elements of system context identified by participants as challenges

The management of contaminated sites constituted a common set of practical challenges. Notable examples from our case studies included recreational user exposure to contaminated or otherwise unsafe lakes at Collie toxic ash at Latrobe, and mud ponds at Gove. In some cases, problems affecting current mine license land were attributed to previous mining operations (eg abandoned mine pits at Collie).

Respondents regarded **interdependence** between responsible actors as a general challenge to the attainment of desired goals. At Gove it was expressed as a need to deepen multi-stakeholder engagement, with concerns over lack of future private investment, arising from observations of prior socio-cultural distance between Indigenous and non-Indigenous residents (Section 7.7). Additional challenges for Gove arise from its relative geographic and political isolation, and include the need to establish **functional Indigenous-led institutions and organisations at local level** for administration of housing and town water supply infrastructure at Nhulunbuy.

In the South West WA and Latrobe Valley cases, interdependence manifested as remarks expressing frustration with the fact that mine closure criteria (ie standards to be met as a condition of lease relinquishment) were negotiated among multiple government authorities<sup>29</sup>. The potential for disagreement among interdependent actors to impede action towards desired outcomes is suggested by a lack of

---

<sup>29</sup> In the South West WA case study, respondents perceived a lack of coherent and integrated government engagement (Section 6.4). In the Latrobe Valley case, one respondent urged government to convene mine operators and government agencies to debate and deliberate on options (Section 5.5, ‘issue framing’).

agreement (as of 2022) among government agencies, and between licensees and regulators, regarding mine closure criteria at Collie and Latrobe.

For Latrobe Valley and South West WA, a challenge expressed by respondents pertained to the **perceived lack of sufficient natural and financial resources** to rehabilitate all mine land to prevailing general principles of safe, stable, and sustainable. These perceptions related in turn to different conceptions of risk and opportunity among the respondents. In the case of Latrobe Valley, some respondents expressed strong doubts about beneficial future use of dry-filled voids, given their residual stability and fire risk (see e.g. Section 5.3, safety and risk), with one respondent recommending definition of a full range of landform rehabilitation options and their associated risks, in order to support pragmatic and satisficing decision-making.

*Can we rehabilitate these mines without water?... what would be the geotechnical stability outcomes, and from that, you can... look at your residual risk and say, well, is this acceptable or not? (Respondent 4 in Section 5.5, knowledge generation).*

The legitimacy of such decision making would be enhanced by **structured and publicly accessible processes of deliberation**. Such processes would seek multiple perspectives to inform the overarching values identified above (the goal of net-positive outcomes, and the intermediate outcome of a fair and balanced distribution of responsibility). In Victoria and Western Australia however, current licensees are responsible for proposing mine closure plans with specific closure criteria acceptable to government. Legislation, guidelines, and associated policy frameworks in these states, encourage – but do not entitle – the public to consultation on mine closure plans. Unless a mine closure plan is determined by government to require an EES (Environmental Effect Statement) review (in Victoria); or review by the Environment Protection Authority (in Western Australia), licensees are not *obliged* by law to engage in public consultation *prior* to government approval of mine closure plans (Hamblin et al., 2022, Section 5.4).

Under the above laws and guidelines, public submissions would be one among many knowledge inputs for determinations made by government authorities. There is no obligation for public and multi-stakeholder deliberative inquiry – that is, the provision of processes for reasoned and open communication between multiple interested parties in order to identify preferred alternatives – as an input to decision making.

The inflexibility of the current mine closure regulatory regime, where a post-mining land use (PMLU) is agreed between a regulator and a licensee, was perceived as an additional limitation by participants in the project's 2021 conference session (Section 4). This regime does not accommodate the formulation of alternative PMLU which may reflect evolving values or opportunities in a community or region. Both parties are concerned about implications for the distribution of cost and risk from a new PMLU. By contrast, we heard that post-mining development requires **collaboration in a region – intergovernmental and among licensees** – and some participants thought multi-stakeholder platforms would be desirable. However collaboration and deliberation require a more adaptive mode of governance compared to prevailing regulatory regimes.

## 7.2.2 Challenges related to overlapping policy regimes

The preceding discussion of challenges makes clear that mine closure planning and regional development are overlapping, yet distinct policy regimes (as defined in Section 3.1.2). Table 16 summarises the key components (governance elements) associated with each regime:

**Table 16: Mine closure planning and post-mining development: summary of policy regimes.**

TYPE OF REGIME COMPONENT	MINE CLOSURE PLANNING	POST-MINING DEVELOPMENT PLANNING
Values-based policy arguments	(1) Risk mitigation enables net-positive outcomes Relinquishment of a mining lease requires demonstrable achievement of safe, stable, sustainable landform, which is an intermediate means to realise economic and other place-related values.	(2) Realising post-mining land use requires taking a pragmatic, flexible, adaptive (future-oriented) approach to formulation of closure criteria (3) Realising net-positive outcomes requires investment in and attraction of human capital
Core institutional arrangements	Proponent-led model (licensees responsible for proposing mine closure plans with specific closure criteria acceptable to government)	State government-led strategic planning for regions Local government-led statutory planning for local areas (shires and councils)
Type of 'capital' emphasised	Natural (landform rehabilitation)	Human (workforce redeployment and training) Physical (industrial land supply)
Mode of financing	Closure bonds Voluntary corporate commitments	State and local government budgeting
Policy instruments	Indicative concept or master planning Latrobe Valley Regional Rehabilitation Strategy (LVRSS)	Statutory and strategic spatial planning Multi-stakeholder visioning Latrobe Valley Authority Transition Plan (2022–2023)
Collaborative structures and processes (examples)	Latrobe Valley Mine Rehabilitation Advisory Committee	Gove Peninsula Futures Reference Group Collie Delivery Unit (WA) Collie Just Transition Working Group

In all three case study regions, rehabilitation is governed under proponent-led statutory regulations centred around values related to risk mitigation. By contrast, socio-economic aspects of transition focus on economic diversification outside the mine land (and for South West WA and Latrobe Valley, on affected mine and power station worker retraining). Stakeholder values of adaptability, pragmatism, and risk-taking were expressed in relation to post-mining land use (Section 6.8.2). In some instances, farmers had secured approval to use unrelinquished mine land. Under such arrangements, liability is retained by the licensee (presumably, in return for not having to invest in meeting closure criteria perceived to be prohibitively stringent and costly; Section 6.8.2).

At present, the mine closure planning policy regime and its specific institutional arrangements (formal and informal) precede and constrain realisation of particular values associated with the post-mining development policy regime (Table 16). The value of risk mitigation appears to be regarded as of *supreme* importance from the perspective of the mine closure regime. However from the perspective of the post-mining development regime, they are regarded as of *high* importance – alongside values of pragmatism and adaptiveness.

In some cases, existing legislation and policy instruments attempt to bridge mine rehabilitation with post-mining land use, but actual outcomes to date have been modest. For example, in Victoria the Mineral Resources (Sustainable Development) Act (State of Victoria, 2021) requires a regional rehabilitation strategy to be formulated for the Latrobe Valley. This Latrobe Valley Regional Rehabilitation Strategy (LVRSS; State of Victoria, 2021, Section 84AZM) document must address:

- The safety, stability and sustainability of coal mine land and any adjacent land.
- The planning for the Latrobe Valley region in relation to the rehabilitation of coal mine land and any adjacent land, and the relationship between each mine void.
- Post-rehabilitation monitoring and evaluation.

The LVRSS is an ongoing planning initiative, coordinated by two state government agencies (Department of Jobs, Precincts and Regions [DJPR], and Department of Environment, Land, Water and Planning [DELWP]). A third public body – the Mine Land Rehabilitation Authority (MLRA) – was established in 2020 as an independent agency to provide assurance to the Victorian community that licensees and public agencies are planning for rehabilitation (i.e. to perform monitoring and evaluation functions). Other notable duties of MLRA include to promote participation of Latrobe Valley community and stakeholders in the implementation of the LVRSS, and to promote ‘the sustainable and beneficial use of coal mine land in accordance with the strategy’ (State of Victoria, 2021, Section 84AE).

The inaugural LVRSS document (DJPR & DELWP, 2020) is essentially a set of planning principles for biophysical rehabilitation of mine land, not a master plan for post-mining development. Studies commissioned for the next periodic and mandated review of the LVRSS (June 2023) are expected to provide additional knowledge about regional resource constraints affecting rehabilitation. However, as of 2022, an integrated biophysical and socio-economic policy regime does not exist in Latrobe Valley.

Our research participants expressed dissatisfaction with the fragmented nature of governance of mining transition, as summarised in Table 16 and illustrated with the above example from Latrobe Valley. Dedicated analysis is required to improve the performance of each policy regime and their joint performance. In this regard, the overarching values expressed by our research participants (Section 8.1) could inform new or reinvigorated policy arguments, which in turn inform refinement of institutional arrangements. Innovative arguments appear necessary around what constitutes an adequate set of conditions for a licensee to keep mine land under care and maintenance (with relatively low-risk, low-return, path dependent outcomes), or relinquish it to actors with different capabilities and conceptions of risk and benefit sharing.

The need for governance innovations points to the importance of facilitating various forms of engagement and inquiry across organisational boundaries. With respect to existing collaborative structures and processes (Table 16, final row), respondents in all three regions describe taking action or supporting action across organisational boundaries. Some cross-boundary action is framed as within a regime, as when local government seeks to leverage additional state government resources. In the case of Collie:

*... there needs to be a continued if not increased presence of the state into this area... the South West Development Commission and the Collie Delivery Unit through Premier and Cabinet and JTSI [Department of Jobs, Tourism, Science and Innovation] will need to continue their journey with us for more time to come.... the critical part is that we can't let government walk away without a continued and longer-term presence to make sure that this transition does take effect.*  
*(Collie Respondent 4)*

Other efforts at collaboration aim for innovative coordination. In the case of Latrobe Valley:

*We told [government agencies] a while ago that they needed to engage with all 3 mines and to try and get us to a point where we can all collaborate and that was the government's job. Before we told them that... they weren't going to do it... we will be lobbying them... to say, 'Come up with different solutions. Get us around the table. Get us all talking and be realistic.'* (Latrobe Respondent 5) (Mining)

All three regions have established multi-stakeholder or interagency groups or committees to manage socio-economic and mine land rehabilitation aspects of transition. As of 2022, the prominent multi-stakeholder or interagency groups or organisations included:

- Collie Coal Mines Environmental Committee (CCMEC)
- Collie Just Transition Working Group (JTWG)
- Collie Delivery Unit

- Gove Peninsula Futures Reference Group (GPFRG)
- Latrobe Valley Mine Rehabilitation Advisory Committee.

As we did not ask respondents to evaluate these bodies, an analysis of their functioning is beyond scope of this report. In their remarks respondents make neutral or positive references to the multi-stakeholder structures at Collie and at Gove, and neutral or occasionally negative references to multi-stakeholder relations at Latrobe. Mixed evaluations by our research participants are not surprising given the complexity of institutional arrangements.

Nonetheless, notable efforts have been made in each region to establish collaborative structures and processes, to addressing regime-related challenges. At the same time, opportunity exists to refine the scope of collaborative initiatives. For example, some Respondents already perceive opportunities to link economic diversification to the work of mine land rehabilitation. In this regard, Respondent 5 at Gove noted plans to consult and intentions to employ Indigenous people in aspects of site rehabilitation (Section 6.4.6). Approaching mine land rehabilitation as a form of local workforce development would require deliberate and focused programmes of action.

It is possible that existing collaborative initiatives could serve as platforms to formulate new policy arguments and arrangements which allow mined land and infrastructure, to be accessed in a manner that distributes risks, responsibilities, and benefits fairly, so as to realise net-positive outcomes.

## 7.3 Reflections on methodology

In this section we reflect on the utility and limitations of the following set of methods and techniques used to conduct our empirical analysis of CRC TiME stakeholder values:

- Conceptual framework.
- Use of semi-structured interviews and small group discussion.
- Development of a comprehensive set of categories against which to manually ‘code’ interview responses.
- Use of coded content to guide reporting.

### 7.3.1 Conceptual framing

As noted in Section 3.1, the project’s literature review (output of its first phase) documented how the concept of ‘value’ can be conceptualised according to a variety of intellectual perspectives. It argued against taking a reductive approach to value (ie against attempts to reduce different values to a common unit of measurement, whether monetary or otherwise). The literature review documented the prevalence of multi-criteria analysis techniques, which allow diverse values to be formulated as decision criteria. The review also argued that certain values – ‘core values’ or ‘absolute values’ – by definition, should not be regarded as amenable to casual or everyday substitution or exchange with other values. However, the review did not specify whether multi-criteria analysis could be used to support multi-stakeholder identification of such values, or provide other guidance for how to realise or safeguard ‘core’ values in a liberal democratic society where multiple public objectives exist.

In response to values-related public policy challenges, we consider that ‘core’ values can be revealed and collectively defined through processes of policy argumentation and deliberation. As a contribution to such an endeavour, our research interviews and data analysis were designed to elicit the range of participants’ concerns and priorities. Our analysis of connections between individual values and across individuals allowed us to identify recurring values which are held across the three regions (Section 8.1), eg the notion of a **net-**

**positive outcomes**, and **mutually reinforcing benefits**. Because of their recurrence and transcendent nature, these values are promising candidates for ‘core’ values.

However, we propose that ‘core’ or ‘absolute’ values be elaborated using an interpretivist (social constructivist) methodology, as opposed to an objectivist methodology. That is to say, treating such values as pre-existing ideas or objects in people’s minds, is less informative than treating them as concepts whose meaning and importance emerge from justification, dialogue, deliberation, and related forms of engagement between citizens and stakeholders. We propose that determining whether a value constitutes a core value can be done by addressing questions such as: ‘do other public values or goals exist which conflict with a given value-based objective, and which should have priority?’ (Table 1), and similarly, by inviting a value holder to define the conditions or bundles of values, for which they would or would not be willing to negotiate over. As one Latrobe Valley respondent put it:

*We do look for negotiated outcomes. It’s part of life. But it’s got to withstand the period that you’re in your job or I’m in my job, it’s got to be longer than that, you’ve got to look for the future and the future generations. (Identity withheld)*

### 7.3.2 Interviews and small group discussion

#### 7.3.2.1 Regional case study interviews

We used a ten-question interview guide to conduct semi-structured interviews with regional stakeholders. This guide (ie set of questions shown in Table 8) allowed respondents the flexibility to emphasise particular points of interest to them, and overall, to put forward their own account which encompassed various categories of values. These accounts were not preceded by any preliminary discussion by the research team about categories of value or specific values.

One particular limitation was that a minority of participants occasionally did not address a question directly. In the context of a time-limited interview, and absent opportunity to re-direct or follow-up post-interview to clarify, this could lead to loss of information.

#### 7.3.2.2 Online small group discussions

The project used a particular form of small group discussion, namely, an online discussion of two relatively broad topics, again without prior discussion of specific categories of values. Conducting this research activity as part of a larger conference resulted in time constraints for discussion of each topic. The data we gathered is relatively modest compared to the regional interviews, but nonetheless informative (Section 4). The voluntary, self-directed nature of conference attendee participation, combined with professional expertise of participants and facilitators, contributed to yielding productive data.

### 7.3.3 Categories of value

This project developed a comprehensive set of categories which were used to ‘code’ interview responses manually. As noted in Section 3, on the basis of literature review, our comprehensive set consisted of two broad categories of values. Values could be coded as associated with:

- Place-related, substantive, or procedural goods (Category 3 in Annex, Table 17).
- Elements of the system context (Category 5 in Annex, Table 17).

Although researchers worked in parallel to classify interview data (with one researcher assigned to each case study), codes were refined based on iterative analysis and discussion, and new codes emerged from the case study analysis. For example, ‘intercultural relations’ emerged from the Gove case study as an important attribute of actors, and was added as a sub-element of system context. Researchers working in parallel on

the three cases made consistent use of both broad categories above. In each case, the proportion of coding references corresponding to each of the above categories was comparable<sup>30</sup>.

Within each of the above categories, the frequency of codes assigned to sub-categories differed by case. For instance, within the system context category, the five most frequently coded categories for Gove were: intercultural relations; socio-economic conditions; industrial sectors; physical infrastructure; and land, landform or soil. For Latrobe, the corresponding top five categories were: water resources or aquatic systems; industrial sectors; socio-economic conditions for people; and (regional or local) planning. These observations indicate that the set of categories was used as intended: they offered a multi-perspective set of categories as a resource to aid analysis, yielding a set of findings differentiated by case<sup>31</sup>.

For the purpose of this exploratory analysis, coding was done by individual analysts separately. Further assessment of the utility of codes could be done by comparing usage by different analysts considering the same set of case study interview material.

#### **7.3.4 Use of coded content to guide reporting**

Codes generated by the research team were used as a resource to support interpretation, but they were not the only resource. For the Gove case study, we used a number of categories from the Gove ‘Vision’ (GPFRG, 2021) to structure the presentation and interpretation of values. This reflects the importance of engaging with local conceptualisations, formulations, and prioritisations, both for scientific accuracy in research and for increasing comprehension and consequent impact in stakeholder communities.

A key objective of the project was to elicit and describe the diversity of stakeholder values related to post-mining development. Individual researchers reported on values using categories or themes which were phrased in varying but complementary ways. For example, the overarching importance of taking a ‘systemic integrated approach’ emerged as a theme from the Collie case study (Section 5.8); whereas the Latrobe case study summarised the overarching importance of seeking a balanced distribution of ecological and social values as a ‘net-positive outcome.’

Our reporting of values using a diversity of language – using the codes as signposts, inviting the researcher to supply additional interpretation – aligns with the above research objective. By contrast, a research objective to report distributions of values from a higher sample size, or across many different samples of respondents, could require greater compression (e.g. tabular summary) of findings. Such an objective would be supported by greater uniformity in language used to report findings (at the level of sub-categories of content).

#### **7.3.5 Summary: reflections on methodology**

The research methods and techniques implemented by the project were effective at eliciting and reporting on the values held by diverse stakeholders who had prior professional or lived experience with transition in mining economies. However, further refinement is recommended for stakeholders with limited professional or lived experience with transition in mining economies or regional Australia.

The project’s research activities were not designed to address the following specific objectives:

1. Inviting participants to discuss their values after first considering a systematic range of values (i.e. after prompting with a standardised set of values).
2. Inviting stakeholders to prioritise or rank their values.

Instead, the primary aim of this research was to understand the *meaning* of values, and their *interrelationship*, originating from and articulated by stakeholders in their own words. Nonetheless, a

<sup>30</sup> As a percentage of all references coded by each researcher to Categories 3, 4, and 5 (Annex, Table 17).

<sup>31</sup> Compare Annex, Figure 17 (Gove) and Figure 18 (Latrobe).

methodology oriented towards understanding interrelationship of values allows the project to contribute to subsequent research addressing objectives (1) and (2) above.

A research objective focused on how stakeholders prioritise values would require additional data collection techniques. Typically, such techniques use an objectivist methodology, assuming that a shared meaning of each value to be ranked by participants exists, and will be used by each participant ranking the values<sup>32</sup>. A participant could then be asked to weight the importance of a set of defined values (or land use objectives associated with particular values) on a numerical scale, with additional instructions or constraints on how their weights should be distributed across the scale (Brown & Reed, 2000). For example, participants might be assigned a finite numerical budget to be allocated across a list of diverse of values, ranging from ‘not important at all’ to ‘of supreme importance.’ However, as noted above, we consider an interpretivist approach, focused on how values are actually communicated between stakeholders, as the basis of formulating policy goals. Thus, we consider structured comparative techniques as inputs for the purpose of guiding subsequent dialogue and deliberation, as opposed to conclusive outputs.

## 7.4 Future research questions

**Elicitation and analysis of CRC TiME stakeholder values.** For the purpose of effective and efficient elicitation and analysis of values held by diverse stakeholders in mining regions, how should the project’s methodology be further developed?

**Mental health.** In light of mining’s impact on regional and personal identity, what approaches or methods enable people transitioning from mining to manage their mental health?

**Stakeholder consultation through life of mine.** *How should stakeholder engagement processes be designed for effective and legitimate outcomes from cradle to grave (ie going beyond prospect of near-term mine closure)?*

**Formulation and deliberation on post-mining development options.** *Where multiple post-mining development options exist, as well as a variety of constraints, what processes can help stakeholders determine which opportunity to act upon, considering mine land in its regional context?*

**Models of governance for Indigenous regions of Australia.** *What models of governance enable recognition of the historically prior status and future power of Indigenous Australians, enable dialogue across a set of diverse stakeholders to identify points of commonality and difference, resolve differences, and enable realisation of core values?*

---

<sup>32</sup> This assumption requires establishing the construct validity of each definition of value used for this purpose (Kidder & Judd, 1986).

## 8 Conclusion

---

CRC TiME aspires to contribute to integration of mine closure planning, and regional development in mining regions, in the belief that integration of these policy domains will enable more effective investment in post-mining development. To support the above public policy agenda, CRC TiME commissioned Research Project 2.1 with four objectives:

1. Take stock of different notions of value and what this means for transforming to post-mining land uses.
2. Consider how stakeholders view land differently as it transitions from pre-mining to mining to post mining states.
3. Consider the role of values in the transition between the mining and post-mining land uses.
4. Consider (a) cultural contexts and (b) different methods of engaging/interacting with interested groups.

### 8.1 Implications of different notions of value

With respect to the first objective, the project's literature review (interim report) documented how the concept of 'value' can be conceptualised according to a variety of intellectual perspectives (Measham et al., 2022). It argued against taking a reductive approach to value (i.e. against attempts to reduce different values to a common unit of measurement, whether monetary or otherwise). The literature review documented the prevalence of multi-criteria analysis techniques, which allow diverse values to be stated as decision criteria. However, the review also argued that certain values – 'core values' or 'absolute values' by definition, should not be treated as amenable to substitution or exchange with other values. The interim report did not provide specific guidance for how to realise or safeguard 'core' values in a liberal democratic society where multiple public objectives exist.

We propose that 'core' values can be regarded as public policy objectives which need to be attained to some minimum threshold for their just realisation. 'Core' values, we argue, can be revealed and collectively defined through processes of policy argumentation and deliberation. Our interview question Q8 (Table 8), which invited individual participants to express the ideal outcomes they believed were held by other categories of stakeholder, is a means to enable further collective discussion. Similarly, determining whether a value constitutes a core value requires addressing questions such as: 'Do other public values or goals exist which conflict with a given value-based objective, and which should have priority?' (Section 8.3.1).

### 8.2 How stakeholders view land and place differently in transition

The challenge of eliciting values held by diverse people motivated the project's second objective. We contributed to this objective by considering how the diverse stakeholder categories of CRC TiME articulate their values, using a number of indirect questions to elicit those values from different perspectives (Table 8).

The project is the first to describe and classify the diversity of values related to mine closure and post-mining development, held by individuals affiliated with six stakeholder groups of the CRC TiME, in three Australian regions. Based on an action-oriented conceptualisation of values, research participants expressed their conception of best possible post-mining outcomes for the regions of South West Western Australia, Gove Peninsula (Northern Territory), and Latrobe Valley (Victoria). Participants described a range of challenges to attainment of their valued outcomes, and actions they considered necessary to goal attainment.

Across a diversity of individual values, interests, and regions, the best possible target goal outcome for our research participants could be summarised as the definition and realisation of significant, **net-positive development outcomes**, and **mutually reinforcing benefits**. Such outcomes were regarded as enabled by a **balanced and just distribution of responsibility** between relevant actors.

### 8.3 Role of values in transition between mining and post-mining land uses

Values are vitally important because they inform policy argument, but values and policy argument are insufficient to achieve transition: they need to be considered together with the other elements of policy or political economic regimes. We used the concept of ‘political economic regime’ or ‘policy regime’ to refer to a particular value-laden policy argument; institutional arrangements which channel resources more or less effectively to addressing the policy argument; types of ‘capital’ in regions, necessary for implementation; the net pattern of political support and opposition in society as implementation unfolds (Section 3.1.2).

Section 8.2 presented two policy regimes: one governing mine closure planning, and the other focused on post-mining development. At present, the mine closure planning policy regime and its specific institutional arrangements precede and constrain realisation of particular values associated with the post-mining development policy regime (Table 16). The value of **risk mitigation** appears to be regarded as of supreme importance from the perspective of the mine closure regime. However, from the perspective of the post-mining development regime, they are regarded as of high importance alongside values of **pragmatism** and **adaptiveness**.

The presence of distinct policy regimes with overlapping values means that the governance of mining transition in regions is fragmented – a phenomenon which research participants were acutely aware of, and often frustrated with. The overarching values expressed by our research participants (Section 8.1) could inform new or reinvigorated policy arguments, in turn contributing to refinement of institutional arrangements. For example, reinvigorated arguments are necessary around what constitutes an adequate set of conditions for a licensee to keep mine land under care and maintenance, or alternatively, relinquish it to actors with different capabilities and conceptions of risk and benefit sharing.

### 8.4 Consideration of cultural context and stakeholder engagement methodologies

To support empirical analysis of CRC TiME stakeholder values, the project developed and tested a tailored set of methods and techniques, including interviews and small group discussion; the compilation of a comprehensive set of categories (codes) to support manual content analysis; augmentation of codes with additional discourse arising from the case study regions; and multi-vocal reporting of case study findings, informed by interpretations of three researchers.

These techniques allowed the project to prepare the Gove Peninsula case study, which offered in-depth consideration of the historical and contemporary cultural context. With respect to consideration of different methods of engaging or interacting with interested groups, the project’s interview and small group discussion techniques were effective for research participants recruited from organised stakeholder organisations or advisory groups in regions, and serve as a foundation for potential future research aimed at eliciting the values of other categories of stakeholder (eg unaffiliated members of the public in regions).

## 9 Acknowledgements

---

We thank the more than 46 people who generously contributed their time and insights by participating in regional research interviews or the project's online small group discussions. For enabling research activities and outputs through advice and/or meeting facilitation, we thank Fiona Haslam-McKenzie, Bryan Maybee, Tom Measham, Kelli Schmidt, Emma Yuen, and members of the Project Advisory Committee (BHP Group Operations, Chamber of Minerals and Energy [WA], Department of Water and Environmental Regulation [WA], Developing East Arnhem Limited, Golder Associates, Iluka Resources, Newmont Mining Services, Okane, Peel Development Commission, and Rio Tinto Services). We thank Fiona Haslam-McKenzie and Tom Measham for reviewing interim outputs or drafts of this publication.

# 10 References

---

- Beer, A., F. Haslam-McKenzie, S. Weller, A. Davies, C. Cote, M. Ziemski, K. Holmes, & Keenan, J. (2022). Post-mining land uses. Perth, Australia: CRC TiME Limited,
- Brown, G., & Reed, P. (2000). Validation of a forest values typology for use in national forest planning. *Forest science*, 46(2), 240–247.
- Brown, G., & Weber, D. (2012). Measuring change in place values using public participation GIS (PPGIS). *Applied Geography*, 34, 316–324. <https://doi.org/10.1016/j.apgeog.2011.12.007>
- Collie Economic Development Task Force. (2017). *Reimagining Collie. Collie Economic Development Task Force Report*. March 2017.
- Context. (2019). *Latrobe Valley Social History. Celebrating and recognising Latrobe Valley's history and heritage*. Melbourne: Department of Environment, Land, Water and Planning (Victoria).
- DELWP. (2019). *Latrobe Valley Regional Rehabilitation Strategy. Draft Preliminary Land Use Vision*. Melbourne: State of Victoria, Department of Environment, Land, Water and Planning (DELWP).
- Department of Premier and Cabinet (WA). (2020). *Collie's Just Transition Plan*. West Perth, WA.
- Department of Water. (2009). *Upper Collie water allocation plan*. Perth: Government of Western Australia.
- Dewar, M. (1992). *The 'Black War' in Arnhem Land: missionaries and the Yolngu 1908–1940*. Darwin: Australian National University.
- DJPR & DELWP. (2020). *Latrobe Valley Regional Rehabilitation Strategy. Volume 1*. Melbourne: State of Victoria, Department of Jobs, Precincts and Regions (DJPR), and Department of Environment, Land, Water and Planning (DELWP).
- Dumont, L. (2013). On value: The Radcliffe-Brown lecture in social anthropology, 1980. *HAU: Journal of Ethnographic Theory*, 3(1), 287–315.
- Egan, T. (1996) Justice all their own: the Caledon Bay and Woodah Island Killings 1932-1933. Melbourne University Press, 302 pages.
- Emerson, K., & Nabatchi, T. (2015). *Collaborative governance regimes*. Georgetown University Press.
- Fairclough, I., & Fairclough, N. (2012). *Political Discourse Analysis: A Method for Advanced Students*: Taylor & Francis.
- Farnsworth, S. (2012). Black Saturday arsonist jailed for almost 18 years. *ABC News*. [https://www.abc.net.au/news/2012-04-27/black-saturday-arsonist-sentenced-to-28years/3976564](https://www.abc.net.au/news/2012-04-27/black-saturday-arsonist-sentenced-to-28years/) (Accessed 7 August 2022)
- Foran, T., & Yuen, E. (2021). *Defining success for CRC-TiME: A collaborative governance approach to impact and evaluation*. CRC TiME Limited, Perth.
- Foran, T., Grigg, N., Barbour, E., Wahid, S. M., Gamboa Rocha, A., Hunter, R., ... Wallbrink, P. (2019). *At the Heart of Myanmar: Exploring Futures of the Ayeyarwady River System. Ayeyarwady Basin Exploratory Scoping Study (BESS)*. Final Report. Canberra: eWater Ltd (Australian Water Partnership).
- Foran, T., Kiik, L., Hatt, S., Fullbrook, D., Dawkins, A., Walker, S., & Chen, Y. (2017). Large hydropower and legitimacy: a policy regime analysis, applied to Myanmar. *Energy Policy*, 110, 619–630. <http://dx.doi.org/10.1016/j.enpol.2017.08.043>
- Gibson, R. B. (2006). Sustainability assessment: basic components of a practical approach. *Impact Assessment and Project Appraisal*, 24(3), 170–182.
- GLaWAC. (2015). *Gunaikurnai Whole-of-Country Plan*. Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC).
- GPFRG. (2021). *A new journey together Traditional Owners' Vision for the Future of Nhulunbuy and the Gove Peninsula*. Gove Peninsula Futures Reference Group (GPFRG).
- Hamblin, L., Gardner, A., & Haigh, Y. (2022). *Mapping the Regulatory Framework of Mine Closure*. CRC TiME Limited, Perth.
- Keeney, R. L. (2013). Identifying, prioritizing, and using multiple objectives. *EURO Journal on Decision Processes*, 1(1), 45–67. doi:10.1007/s40070-013-0002-9
- Kidder, L. H., & Judd, C. M. (1986). *Research Methods in Social Relations* (8th ed.). Holt, Rinehart and Winston, London.
- Lechner, A. M., McIntyre, N., Witt, K., Raymond, C. M., Arnold, S., Scott, M., & Rifkin, W. (2017). Challenges of integrated modelling in mining regions to address social, environmental and economic impacts. *Environmental Modelling & Software*, 93, 268–281.
- MacKnight, C. (1976). *The Voyage to Marege: Macassan Trepangers in Northern Australia*. Melbourne University Press.
- May, P. J. (2015). Implementation failures revisited: Policy regime perspectives. *Public Policy and Administration*, 30(3–4), 277–299. doi:10.1177/0952076714561505
- May, P. J., & Jochim, A. E. (2013). Policy Regime Perspectives: Policies, Politics, and Governing. *Policy Studies Journal*, 41(3), 426–452. doi:10.1111/psj.12024
- Measham, T., Ackermann, F., Everingham, J., Barber, M., Haslam-McKenzie, F., & Maybee, B. (2022). *Understanding stakeholder values in post-mining economies: a literature review*. Interim report. CRC TiME Limited, Perth.

- Mercer, D., Bourke, K., & Loney, G., (2022, June 14). Synergy coal power stations including Muja to close as WA Government prioritises renewable energy. *ABC News*. <https://www.abc.net.au/news/2022-06-14/muja-power-station-to-close-in-coal-phase-out-as-renewables-rise/101150972>
- Morphy, H. (1991). *Ancestral connections: art and an Aboriginal system of knowledge*. Chicago: University of Chicago Press.
- Morphy, H., & Morphy, F. (2006). Tasting the waters: discriminating identities in the waters of Blue Mud Bay. *Journal of Material Culture*, 11(1/2), 67–85.
- Morrison-Saunders, A., Bond, A., Pope, J., & Retief, F. (2022). Sustainability assessment principles and practices, *Routledge Handbook of Environmental Impact Assessment* (pp. 98–113): Routledge.
- Pahl-Wostl, C. (2015). *Water Governance in the Face of Global Change: From Understanding to Transformation*, Springer International Publishing.
- Reeves, J., Morgan, D., Reimers, V., Baumgartl, T., & Green, M. (2022). *Final Mine Void Forms, and Future Land and Water Uses: Researching the Community Perspective*. Final Report to AGL Loy Yang. Churchill, Victoria: Federation University.
- Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues*, 50(4), 19–45.
- State of Victoria. (2021). *Mineral Resources (Sustainable Development) Act 1990. Version No. 126, No. 92 of 1990* (incorporating amendments as at 1 July 2021), <https://www.legislation.vic.gov.au/in-force/acts/mineral-resources-sustainable-development-act-1990/126>
- Williams, N. (1986). *The Yolngu and their land: a system of land tenure and the fight for its recognition*. Canberra: Australian Institute Of Aboriginal Studies.

# 11 Annexure A

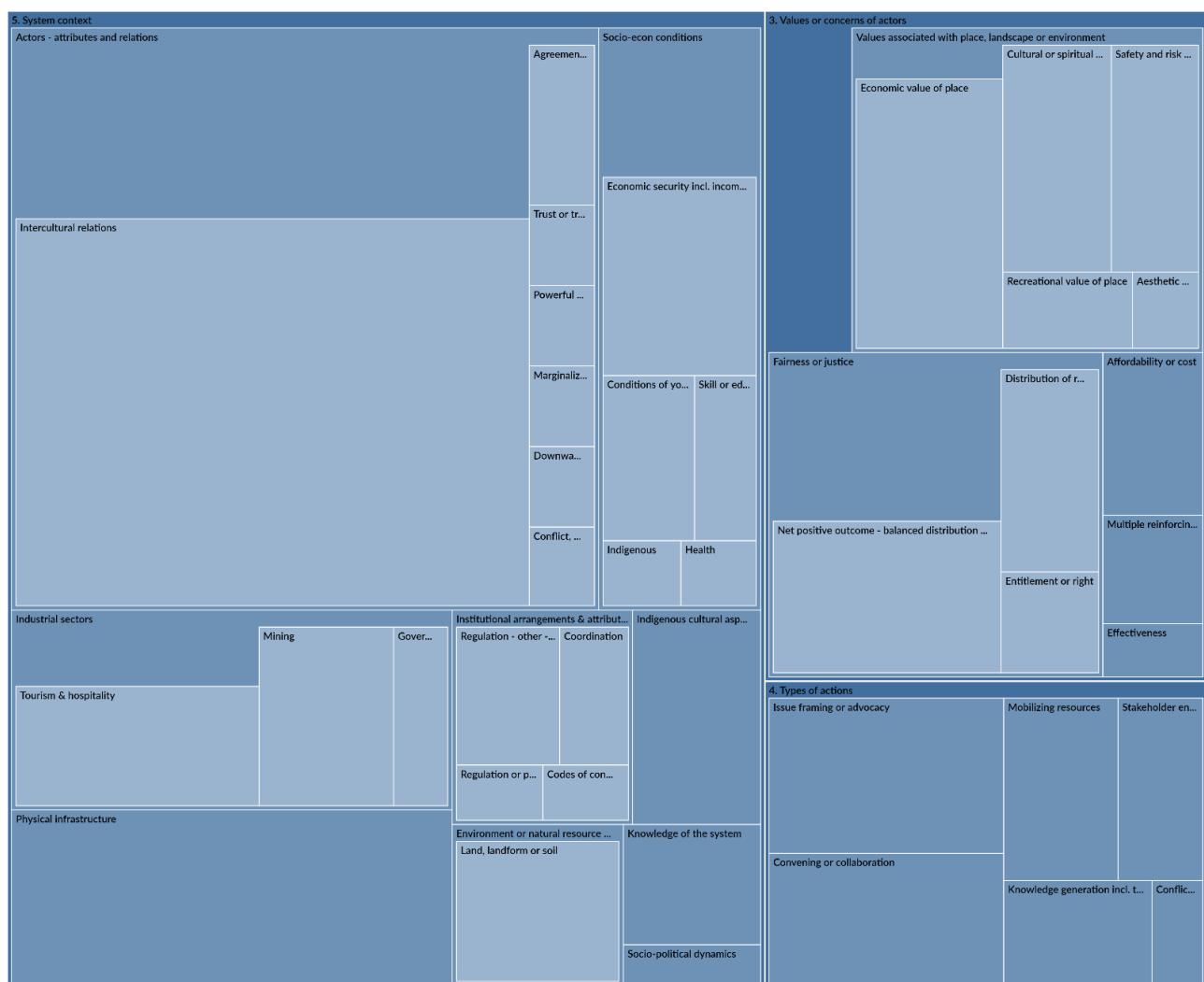
**Table 17: Codebook used for manual content analysis.**

CODE	NOTES
<b>RESEARCH QUESTIONS (2021 CONFERENCE SESSION)</b>	
(WQ1) Key values of session participant with respect to transition of a mining economy	
(WQ2) Considerations related to realisation of key values	
<b>RESEARCH QUESTIONS (REGIONAL CASE STUDIES)</b>	
(Q1) Respondent's past experience	
(Q2) Effects of mining development on community or landscape	
(Q3) (Q4) Best possible p-m outcome, importance, outcome as stated goal	
(Q5) Challenges to achieve outcome	
(Q6) Actions to address challenges	
(Q7) Other main stakeholders	NB. Second part of Q7 – ‘why are they important’ use ‘Nodes\\Actors – attributes and relations\\Sources of power, influence, importance
(Q8) Best possible p-m outcome for two other main stakeholders	
(Q9) (Q10) Recap values that appear important to respondent, linking values	
<b>1. Cross-cutting attributes</b>	
Action – inhibiting	Inhibits attainment of an objective or goal
Ambition or aspiration	
Complexity	
Conservatism	
Driving force – global or national	A driving force acting on particular elements of the system context
Negative attributions	Used to code negative sentiment or framing in interview content (e.g. inadequacy, loss, decline, undesired future)
Persistence over time	
Private	
Public	
Time reference	
Future time	
Past time	
Present time	
<b>2. Types of actors</b>	
Associations or networks	Includes multi-stakeholder committees
Community org or individuals in community	
Federal government	
Independent	Any kind of independent actor (e.g. neutral facilitator)
Indigenous org	

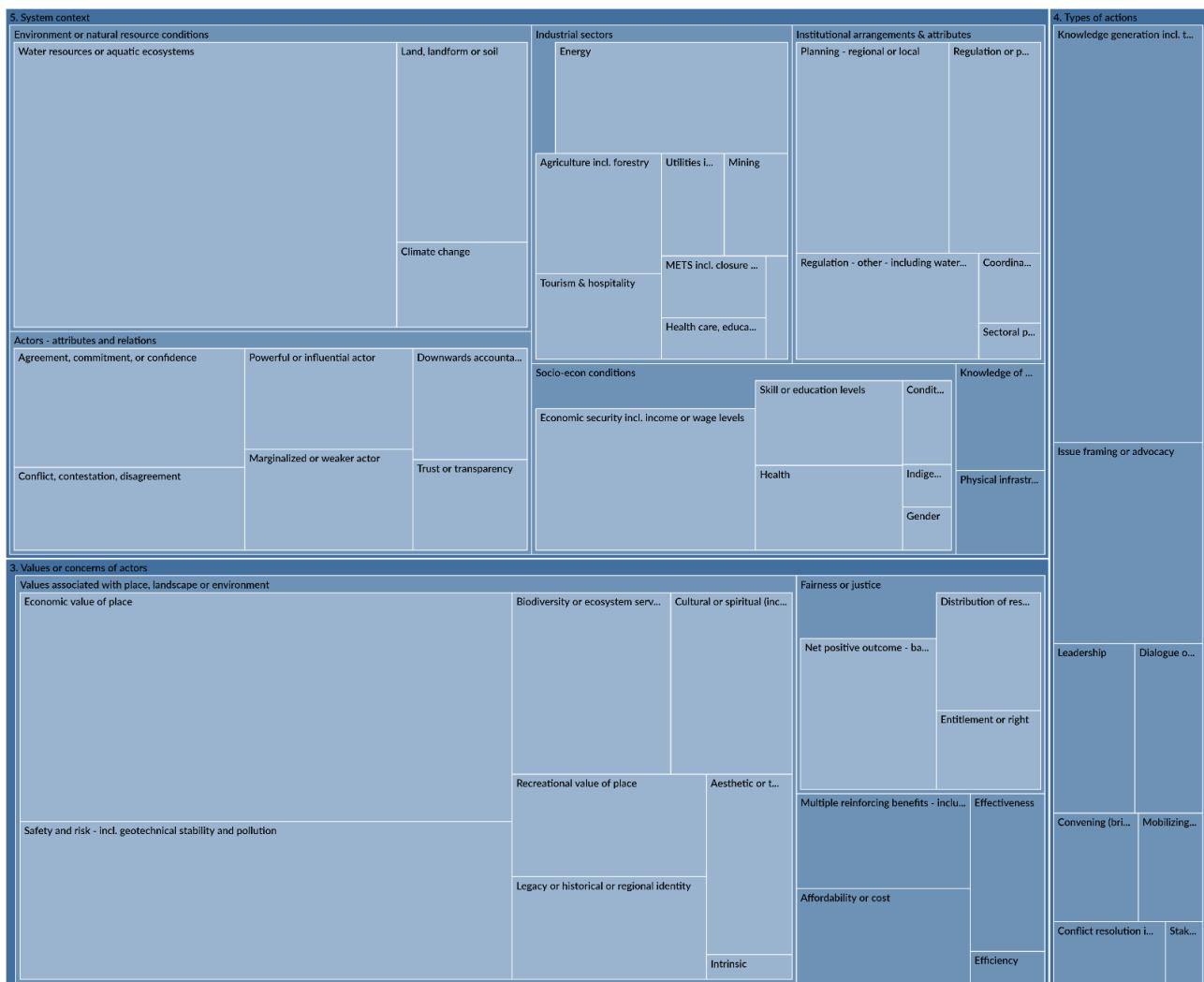
CODE	NOTES
Local government	
Mine licensee or operator	
Non-mining firms or enterprises	Use Industrial sectors to code to sector -> Nodes\\ <b>5.</b> System context\\Industrial sectors
Political representatives – local, state, federal	
Research organisation or knowledge provider	
State government	
Earth resources or mine rehab agency	(incl. VIC MLRA)
Economic development agency	
Environmental or water agency	
Other state government	(incl. state-owned enterprise)
<b>3. Values or concerns of actors</b>	
<b>Substantive or procedural values</b>	
Affordability or cost	
Effectiveness	
Efficiency	
Fairness or justice	
Distribution of responsibility or liability	
Entitlement or right	
Net-positive outcome – balanced distribution of goods – acknowledging historic legacy	goods or services
Mutual reinforcing benefits – including transformative outcomes	
<b>Values associated with place, landscape or environment</b>	
Aesthetic or therapeutic	
Biodiversity or ecosystem services	
Cultural or spiritual (incl. Indigenous)	
Economic value of place	
Entrepreneurship or econ innovation	includes commercial viability
Housing or urban development	
Key services	
Intrinsic	
Legacy or historical or regional identity	Category widened to include path dependency. Legacy and identity are mental conceptions – who we have been and/or are, what this place has been or is. Could also be classified under socio-economic conditions
Recreational value of place	
Safety and risk – incl. geotechnical stability and pollution	
<b>4. Types of actions</b>	
Conflict resolution incl. mediation	
Convening (bringing different actors together)	Previously named ‘Brokering or bridging’. This type of action requires perception of fairness, independence
Dialogue or deliberation	
Issue framing or advocacy	
Knowledge generation incl. translation	includes technological innovation, M&E

CODE	NOTES
Leadership	
Mobilising resources	
Stakeholder engagement	
<b>5. System context</b>	
<b>Actors – attributes and relations</b>	
Agreement, commitment, or confidence	
Conflict, contestation, disagreement	
Downwards accountability	
Intercultural relations	
Marginalised or weaker actor	
Powerful or influential actor	
Tolerance of difference, inclusiveness	
Trust or transparency	
<b>Environment or natural resource conditions</b>	
Climate change	
Land, landform or soil	
Water resources or aquatic ecosystems	
Manufactured water	
<b>Industrial sectors</b>	
Agriculture incl. forestry	
Energy	
Renewable	
Health care, education, or social services	
Manufacturing	
METS incl. closure and rehabilitation	
Mining	
Other	
Tourism and hospitality	
Utilities incl. water	
<b>Institutional arrangements and attributes</b>	NB. Institutions constrain action but are also objects of action aimed at reform.
Codes of conduct – industry or voluntary	
Coordination	
Decentralisation	
Markets	
Planning – regional or local	
Regulation – other – including water allocation – reg. water markets	
Regulation or planning – mine closure	Includes rehabilitation planning
Sectoral policies and legal frameworks	
<b>Knowledge of the system</b>	
<b>Physical infrastructure</b>	
<b>Socio-econ conditions</b>	

CODE	NOTES
Conditions of older workers or retirees	
Conditions of youth or younger workers	
Economic security incl. income or wage levels	
Gender	
Health	
Indigenous	Conditions of Indigenous people
Skill or education levels	
<b>Socio-political dynamics</b>	<b>Not otherwise classified</b>



**Figure 17: Hierarchical representation of coding frequency (Gove Peninsula case study). Note: Tree map shows proportion of references coded to values of actors, types of actions, and system context.**



**Figure 18: Hierarchical representation of coding frequency (Latrobe Valley case study). Note: Tree map shows number of references coded to values of actors, types of actions, and system context.**