



**Case Study** Project 1.4

# Initiating a multi-stakeholder participatory approach to mine closure planning: The Rosebery case study

May 2022

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# TABLE OF CONTENTS

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1. Introduction .....	5
2. What is mine closure?.....	5
2.1 Mine closure planning.....	6
2.2 Participatory approaches to mine closure planning .....	6
2.3 Town Transition Tool .....	7
2.3.1 The Five Capitals Framework.....	8
3. Rosebery workshops – what happened?.....	9
3.1 Internal workshop.....	9
3.2 External workshop .....	10
3.3 Research ethics approval .....	10
4. What did we learn?.....	11
4.1.1 Economic capital.....	11
4.1.2 Infrastructure capital .....	12
4.1.3 Natural environment .....	12
4.1.4 Human capital.....	13
4.1.5 Social capital .....	13
4.1.6 Data gaps .....	13
5. What participants thought about the workshop process.....	14
6. Conclusion.....	16
7. Next steps .....	16
8. Glossary of terms .....	17
Biophysical aspects .....	17
Care and maintenance .....	17
Mining lifecycle .....	17
Relinquishment.....	17
9. Acknowledgements.....	17
<b>Figures</b>	
Figure 1: External workshop participants discuss Rosebery’s current state. ....	10
Figure 2: Workshop facilitator engages with a community representative during the TTT external workshop. ....	15
Figure 3: The Five Capitals Framework.....	9

# 1. Introduction

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Rosebery mine is an underground zinc, copper, lead and gold operation owned by MMG. It is located in the town of Rosebery on the west coast of Tasmania, around 300km northwest of Hobart and 125km south of Burnie. Rosebery is Tasmania's longest operating mine, having been in continuous production since 1936. Over that time, it has had an average mine life of five years. This means that exploration and discovery has continued alongside mine operation, and at any time in Rosebery mine's history, it has only had sufficient identified reserves to continue operating for five years. Based on current conditions, Rosebery is expected to stop mining between 2024 and 2029.

Planning for closure is part of a mine's core business and preliminary planning should be undertaken early in the mine lifecycle, even before mining starts. As the closure date draws closer, planning becomes more detailed. MMG has had mine closure plans in place for Rosebery for many years. The company's internal processes stipulate that it must start formal, detailed closure studies when the remaining mine life reaches seven years.

Consequently, in 2019, MMG invested about \$15 million to progress detailed mine closure studies for Rosebery mine and the nearby Hercules mine, which has been in **care and maintenance** for more than 15 years. Apart from looking at the **biophysical aspects**, these studies will also address the socio-economic aspects of mine closure, such as infrastructure, services, land use, economic vitality and the social well-being of employees, contractors, suppliers, residents and community groups.

As a first step of its socio-economic study, MMG engaged the Centre for Social Responsibility in Mining (CSRSM), part of the University of Queensland's Sustainable Minerals Institute, to implement the Town Transition Tool (TTT), a participatory framework for opening the conversation about mine closure among all stakeholders, including the company, local government and the community.

This case study describes the TTT process and outcomes. Section 2 briefly outlines what mine closure and a participatory approach to mine closure planning entail. It provides a brief description of the TTT and how it can be used to start a conversation about mine closure. Sections 3-5 describe implementation of the TTT in Rosebery, highlighting key issues raised by participants and their reflections on the process. The case study closes with a conclusion, next steps, glossary of terms and acknowledgements.

## 2. What is mine closure?

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Mine closure is a formal process of planning and managing the decommissioning of a mine site, mitigating impacts and legacy issues, undertaking environmental rehabilitation and, eventually, **relinquishing** the leases.<sup>1</sup> It's both a process and a discrete event in the **mining lifecycle**. A mine has a finite lifespan. When the mineral resources are exhausted or they become uneconomic to extract, the mine will stop operating and close. Mine closure is the stage of the mining lifecycle where this happens.

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<sup>1</sup> Bainton, N.A. and Holcombe, S. (2018). [The Social Aspects of Mine Closure: A Global Literature Review](#). Brisbane: Centre for Social Responsibility in Mining (CSRSM), Sustainable Minerals Institute (SMI), The University of Queensland.

The life-of-mine, or the time a mine is planned to continue operating, is defined by the size and the quality of the minerals in the ground. Ideally, mine closure would take place when the mineral resources have been exhausted, a mine closure plan has been developed and the plan is progressively implemented. In addition, all stakeholders would have been informed, have had the opportunity to participate in the closure planning process and would be prepared for the intended closure date.<sup>2</sup>

Unfortunately, things don't always go to plan. Mines can close unexpectedly due to a drop in mineral prices, changes in government requirements, geological and technical issues, social/community pressures or environmental disasters (e.g., flooding or earthquakes). In some cases, closure may be temporary, leading to a program of care and maintenance, where the mine infrastructure is maintained intact waiting for mining to restart.<sup>3</sup> There are very few people employed on site during a program of care and maintenance compared with an operating mine.

## 2.1 Mine closure planning

Over the past decade or so, greater attention has been given to the way mining companies plan for and undertake mine closure activities and how they monitor closure outcomes. Closure is now considered part of a mine's core business and preliminary planning should be undertaken early in the mining lifecycle, such as during project evaluation.

It's good practice for mining companies undertake closure planning using a multidisciplinary team established specifically for the task. Team members can work on closure planning full-time or on a part-time basis, alongside their broader duties. Although not consistent across the board, there is a trend among leading mining companies for community relations or social performance practitioners to be incorporated into the closure team alongside environmental scientists, engineers, geologists, accountants and human resources practitioners. This can help to integrate social dimensions into closure planning.

A key part of mine closure planning is the collection of detailed information about the risks of closure, including potential impacts on communities and business partners, and what needs to be done to address those impacts. Mining companies commission specialists to undertake a series of closure studies. These studies cover engineering, environmental, social and final land use outcomes, which can then be discussed with stakeholders to agree on recommended options.

## 2.2 Participatory approaches to mine closure planning

In Tasmania, the state government requires mining companies to engage with stakeholders as part of their mine closure planning process. Industry leading practice endorses meaningful engagement and partnership with local communities throughout the mining lifecycle, including at closure. Impacted people have the right to be involved in decision-making about matters that affect them.<sup>4</sup> Engagement may be carried out by the mine's community relations/social performance practitioners or by the mine closure team.

Opportunities for impacted people to participate in mine closure planning include via:

<sup>2</sup> <https://www.industry.gov.au/sites/default/files/2019-05/lpsdp-mine-closure-handbook-english.pdf>

<sup>3</sup> <https://www.industry.gov.au/sites/default/files/2019-05/lpsdp-mine-closure-handbook-english.pdf>

<sup>4</sup> See, for example, the International Council on Mining and Metals' (ICMM) [principles](#) and [performance expectations](#). The ICMM is a global organisation representing 27 mining and metals companies and 35 industry associations.

- a **community reference group/community consultative committee/external closure review team** established to share information and receive feedback from impacted and interested people
- a **local/indigenous knowledge panel** set up to provide local, traditional and/or technical input to closure planning and closure studies
- a **visioning process** which is used to enable impacted people to reflect on what they would like the future of their community to look like and the legacy they want the mining company to leave behind
- a **social impact assessment (SIA) for closure** which is a process to identify, assess, manage and monitor social, cultural and economic impacts (positive and negative, direct and indirect) of mine closure. Stakeholder engagement is a key component of an SIA
- **participatory monitoring and evaluation** which are collaborative processes of collecting and analysing data and communicating the results. The most common examples of mine closure monitoring are for water, habitat (flora and fauna) and mine rehabilitation progress.

Regardless of the approach chosen, the very first step in any participatory process is to ensure that all stakeholders understand the local political, social, economic and cultural context in which closure will unfold. That understanding must be grounded in reliable and up-to-date data.

## 2.3 Town Transition Tool

The Town Transition Tool (TTT) is a diagnostic instrument that was developed by CSRM in 2008 to support a more integrated approach to mine closure planning. The TTT brings mining companies and stakeholders together at a local level to build a shared understanding of their dependency on the mine and of future opportunities. Based on the **Five Capitals Framework** and run by experienced facilitators, the structured process enables participants to:

- share the knowledge and data that has been collected by the mining company and other stakeholders about the town or local community
- identify the gaps in knowledge that need to be addressed to support closure planning.

The TTT process is carried out in two stages: an ‘internal’ workshop followed by an ‘external’ workshop. The **internal workshop** comprises mining company representatives and/or government officials (depending on the town’s current governance structure). The facilitators guide participants through a series of indicators which are presented as questions. Relevant contextual and explanatory information is captured live and projected so that it is visible to participants. A preliminary report that captures all the data recorded during the internal workshop is automatically generated after the workshop and shared with participants and with stakeholders who have agreed to take part in the external workshop.

The **external workshop** is a multi-stakeholder exercise involving key representatives (e.g. mining company, state and local government, and community organisations). It is held at least 3-4 weeks after the conclusion of the internal workshop to allow participants time to read the preliminary report and to prepare for the next workshop. The external workshop follows a similar format to the internal one. Its objectives are to:

- validate the current situation of the town as it was described by internal workshop participants
- assign values to the current situation
- address the key indicators for the future by answering the structured questions then attribute ‘values’ to the future opportunities.

Assigning values to the level of dependency (current situation) and the opportunity potential of the town helps participants to agree on their starting point and what may be feasible for future planning.

A final report that captures all the workshop data is generated and shared with participants.

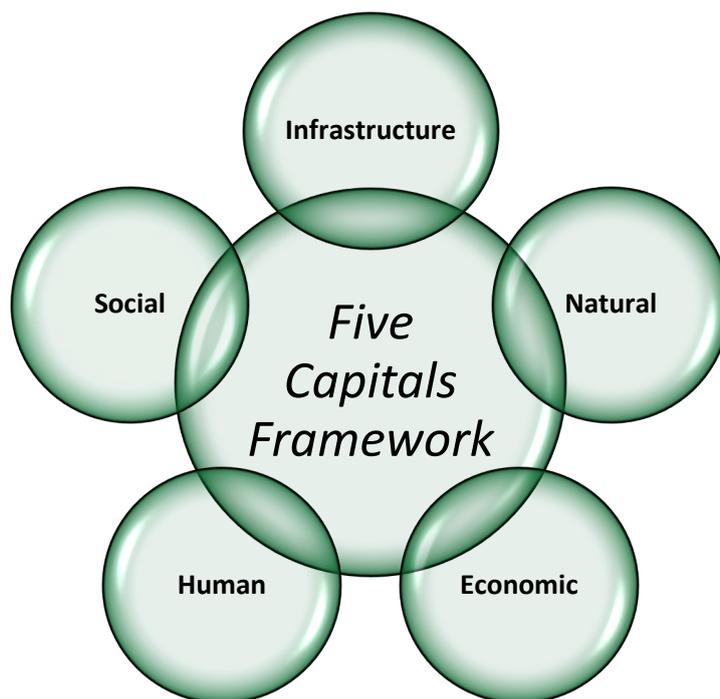
### 2.3.1 The Five Capitals Framework

The TTT uses the 'Five Capitals Framework', which is a practical tool for evaluating the intrinsic value of an organisation, place or activity. The framework has been widely applied in national and regional planning, organisational development and community practice. The framework enables the wide variety of issues that arise in the context of mine closure to be discussed in a systematic and structured way.

As illustrated in Figure 1, the Five Capitals Framework consists of five 'capitals' or 'assets' (economic, infrastructure, natural, human and social capital). Each of the five capitals is described below:

- **Economic** – refers to the income streams, financial resources and the wealth generating capacity of a town, region or communities. These may include incomes generated from local industries, other investments in the town, and general subsidies.
- **Infrastructure** – refers to the physical and built assets and services of a town. These include hard infrastructure (e.g. housing, roads and transport, communications, power supply, water, sanitation, hospitals, schools and sports grounds); and soft infrastructure (e.g. social services such as education, health care and recreation).
- **Natural** – refers to the town and its surrounding region's stock of key natural resources including land, air, water, biodiversity, ecosystems etc. They should be considered in terms of access and quality. Access may be negatively affected if company activities are using natural resources (land, water) leaving less available for the community. Quality may be impaired if company activities cause them to become polluted.
- **Human** – refers to a suite of salient features that an individual possesses (e.g. good physical and mental health, skills, knowledge, education, experience and emotional stability) and/or that a community possesses (e.g. capacity, competencies, motivation and leadership) which are required to undertake productive economic activities, maintain sustainable livelihoods and contribute to society in general. The company presence can impact positively on the human capital for instance if it is supporting good quality health care services in the town. However, it can also impact negatively on human capital for instance if arduous shift rotations affect mental health.
- **Social** – refers to the networks, relationships, trust and norms that enable cooperation, mutual support and the sharing of information within communities (bonding) and between communities (bridging). It also refers to the sense of connection to a place or area.

Figure 1: The Five Capitals Framework



## 3. Rosebery workshops – what happened?

### 3.1 Internal workshop

On 13-14 July 2021, CSRSM facilitated the first stage of the TTT implementation process with a cross-disciplinary group of 17 MMG staff. Participants were drawn from the closure team, stakeholder relations and communications, commerce, supply chain, maintenance, technical services, human resources, contracts and supply and safety, health environment and community. Held over Zoom in two three-hour sessions, the participants assessed their understanding of the town's dependency on the mine by working through the TTT questions that centred on the Five Capitals Framework. Participants acknowledged that while they had an understanding of Rosebery's current state, further data was required to verify that understanding, including obtaining community perspectives. Participants said the workshop was well-facilitated and the structured approach helped to identify data gaps and increase their awareness of the social issues that needed to be addressed at closure.

The responses were summarised and written up as an interim TTT report to be used as the basis for the external workshop.

## 3.2 External workshop

CSRSM facilitated an external TTT workshop on 20 September 2021, which comprised 14 community stakeholders, including representatives from the West Coast Council and five MMG staff.

The workshop started with a welcome from MMG’s General Manager of Rosebery Operations and was followed by an icebreaker activity that captured the imagination of participants. Participants were asked to share what Rosebery means to them. MMG then provided an overview of the Rosebery mine context and its closure planning.

In the main part of the workshop, participants reviewed the findings from the internal TTT workshop with MMG employees. They discussed the level of Rosebery’s dependence on the mine using a series of questions structured around the Five Capitals Framework. Participants were asked to rate dependence using a scale of 1 (very dependent) to 5 (not dependent). The questions being addressed were projected onto a large screen so that all participants could see the questions and what information was being captured by the second CSRSM facilitator. This process provided transparency and enabled participants to correct any points that were not captured to their satisfaction. Participants then turned to a series of questions focused on assessing Rosebery’s post-mining opportunities, again using the Five Capitals Framework. The facilitators used a combination of plenary and small group work for discussion and data collection, with the small groups reporting back to the plenary.

In conjunction with the workshop, a CSRSM researcher examined the strengths and weaknesses of the TTT using a short survey and interviews with three community representatives plus MMG employees and the facilitation team.



Figure 2: External workshop participants discuss Rosebery’s current state.

## 3.3 Research ethics approval

This project meets the requirements of the National Statement on Ethical Conduct in Human Research and received human research ethics approval from the University of Queensland’s EAIT LNR Ethics Committee in July 2021. The research ethics ID number is: 2021/HE001466.

## 4. What did we learn?

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The internal workshop helped participants to clarify where data was held and where further studies would be required to fully understand the town's dependency on the mine. It also enabled participants to better understand how their disciplinary expertise was required to enhance the mine closure planning process. Discussions concluded with an agreement that more data and input from the local government and residents were needed.

The external workshop provided valuable insight and perspectives. Discussion generated from the icebreaker showed that workshop participants have a strong connection to the town of Rosebery and the surrounding landscape. Descriptions of Rosebery included: "peace, quiet and tranquillity", "genuine people", "great community with a soul, unlike some of the other towns on the West Coast", "memorable beauty", "like being in a rain forest", "the character and the people" and "indeed, untapped potential is the most memorable thing about Rosebery!"

This discussion sparked reminiscences about Rosebery's history. "Back then it was a mining town, but now it is a town with a mine," one participant said. Other comments touched on the vibrant, bustling nature of the town, that when mine workers lived in town, their children benefitted from scholarships and multiple generations of family members would work at the mine. Now that most workers are drive-in-drive-out, there are fewer businesses and not everyone works for the mine. Despite these changes, participants expressed pride and attachment to Rosebery.

*"I want to see Rosebery survive. I want to see all our communities survive [...] The only time that I'll be out of here is when I'm already in a pine box [...] Hopefully there's a few more years left" – community participant*

From a governance perspective, participants confirmed that Rosebery is under the jurisdiction of the West Coast Council. Participants acknowledged that MMG owns or leases land that would otherwise be Crown land. Future ownership and management of the land would need to be clarified.

The following subsections summarise the workshop findings according to each of the five capitals.

### 4.1.1 Economic capital

Discussions on economic capital focused on: economic diversity, including examination of sources of employment and income, and the local business landscape; local government revenues and the extent that these may be dependent on the mining company; and mining company subsidies.

Discussions highlighted uncertainty over how the mine's closure would affect the Rosebery economy. Participants agreed that further economic studies were needed.

MMG is a major employer; however, since it moved to a drive-in-drive-out (DIDO) roster system, the number of employees who permanently reside in Rosebery has declined. The change to the mine rosters occurred without substantial community engagement or a formal assessment of possible social and economic impacts. Participants said this had resulted in population loss, demographic change and businesses becoming unviable.

Participants noted that more data was needed to determine the reliance of non-mining people on the mine, including more recent welfare statistics for Rosebery and surrounding areas. Data is needed on MMG's contribution to the West Coast Council's budget, including indirect contributions.

The company provides sponsorship and funding to local organisations and initiatives. More research is needed on how reliant the organisations are on MMG and whether they have strategies in place to transition post-closure.

The cost of living in Rosebery was considered equal to or above the state average, which could potentially exclude many people from living in town without subsidies. The economic discrepancy between mine employees and those not employed in the mine was also noted by participants: more data on these dynamics are needed to understand how mine closure may affect the town's social composition.

Discussion on post-closure opportunities largely centred on tourism. Participants noted that tourism initiatives should be developed before the mine closes, however, new ventures would face competition for labour from the mine due to higher wages. The lack of tourist accommodation in Rosebery was identified as another challenge for expanding the industry. Strategic planning would be needed now to take advantage of MMG support within the bounds of local and state government policies on regional economic development and land use planning.

#### 4.1.2 Infrastructure capital

Discussions focused on home ownership, accommodation, and hard and soft infrastructure. The objective is to identify the extent that MMG dominates the housing market and, therefore, the impact the company's withdrawal could have on local real estate. Questions also focused on the company's contribution to the provision and maintenance of roads, power, education, health, water and sanitation infrastructure.

MMG occupies 18.3% of local real estate through ownership and leasing. When the mine closes, housing availability may increase. Further study is needed to understand the implications for Rosebery's social composition and its potential to transition to a tourism-based economy.

Rosebery does not rely on MMG for the provision and maintenance of hard infrastructure, such as utilities (water, power), waste disposal and sewerage removal. These are provided by local and state governments and other agencies. More data is required to understand the extent to which these agencies are dependent upon revenue from MMG (rates and purchase of services).

More data is also needed to determine whether MMG's withdrawal would change service coverage in health, education and training. For example, MMG provides funding to the medical centre. Would future funding be affected? Would the centre be able to continue operating? Would school enrolments increase with the availability of more housing (only two employee families have children at the school)?

There are potential positive flow-on effects from the mine closure, such as less wear on roads and an increase in bandwidth for telecommunication services.

#### 4.1.3 Natural environment

Discussion of the natural environment centred on local access to natural resources, such as water, land, clean air, fisheries and forests and people's connection to place. It also considered the impact of the company on this environment and its role in land management.

Participants believe tourists visit Rosebery to enjoy the natural environment (although data on tourism statistics are not captured as they do not stay overnight). Rosebery is also the proposed access point for Tasmania's next iconic walking trail. Additional accommodation will be needed to support an increase in tourism as local accommodation is limited. Workshop participants noted that the unattractive visual amenity of the mine, public health risk from water quality and the inability to build on tailings dams would adversely affect the town's tourism potential. Further research and closure planning are needed to mitigate these risks.

MMG contributes to land management in natural areas. Some attractions have been funded by MMG. It is unclear what level of assistance MMG will provide in the future and what alternative funding avenues may

exist post-closure (state government, local community etc.). More clarity is also required around who is responsible for post-closure water quality monitoring (currently done by MMG) and weed control at the mine site and surrounds.

#### 4.1.4 Human capital

Participants explored issues around local education and skills levels, the health and motivation of the local population and local labour force availability. They examined whether the presence of the mining company influenced the availability of essential workers, such as health care professionals and teachers.

The data on human capital in Rosebery is outdated (2016 Census). More recent data is needed (particularly disaggregated data on health, gender, age, employment and education) to understand the town's level of dependence on MMG for the provision of essential services. Workshop participants noted the impact DIDO has had on services, local businesses and the school.

The lack of childcare services in Rosebery affects the capacity of parents to participate in paid employment. The transition to a tourism-based economy may help to alleviate this issue as tourism jobs may be more suitable for job-share arrangements than mining roles. Participants also noted the lack of employment opportunities in town, particularly for young people from low income households. It was noted that Rosebery mine currently provides limited apprenticeship opportunities that weren't reserved for locals.

#### 4.1.5 Social capital

Social capital is the term used to describe people's ability to work together. It includes networks and relationships that foster cooperation, mutual support and the sharing of information, such as clubs and associations. Social capital is needed for participatory approaches to post-closure planning.

Participants noted a decline in participation in recreational sport and social clubs in Rosebery. While the clubs are not totally dependent on the mine for members, given the low participation rates, even a small reduction in membership could jeopardise their viability. Anecdotal evidence suggests that community organisations are reliant on grants from MMG and its contractors for their survival. Quantitative data is required to assess potential impacts from mine closure.

#### 4.1.6 Data gaps

From going through the structured TTT process, participants identified where additional data was required to better understand Rosebery's current situation and to inform the exploration of post-mining opportunities.

## 5. What participants thought about the workshop process

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Feedback about the TTT process was overwhelmingly positive. Survey results showed that when asked to rank their experience of the TTT, 54% of participants selected the highest rating of 5, while 46% selected the next highest rating of 4. All participants agreed that they had had the chance to voice their opinions during the workshop and that their opinions were heard. Most participants (92%) felt that the workshop had helped them and their fellow participants to come to a shared understanding of the issues facing Rosebery in terms of planning for the future. Most participants (85%) found the workshop to be a constructive method for starting a process for future decision-making while 15% considered that it was to some degree. All participants agreed that the workshop had documented the TTT process and outcomes in a form that could be used for ongoing multi-stakeholder planning.

Results from the open-ended questions were also positive. Eleven participants completed the question on TTT strengths. The responses were: “hearing diverse opinions”, “collective discussion”, “positive interactions”, “all of them”, “brainstorming, group discussions”, “prepared to work through subjects and will to take on board more information”, “facilitators, communicators”, “input from others and mine reps”, “everyone contributing, good facilitators”, “information will be useful for council” and “I think most of it worked as people had a chance to have input on all aspects and be listened to”. Participants said the workshop enabled them to gain specific information from company, local government and other community participants. Two participants noted weaknesses: “length of the workshop” and “paperwork order”. Five participants suggested improvements to the workshop: “if money were no object, done electronically – say with tablets”, “wording a bit confusing”, “shorter sessions, one-on-one, to supplement the long workshop”, “a warmer venue” and “warmer building”.

Overall results from the interviews found that the TTT provided a comprehensive, structured and transparent approach to mine closure discussions among a group of diverse stakeholders. Led by professional facilitators, the TTT enabled preliminary socioeconomic data to be captured and data gaps to be identified. Participants found the formal structure around the five capitals framework to be helpful in orienting discussion.

*“The strengths were that the fact that you had a variety of people from the town participating. That was the main thing because we clearly didn’t all agree on the on quite a number of things” – community participant.*

The primary weaknesses participants identified with the TTT related to the timing of the workshop and issues associated with the workshop questions. Participants commented on the length of the workshop and that holding it during business hours prevented a number of key stakeholder groups from attending. Some of the workshop questions were considered repetitive and others were ambiguous. Participants questioned the applicability of some of the questions to the Rosebery context. They said the facilitation team should have adapted the generic questions so that they were more applicable; for example, in relation to local and Indigenous populations. Other weaknesses were the look and feel of the TTT projected on the screen, the format of the internal report and how it was used in the external workshop, and the regimented nature of the TTT process.

Other feedback related to the importance of effective and timely stakeholder engagement around mine closure planning and trust that the engagement would be meaningful and ongoing. One facilitator noted the emergence of trust but emphasised the need for ongoing engagement:

*“There was a sense of community starting to build between the external stakeholders who were there and between the company. So the beginnings of some trust, the beginnings of some understanding and the beginnings of some opportunities, were some of the more powerful things that came out [of the external workshop] other than just knowledge. I don’t want to overstate that either. It was a first pass, right? Needs a lot of follow up” – workshop facilitator*



Figure 3: Workshop facilitator engages with a community representative during the TTT external workshop.

## 6. Conclusion

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Planning for mine closure is complex. It is good practice for mining companies to use an integrated, multidisciplinary approach to closure planning. This enables socio-economic factors to be considered alongside biophysical and other relinquishment criteria. Throughout the mining lifecycle, impacted people have the right to be involved in decision-making about matters that affect them, including at closure. Starting a dialogue on mine closure, however, is challenging. Stakeholders find it difficult to think about and engage with the concepts of mine closure and post-mining transition ahead of imminent closure. The TTT addresses these issues by bringing mining companies and stakeholders together at a local level to build a shared understanding of their dependency on the mine and of future opportunities.

By running the TTT in Rosebery we learned:

- the value of the process
- the importance of early engagement with stakeholders about the workshops to ensure they are held at convenient times and to enable a cross-section of participants
- that community participants expect engagement on closure to be ongoing and that they will have the opportunity to be actively involved in planning process
- that company participants consider the workshops an important first step in helping to inform MMG's broader mine closure planning process.

## 7. Next steps

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MMG and the West Coast Council are planning to host a **community visioning workshop** at Rosebery in 2022.

MMG has appointed Tetra Tech Coffey to undertake the **social impact assessment (SIA)**, as part of the closure prefeasibility study. Contact the MMG Community Liaison Coordinator for further information: [ROSCommunity@MMG.com](mailto:ROSCommunity@MMG.com), 1800 767 664.

## 8. Glossary of terms

TERM	DEFINITION
Biophysical aspects	Biophysical aspects include living things (bio), such as plants and animals, and non-living things (physical), such as rocks, soils and water.
Care and maintenance	The processes and conditions on a closed mine site where there is potential to recommence operations at a later date. During a care and maintenance phase, production is stopped but the site is managed to ensure it remains in a safe and stable condition.
Mining lifecycle	The full period of the mining process. Typically includes exploration, development, operations, closure and post-closure. The same as life-of-asset.
Relinquishment	The end of a company's ownership of and responsibility for a mine. Involves the transfer of ownership and residual liability to the government authority or a third party. Implies that the mining company has completed all obligations outlined in the closure plan to the satisfaction of the authorities (and possibly other stakeholders).

## 9. Acknowledgements

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