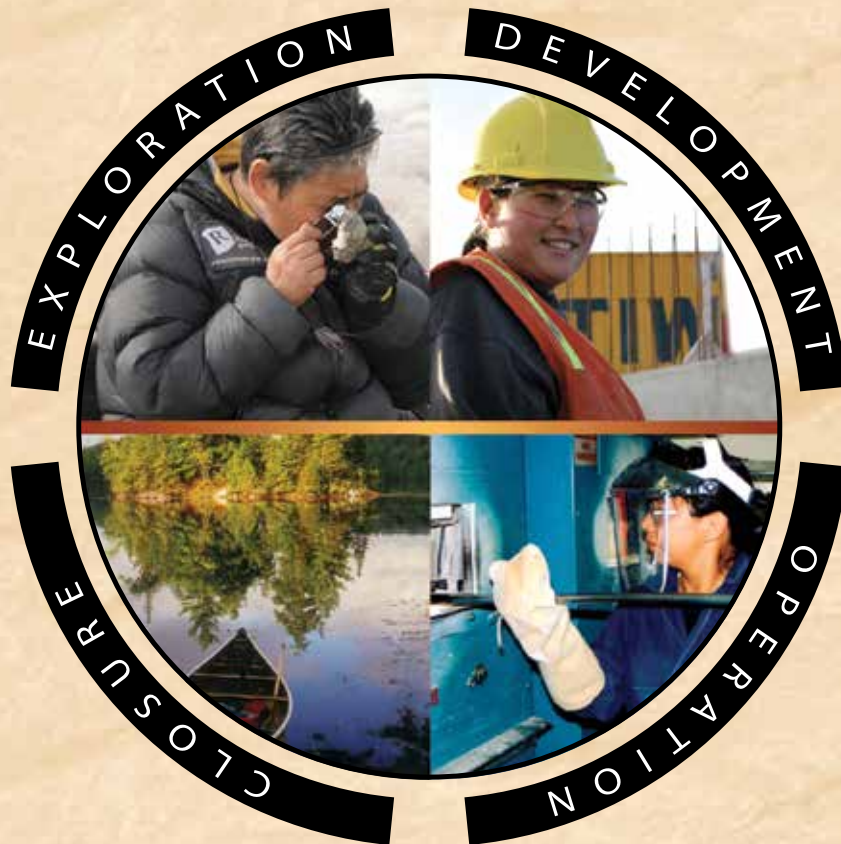


# Trainer's Manual

## Exploration and Mining Guide for Aboriginal Communities





# **Trainer's Manual**

**Exploration and Mining Guide  
for Aboriginal Communities**



Government  
of Canada

Gouvernement  
du Canada



PROSPECTORS &  
DEVELOPERS  
ASSOCIATION  
OF CANADA

ASSOCIATION  
CANADIENNE DES  
PROSPECTEURS ET  
ENTREPRENEURS



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Cat. No. M37-54/1-2014 (Print)

ISBN 978-1-100-54673-5

Cat. No. M37-54/1-2014E-PDF (Online)






ISBN 978-1-100-23161-7

Cette publication est aussi disponible en français sous le titre :  
*Guide sur l'exploration et l'exploitation minières pour les communautés autochtones*



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# WELCOME TO THE *TRAINER'S MANUAL*

This *Trainer's Manual* is a guide to help a trainer deliver information sessions about the *Exploration and Mining Guide for Aboriginal Communities*. The need for such a manual was identified by many who wanted an additional resource for more effective delivery of information to Aboriginal peoples on the mineral development cycle and related economic opportunities.

Natural Resources Canada (NRCan) tested a draft manual in 2012 in partnership with the Council for the Advancement of Native Development Officers in Vancouver, British Columbia, Saskatoon, Saskatchewan and Val-d'Or, Quebec. The draft manual was refined further by incorporating feedback received from the workshop participants. The current *Trainer's Manual* can be used by teachers, mining companies, government representatives, community leaders and economic development practitioners.

## Background

The *Exploration and Mining Guide for Aboriginal Communities* was developed to help Aboriginal peoples understand and participate in the mineral development cycle and to foster dialogue among communities, the mining industry and governments. The guide is the result of a collaboration between the Minerals and Metals Sector of NRCan, Aboriginal Affairs and Northern Development Canada, The Mining Association of Canada, the Prospectors and Developers Association of Canada, and the Canadian Aboriginal Minerals Association. The guide was first published in 2006 under the title *Mining Information Kit for Aboriginal Communities*.

## Goals

### General goal

- Disseminate basic knowledge of the mineral development cycle by using the *Exploration and Mining Guide for Aboriginal Communities* as a text book, as well as to provide complementary information on economic development opportunities in the mining sector.

### Specific goals

- Guide the trainer's work by providing adequate training tools.
- Foster an active and positive conversation about mineral exploration and mining among communities, industry and governments.
- Improve communities' awareness of mineral exploration and mining by providing information and exploring issues of relevance to them.
- Inform communities about economic opportunities specific to the mining industry and strategies to seize these opportunities.
- Help community members gain insight on how to engage in the strategic planning process so they can capitalize on the opportunities they have identified.

## Methodology

The methodology proposed by this manual considers learning to be a participative process. Positive personal interrelations and the creation of an atmosphere of trust and open dialogue are important components of a successful learning activity.

The information is delivered in a workshop format with the following delivery focus points:

- limited lecturing
- use of visual aids
- suggested interactive and small group discussion activities

The suggested activities can be used by the trainer to refocus attention or reinvigorate participants or when they appear tired from the lecture of information. The trainer can choose the suggested activities that best meet the needs of the participants.



Throughout the delivery of the information, the trainer should pay special attention to creating an environment of trust conducive to dialogue and free expression of opinions. The trainer should observe and resolve the following issues:

- comfort level of participants
  - observe the group chemistry
- understanding of vocabulary
- individuals that monopolize the conversation (once they make a point, the trainer should paraphrase, thank them and move on)
- level of awareness
  - participants' level of content knowledge
  - stage of the mining process
  - content adjustments as necessary
- level of fatigue
  - enough refreshments
  - movement to keep minds alert, especially mid-morning and after lunch
- the local community's customs and communication styles

Since it is a learning process and not a discussion group, it is of the utmost importance that participants remain in attendance throughout the workshop. Punctuality and attentiveness are absolute requirements.

It is suggested that there be at least two trainers on the team. The assistance of a facilitator who speaks the local language may be necessary in some communities.

## **Delivery**

The primary challenge of coordinating delivery of the workshops is allocating an appropriate time frame for advance planning. It is recommended that the planning begin at least eight weeks before the proposed workshop delivery date. If a series of workshops is to be held, it is recommended to hold them at least two weeks apart to allow for sufficient time to properly review the participants' evaluation, adjust workshop material and respond to recommendations. Table 1 is a general overview of an eight-week schedule for planning and coordinating the workshop.

**Table 1. Recommended schedule for workshop delivery activities**

Workshop Coordination Activities	Week 8	Week 7	Week 6	Week 5	Week 4	Week 3	Week 2	Week 1	Week 0 (Post delivery)
Select training dates and location									
Identify and confirm the facilitator									
Research venues, negotiate rates and secure a contract for a meeting space									
Prepare and disseminate workshop material (flyers, workshop agenda, registration forms, etc.) in the target region									
Confirm all travel arrangements for the workshop delivery team									
Accept registrations									
Complete logistical arrangements (i.e. shipping the workshop materials to the venue)									
Delivery of the workshop									
Evaluation and reporting									

## Organization

Delivery of the workshop is flexible in relation to content and time frame. The modules can be adapted to the various communities by reviewing the examples, case studies and scenarios in this manual. Additional case studies can be created based on local context and culture. The workshop can also be shortened or lengthened depending on the needs and desires of the participants and their level of knowledge of the mineral sector.

Ideally, the content would be delivered in a two-day workshop format:

- The first day focuses on the main phases of the mineral development cycle, using the *Exploration and Mining Guide for Aboriginal Communities* as the reference material and includes
  - Overview – about the contribution of the mineral industry to Canada and the value and distribution of minerals in Canada and in specific areas
  - Module 1. Mineral exploration
  - Module 2. Mine development and construction
  - Module 3. Mine operation
  - Module 4. Mine closure and reclamation

Using this manual as a guide, the trainer can provide local examples of exploration and mining projects and best practice case studies of other Aboriginal communities engaged in the industry. Participants can obtain key information that allows them to expand on the community economic opportunities that will arise from each phase of the mineral development cycle.

- The second day covers economic development and introduces mineral industry participation strategies:
  - Module 5. Economic development strategies and tools
  - Conclusion

The content of the second day draws and expands on the curriculum of the first day to cover economic development and how a community can take advantage of the opportunities offered by exploration or mining activities. The objective of the second day is to provide communities with the tools they need to participate in spin-off opportunities that the mineral industry brings.

It is suggested that the content of the second day be tailored to suit the specific participants with respect to interest and anticipated group dynamics. It may include presentations on economic development strategies (e.g. Council for the Advancement of Native Development Officers), entrepreneurial development tools, partnership agreement negotiations, corporate social responsibility and sustainable spin-off businesses.

The second day concludes with a wrap-up of the presentation and activities, an evaluation of the two-day workshop, final discussion and remarks, and potential follow-up activities.

The workshops should be delivered face-to-face, and all participants and observers should be present in the room, ensuring an effective learning environment. This workshop could also include additional activities such as

- an exploration site or mine visit, depending on weather, access and availability
- guest speakers from industry, government and Aboriginal groups

**Table 2. Workshop format options**

Option 1		Option 2		Option 3	
<b>Day 1</b> 9:00–12:00	<b>Day 2</b> 9:00–12:00	<b>Day 1</b> 9:00–12:00	<b>Day 2</b> 9:00–12:00	<b>Day 1</b> 9:00–12:00	<b>Day 2</b> 9:00–12:00
– Overview – Modules 1 and 2: Mineral exploration and Mine development and construction	Modules 3 and 4: Mine operation and Mine closure and reclamation	– Overview – Modules 1 and 2: Mineral exploration and Mine development and construction	– Modules 3 and 4: Mine operation and Mine closure and reclamation	– Overview – Modules 1 and 2: Mineral exploration and Mine development and construction – Interactive group work	– Optional site visit – Supplemental presentations (economic development, community participation strategy)
<b>Day 1</b> 13:00–16:00	<b>Day 2</b> 13:00–16:00	<b>Day 1</b> 13:00–16:00	<b>Day 2</b> 13:00–16:00	<b>Day 1</b> 13:00–16:00	<b>Day 2</b> 13:00–16:00
– Field trip or mine visit – discussion on economic development	– Supplemental presentations (economic development, community participation strategy)	– Interactive exercises and group work (economic development)	– Supplemental presentations (economic development, community participation strategy)	– Module 3: Mine operation – Module 4: Mine closure and reclamation – Interactive group work	– Supplemental presentations (economic development, community participation strategy)

Day 1 and 2 evening activities:

\* Optional: networking events, dinner and keynote speakers from industry, governments, organizations and Aboriginal community representatives

The workshop can be shortened if time is limited. Another option would be to deliver the information in one day, presenting the Overview and Modules 1 to 4 from 9:00 to 12:00 and presenting economic development and community participation from 13:00 to 16:00. Note that the evening networking event previously mentioned is a perfect opportunity for the trainer to obtain sponsors from industry, such as a mining company offering a mine visit.

## Trainer

The ideal trainer has

- sound knowledge of the subject area and is familiar with the information contained in the *Exploration and Mining Guide for Aboriginal Communities*
- knowledge of economic opportunities arising from mineral exploration and mining and tools and strategies for engaging in the mineral industry
- experience in facilitating workshops and organizing participatory activities and excellent communication skills

The workshop organizers should invite **others** to be presenters or facilitators in addition to the principal trainer, such as sustainable development corporations, community officials, companies or Aboriginal geologists.

## Participants

Limit the workshop to 15 participants to keep within the suggested timelines. The group of participants should be diverse and inclusive (men, women, youth, elders, etc.). The diversity of participants allows for an effective exchange between people with experience in the mineral industry and people who have limited knowledge of the industry.

## Workshop venue

The main venue should be free from distraction, airy and comfortable, and spacious enough to allow participants to move around during activities and group work. It should be able to accommodate plenary sessions in circles or semi-circles.

## Resources and material

Each participant is given a copy of the *Exploration and Mining Guide for Aboriginal Communities* and copies of the various presentations that will be given. Additional relevant and educational material from federal and provincial/territorial governments and various associations can also be provided (see Appendix A for a training materials checklist). By having a range of documents from different sources, participants may become more aware of the different perspectives on the mineral industry.

The mineral development cycle presentation can vary from one location to another to provide region-specific examples and case studies of Aboriginal-industry partnerships. Concrete examples can provide potential “mentors” or contacts with whom the participants might consult for their own mineral exploration and mining-oriented initiatives.

The trainer can use visual aids such as photographs, images and video to help participants understand the content. More specifically, the use of visual aids is helpful in conveying certain messages:

- **exploration:** The trainer can use segments of the DVD entitled *Our community ... Our future: Mining and Aboriginal Communities*, produced jointly by NRCan and the Government of Ontario, to demonstrate the activities associated with the exploration stage and the science that drives exploration initiatives.
- **development, construction and operation:** The trainer can use images to describe the different types of mines (open-pit, underground).
- **reclamation:** Photos and video of sites (before and after mining) can serve to demonstrate how a reclaimed mine site can look after mine closure.
- **rock samples:** The trainer can use mineral and rock samples that are small enough to pass around along with a hand lens.
- **maps:** This includes claim, geological and geophysical maps.


It is recommended that a mixture of visual aids be used to enhance participants' understanding of the content. Where possible, the workshop should be held in conjunction with a field trip, such as a tour of a mine, an exploration site or a reclaimed mine site. These tours may be organized in partnership with an exploration or mining company working in the area or training institutions located nearby.

## Symbols in the manual

Key symbols have been used throughout the manual to make it more convenient and simple to use.



This symbol precedes a reference to the *Exploration and Mining Guide for Aboriginal Communities*.

This  symbol indicates a suggested participant activity.



This symbol indicates the time required for the suggested participant task.

Hypothetical scenarios to facilitate discussion are boxed.

# OVERVIEW



## OVERVIEW

- i.** Introduction of trainers and participants
- ii.** Purpose of the workshop
- iii.** General information about mineral exploration and mining in Canada and in the relevant province/territory
- iv.** Importance of community participation in the working groups
- v.** Introduction of the four stages of the mineral development cycle



*Introductory information for the participants.*



## i. Introduction of trainers and participants

### ***Content i:***

Introductory information for the participants.

Before you start, request that during the workshop, participants:

- Turn off cell phones.
- Respect others while they are speaking.

*The intent is to increase the ability of Aboriginal peoples to understand and participate in exploration and mining-related activities.*



### ***Participant task i:***

The trainer introduces himself/herself and gives a one-sentence description of any experience that he/she has with mineral exploration and mining. The trainer can prompt participants for names and a brief description of how the individual and/or the individual's community has had interaction with the mineral industry (giving examples).

### ***Examples:***

- My name is Joseph Sweldon, and I worked at a diamond mine in the Northwest Territories for seven years.
- My name is Suzanne Kootenay, and my husband and daughter both work at a nearby mine.
- My name is Joe, and I know that some prospecting activities are taking place near my community but I don't know exactly what they are.



### ***Timing i:***

15 minutes (min) maximum – The trainer must manage the time to ensure all participants introduce themselves and provide two or three examples of how mining affects their lives.



## ii. Purpose of the workshop

### ***Content ii:***

The intent is to increase the ability of Aboriginal peoples to understand and participate in exploration and mining-related activities. To effectively communicate information about the mineral development cycle and the mineral industry to Aboriginal groups, the information should be presented in a clear and concise manner with an emphasis on explaining the basics of mineral exploration and mining and the mineral development process.

Participants will leave the workshop knowing some basic aspects of exploration and mining and where they can go to obtain additional information.



### ***Participant task ii:***

The trainer presents the purpose of the workshop and asks each participant one thing they would like to get out of the course and confirm if they have any questions. The trainer writes down all comments on flip charts and confirms whether the item will be covered in the workshop. If the item is not covered, the trainer will explain that by the end of the workshop, other sources of information will be presented where the individual may find a specific answer to the question.

### ***Tools ii:***

- flip chart or writing board
- writing materials (non-toxic markers, chalk, pens, pencils)



### ***Timing ii:***

15 min

## iii. General information about mineral exploration and mining in Canada and in the relevant province/territory

### ***Content iii:***

The trainer introduces the presence and role of mineral exploration and mining in Canada – more specifically in the jurisdiction where the workshop is being delivered. The content includes

- history of mineral development
- significance of the mineral industry to the economy
  - economic benefits to Canada and to communities
  - jobs

- 
- business development
  - global context
  - geographical mineral distribution

The information could include current and relevant facts and figures on

- types of minerals and metals produced
- use of minerals and metals in our daily lives
- mineral production (amounts)
- value in set-aside contracts that flow to Aboriginal service suppliers from a specific mine
- employment

The trainer can find relevant information, numbers and facts in the “Additional Resources” chapter of the *Exploration and Mining Guide for Aboriginal Communities*.



***Participant task iii:***

The trainer presents the previous information interactively as questions, reads the question aloud and prompts the participants for answers and suggestions.

The trainer ensures that various individuals have an opportunity to answer and that one or two people are not monopolizing the responses. He/she can elaborate on answers if needed. It is key that the trainer captures and maintains the audience’s attention and relays information so that participants are able to understand the importance and relevance.

The trainer may engage with the participants on where certain minerals are commonly found by using geological maps of the region. This should be related to participants’ personal and community experience.

***Tools iii:***

- cue cards with questions and answers
- geological maps and regional maps



***Timing iii:***

30 min minimum



## iv. Importance of community participation in the working groups

### ***Content iv:***

Discuss participation in the mineral development process from different perspectives: company, community, government.



### ***Participant task iv:***

The trainer divides the group into three smaller groups (or multiples of three if there are many people) and designates each group as Industry, Community or Government. Each group takes 10 min to brainstorm and write down what information they would try to obtain or give in consultation. If time is limited, this activity can be done as a “Trainer read-aloud,” in which the trainer offers a few examples and prompts the audience for feedback for each of the categories (company, community, government).

### ***Examples:***

#### **The company’s perspective**

- Research the community’s leadership, location, etc.
- Learn about the community’s processes, protocols.
- Learn about the community and its culture.
- Acquire the tools to effectively interact, communicate and consult with Aboriginal people and their communities.
- Learn about the community’s capacity to develop, implement and maintain business agreements and partnerships for the mutual benefit of the company and the Aboriginal communities affected by their projects.
- Work together in developing an Aboriginal Relations Program.
- Inform the community as a whole (e.g. through town hall meetings) of the company’s activities (current and future).
- Determine if there are conflicts or potential conflicts with Aboriginal and treaty rights (wildlife harvesting) or title (claimed or confirmed).
- Identify potential environmental and social concerns and proposed mitigation measures.
- Ensure understanding of the project.
- Learn about the availability of local labour, businesses that provide goods and services, and opportunities for partnerships.
- Establish good business practices.
- Achieve regulatory approval process requirements.

---

### **The community's perspective**

- Understand the mineral development process.
- Understand potential employment and business opportunities.
- Learn about potential environmental and social impacts and ways to mitigate them.
- Understand the effects of the project and where and when impacts could occur.
- Learn about the requirements for local labour, local businesses that provide goods and services, and opportunities for long-term partnerships and agreements.
- Discuss the need for and availability of training programs and other pre-employment services.
- Demonstrate a capacity for collaboration.
- Develop an information process for the community.
- Provide their traditional knowledge of the area.
- Discuss a potential agreement.

### **The government's perspective (federal, provincial, territorial)**

- Develop and nurture relationships with Aboriginal organizations and communities.
- Exchange information.
- Receive input on proposed changes to government legislation, policy, regulations and practices.
- Address the legal, business, operational and good governance factors related to policy priorities, interests or planned multi-year initiatives.
- Help inform decisions related to the government's (all levels) consultation duty.
- Understand and address issues.
- Promote Aboriginal participation in the mineral sector.
- Promote a mutual understanding between the Aboriginal community and governments, departments and agencies.

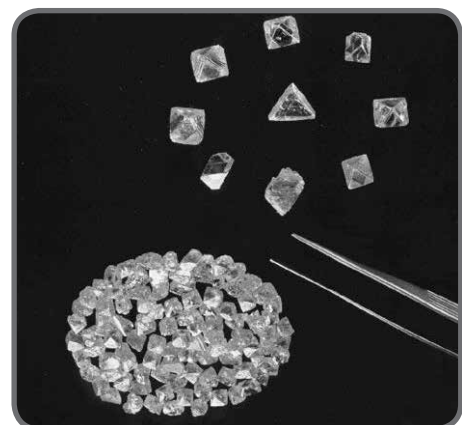
#### ***Tools iv:***

- flip chart
- markers



#### ***Timing iv:***

- 10 min to deliver the content
- 10 min in groups (including set-up)
- 5-min presentation per group
- 5-min wrap-up and gap fill
- 30 min total time



## v. Introduction of the four stages of the mineral development cycle

### **Content v:**

The four phases of mineral development are introduced at a very preliminary and high level; the trainer can use Sections 1.1, 2.1, 3.1 and 4.1 of the *Exploration and Mining Guide for Aboriginal Communities*.

### **Mineral exploration**

Mineral exploration, the first phase of the mineral development cycle, is the search for mineral deposits. Every new mine has its beginnings as an exploration project; however, most exploration projects will not advance to become mines. If preliminary exploration leads to positive results, the project moves to more advanced exploration with the goal of evaluating the project's viability.

### **Development and construction**

Mine development and construction is the second phase of the mineral development cycle. The purpose of this important phase is to learn about the potential value of a mineral deposit, determine if it can be mined profitably to the benefit of the mining company and the region, and if so, to build a mine.

### **Operation**

Mine operation is the third phase of the mineral development cycle. It is the process of producing a mineral product for the benefit of society, stakeholders and shareholders. A mine is operating when earth and/or rock are being excavated from the ground, and the processing plant is producing commercial products.

### **Closure and rehabilitation**

Mine closure and rehabilitation is the last phase of the mineral development cycle. It is defined as the orderly, safe and environmentally sound conversion of an operating mine to a closed state. Upon closure, areas affected by the mining activity should become viable and self-sustaining ecosystems that are compatible with a healthy environment and with human activities.

The trainer solicits questions regarding the previous descriptions, reminding participants that the workshop will go into more detail in the specific modules.



### **Timing v:**

- 20 min for descriptions
- 5 min for questions
- 25 min total time

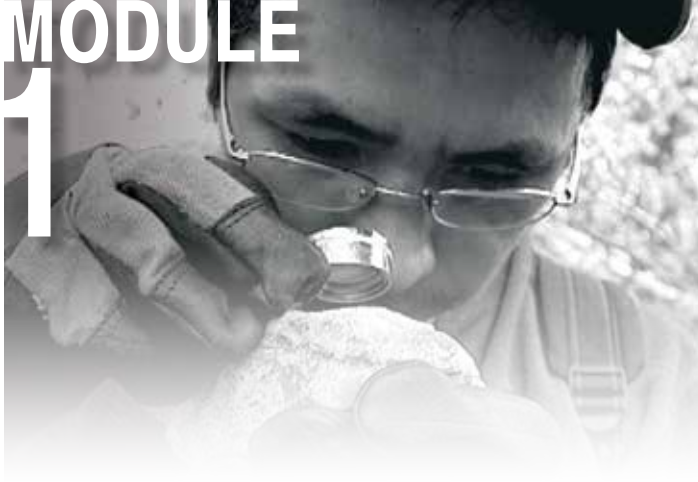
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## *Objectives of the overview*

### **Participants will learn**

- names of other participants and trainers
- people's experiences with mineral exploration and mining
- the purpose of the workshop
- the value of exploration and mining and certain minerals to the Canadian economy
- employment opportunities in exploration and mining
- why it is important for Aboriginal communities to engage with companies
- what Aboriginal communities should ask industry during engagement and consultation
- what industry may ask the communities
- where specific minerals are located in Canada, in their jurisdiction and in their region
- which minerals are being mined and what is their value and use
- which topics will be covered and which will not be covered in the workshop

# MODULE 1



## MODULE 1. Mineral exploration

- Content A:** What is exploration and what are the stages?
- Content B:** A description of the main players in mineral exploration
- Content C:** A description of acts and regulations (on- and off-reserve)
- Content D:** Environmental and social impacts
- Content E:** Community employment and economic opportunities



*This section of the mineral exploration module explains the purpose of mineral exploration and identifies the main activities.*

## Content A: What is exploration and what are the stages?

 (Pages 4–9 of the Exploration and Mining Guide for Aboriginal Communities)

This section should introduce environmental stewardship, which starts with exploration and exists throughout the life of the project and beyond the closure of the site.

The trainer introduces “Prospector X.” Through the use of this fictional character, the trainer provides concise descriptions of the various activities of exploration that occur in the following order:

*It takes many stages of exploration work, involving increasing investments, to discover a mineral deposit.*

### 1. Prospecting and early exploration

This section will talk about basic geoscience surveys done by governments to help guide the search for mineral deposits of economic value as well as initial prospecting activities, claim staking, etc.

### 2. Intermediate exploration

Based on the results of its initial prospecting work, the company will decide whether to continue with more detailed exploration. Key activities at this stage are described: geophysical and geochemical surveys, trenching, line cutting, sampling and drilling.

### 3. Advanced exploration

If earlier work indicates the possibility of a mineral deposit underground, the exploration company will advance the project and do more field work, additional drilling, bulk sampling, environmental work and a preliminary economic assessment.

The trainer describes the actions and the people and entities that Prospector X may work with during each of the activities.





### **Optional participant task A:**

After this description is complete, the trainer distributes the Mineral Exploration Stage Worksheet, which includes several tasks likely to be completed during the “exploration” stage. Working in pairs, participants determine under which stages of exploration (prospecting/early, intermediate, advanced) the tasks would fall.

## **Mineral Exploration Stage Worksheet**

Instructions: Draw a line from each task to the appropriate exploration stage.

*Posts/sticks are hammered into the ground to section off a particular area.*

*Vegetation is studied within a staked area.*

*A backhoe is used to dig a ditch in the ground.*

*An evaluation is done to see if the results of the work to date are encouraging enough to lead to more sampling.*

*A person goes out with a hammer hoping to find minerals.*

*Excavated areas are backfilled and drill holes are capped.*

*A line of stakes is placed on the open land creating a grid.*

*Geologists study existing geological and satellite maps.*

### **Prospecting and Early Exploration**

Claim staking  
Examining rocks  
Research  
Compilation

### **Intermediate Exploration**

Surveys  
(geophysical, geochemical)  
Trenching  
Sampling  
Drilling  
Environmental baseline studies  
Preliminary evaluation  
Closure and reclamation

### **Advanced Exploration**

Detailed drilling  
Bulk sampling  
Environmental studies  
Pre-feasibility  
Closure and reclamation

### **Tools A:**

- printed copies of the Mineral Exploration Stage Worksheet



### **Timing A:**

- 20 min to deliver the content
- 5 min for the reading and activity
- 5 min for individuals to discuss answers to the questions
- 30 min total time

## **Content B: A description of the main players in mineral exploration**



**(Pages 10–11 of the Exploration and Mining Guide for Aboriginal Communities)**

- governments
  - federal
  - provincial
  - territorial
- prospectors
- junior exploration companies
- senior mining companies
- contractors and goods and services providers
  - drilling companies
  - expeditors
  - helicopter services
  - geophysical survey companies
  - geological services
  - caterers and camp operations
  - local businesses (e.g. earth moving, transport)
  - environmental services (e.g. baseline studies)



## **Content C: A description of acts and regulations (on- and off-reserve)**



**(Pages 12–13 of the Exploration and Mining Guide for Aboriginal Communities)**

- federal regime (on Indian reserves), *Indian Act* and *Indian Mining Regulations*
- provincial regime (off-reserve), mining acts and regulations
- licences and permits required
- requirements of mining claims or permits



### ***Optional participant task C1: Scenario 1. Jonathan Panner***

The participants are asked to read the hypothetical Scenario 1. Jonathan Panner. The trainer can change the names in the scenario to make them more appropriate to the area of the country. The manner in which this is presented can be varied (video, read aloud).

#### ***Scenario 1. Jonathan Panner***

Jonathan Panner has been walking around near the 123 FN Reserve for the past three weeks. He has been camped near one of the major streams in the area. Members of the 123 FN have observed Jonathan for days, as he sampled the river water and surrounding soil. After three weeks, Jonathan disappears. Two weeks later, he reappears and has placed many stakes in the ground that section off a large area encompassing where Jonathan was camped two weeks previously.

Three days later, Ernie, a member of the 123 FN, approaches Jonathan and asks that he leave because he is disturbing the moose that typically pass through the area and are hunted by Ernie and his family. The area where Jonathan is working is not on the 123 FN Reserve, and he states that he is allowed to be there. Ernie says that this is traditional land used by his family. Jonathan states again that he is permitted to be there and asks Ernie to leave. Ernie returns home.

Jonathan continues to work. For the next few days, he puts several stakes on the land. These stakes cross the land several times, running both north and south. A week after Jonathan came back, a backhoe appears on this staked land. Jonathan operates the backhoe and begins to make trenches. The activity is noisy and soon Ernie returns, catches Jonathan's attention, and motions for him to come down off the machine to talk.

Ernie tells Jonathan that the machine is disturbing the wildlife and birds. In addition, there are plants within this staked area that Ernie's family use for medicinal purposes. Jonathan reaches into his pocket and retrieves a paper that he says gives him the right to be trenching this ground. Ernie does not fully understand what the paper says but it has a stamp from a local government agency that Ernie recognizes. Ernie mentions that, on the east side of this staked area, there is a site where his great-grandfather is buried. He asks Jonathan to avoid it. Jonathan says that if he sees it, he will avoid it. Ernie tells Jonathan that he will return shortly with his four brothers to have a further discussion. Ernie returns home. An hour later, Ernie returns with his brothers who politely request that Jonathan stop disturbing the land.

Jonathan, being alone, is worried about his safety. He promptly packs up his gear and soil samples and states he has what he needs. He leaves without confrontation. Ernie and his brothers return home with smiling faces.

Three months later, Ernie looks outside one morning and is surprised at the sight that greets him. Across the stream, in the distance, there are several large machines and trucks, two job site trailers, a helicopter and a dozen people walking about. A "Big Rock Mining Ltd." label is seen on the vehicles and equipment.

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After the participants read the scenario, divide them into pairs or small groups, depending on the number of participants. Ideally there would not be more than three or four people per group. Each group will be asked to work as a team to prepare answers for the following questions:

- Can you explain the series of events that happened from a mining company viewpoint?
- What could the mining personnel have done differently? Why?
- What could Ernie have done differently? Why?
- What piece of paper did Jonathan show Ernie?
- What pieces of paper will Big Rock Mining Ltd. probably show Ernie?
- What advice would you give Ernie going forward?
- What information should Ernie try to find out from Big Rock Mining Ltd.?

The groups are now asked to present their findings to the rest of the participants. This is done orally by one individual or by various members of the groups. Following the first group, each subsequent group will be asked to present its findings with a focus on new or conflicting information.

The trainer will prompt for additional information where it is believed that such supplemental data are needed for understanding the exploration unit. Any additional key gaps will be filled in by the trainer.

***Tools C1:***

- printed copies of Scenario 1. Jonathan Panner
- markers
- flip chart



***Timing C1:***

- 20 min to deliver the content
- 5 min for reading the scenario
- 15 min for each group to discuss answers to the questions
- 15 min in total for all the groups to make their presentations
- 5 min for the trainer to do wrap-up and fill in information gaps
- 60 min total time



### ***Optional participant task C2:***

Randomly hand out a “Player” card to each participant. The Player cards are divided into three categories: Community, Government and Industry. Each person holding a Community Player card will form a group with other Community Players; those with an Industry Player card will do the same, etc., which will create three groups. Ask each group to think of examples of how they may be involved with the other two entities in relation to the scenario.



### ***Examples:***

- Government Player issues Industry Player a prospecting licence.
- Government Player engages the community to understand issues, exchange information, provide programs and funding for training.
- Industry goes to Government Player for permits.
- Industry Player engages Community Player and determines local capacity.
- Community Member engages Industry Player to determine environmental impacts.
- Community Player talks to Government Player about funding for training.

When the groups have completed gathering examples of how they would interact with the other two groups, get one individual from each group to come to the front of the room and state why they would like to interact with the other two Players, specifically in relation to the scenario.

### ***Tools C2:***

- scenario Player cards
  - Community
  - Industry
  - Government
- flip chart and markers



### **Timing C2:**

- 15 min to deliver the content
- 5 min for preparation
- 10 min for team discussions
- 10 min for presentations
- 5 min for wrap-up and discussion
- 45 min total time

## **Content D: Environmental and social impacts**



**(Pages 13–16 of the Exploration and Mining Guide for Aboriginal Communities)**

Environmental impacts during mineral exploration are usually low, especially during early exploration. Companies follow provincial, territorial and federal laws and apply voluntary good practices. Suggestions for monitoring and reducing impacts and community participation are included.

## **Content E: Community employment and economic opportunities**



**(Pages 18–21 of the Exploration and Mining Guide for Aboriginal Communities)**

Job opportunities during the exploration phase of the mineral development cycle may be limited and short-term. However, these opportunities allow community members to gain experience and skills that may be transferable to other projects or other economic sectors. As the exploration project advances, communities may initiate negotiations of agreements (e.g. memorandum of understanding [MOU]). At this point, the trainer may want to introduce the different kinds of agreements by using Section 2.7 of the *Exploration and Mining Guide for Aboriginal Communities*.



### **Additional suggested participant activity:**

A “role play” (Dragon’s Den format<sup>a</sup>) could be developed and incorporated in the workshop, preferably at the end of the “exploration” module.

<sup>a</sup> In reference to the series of reality programs featuring entrepreneurs pitching their business ideas to secure investment finance from a panel of business people. The format is owned by Sony Pictures Television International.

- It is suggested that groups of participants prepare a **“Prospector’s Portfolio”** that has mining property, geoscientific and technical information and be presented to an interested junior mining company official (played by the trainer). Each group will make a short presentation of its property to the rest of the participants and the trainer with the goal of convincing the junior mining company that its property is the most interesting.

The groups may need help in determining what would be the most important points to consider in preparing the “portfolio,” such as

- size of the property
- commodity (and its current value)
- location (Is it close to a producing or historical mine or in a greenfield area?)
- accessibility (Is it close to a road, a port, a railroad, on- or off-reserve?)
- What permits are in place?
- How well-defined is the deposit? What work (drilling, sampling) has been carried out on the property? At what stage of exploration is the property? Were the resources calculated?
- Is there an independent assessment?

The trainer may want to roll out some basic elements of arguments with the groups.

- If the participants are very knowledgeable about mineral exploration and development, the Prospector’s Portfolio can be replaced with a presentation by a small company or entrepreneurs (played by the participants). The presentation is made to the Stock Market Security Commission official (played by the trainer). The trainer will help groups identify key elements of their company (assets, properties, recommended work programs, financial resources, geological and technical reports).

### ***Tools E:***

- markers
- flip chart



### ***Timing E:***

- 30 min for preparing the portfolio
- 15 min for each group to present
- 15 min for discussion and questions and answers
- 60 min total time

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## ***Objectives of Module 1. Exploration***

### **Participants will**

- become more participatory and interactive as they work in pairs and small groups
- learn about activities involved in the different stages of exploration
- learn necessary activities for effective stakeholder engagement
- learn how the three players (government, community and industry) interact with each other in the mineral industry
- gain basic knowledge of the regulations and permits required for operations
- understand the feasibility of an exploration activity leading to development



# MODULE 2



## MODULE 2. Mine development and construction

- Content A:** What are the mine development activities?
- Content B:** Evaluation of the project: Feasibility studies
- Content C:** Planning for closure and reclamation
- Content D:** Environmental and social impacts
- Content E:** Community participation
- Content F:** Community employment and other economic opportunities

# MODULE 2



## MINE DEVELOPMENT AND CONSTRUCTION

*This section focuses on what activities are involved in taking a mineral discovery to mine development.*

### Content A: What are the mine development activities?

 **(Pages 24–29 of the Exploration and Mining Guide for Aboriginal Communities)**

What is involved in the company’s decision to move forward with constructing the mine? Why is this decision so difficult to make? What are the varying factors?

The following sequence of events should be considered:

- evaluation of the potential of the mineral deposit (is the mineral deposit economically worthwhile?)
- feasibility studies
- community engagement and consultations
- agreements (MOUs, Impact and Benefit Agreements) with local communities and groups
- project financing
- investment decisions
- construction

*Several factors need to be considered to determine if mining a particular resource is economical.*

To build a mine, the mineral deposit must be large enough and valuable enough to pay for the construction costs and the costs to operate the mine. Several factors need to be considered to determine if mining a particular resource is economical. Examples of factors can be solicited from the participants. Piggyback this activity with “What factors are considered in the cost of developing a mine?”



### ***Optional participant task A:***

State that there are several factors to be considered when determining if a resource is economical to mine. Based on what has been covered, personal knowledge and best estimations, solicit answers from the audience to the question “What factors are considered when determining if a resource is economical to mine?” and elaborate with each response given. Write each response on a flip chart or writing board at the front of the room and include any key criteria that have been overlooked.

After a comprehensive list has been made, go through the key criteria and solicit input from participants on what activities, tasks and studies could be performed by the mining company to help determine or understand information that will contribute to a more informed decision (i.e. socio-economic study, business plan, environmental studies).

### ***Tools A:***

- flip chart or writing board
- writing materials (markers, chalk)



### ***Timing A:***

- 15 min to deliver the content
- 5 min for responses and elaboration on factors for determining if a resource is economical to mine
- 10 min for responses on what industry can do to be better informed during the decision-making process
- 30 min total time

## **Content B: Evaluation of the project: Feasibility studies**



***(Pages 26–27 of the Exploration and Mining Guide for Aboriginal Communities)***

Present the different types of feasibility studies from Table 3. State the importance of these studies in the evaluation of the project:

- Review the plans.
- Identify risks.
- Refine the cost estimates.
- Decide whether a mineral deposit can be mined profitably.
- Highlight the closure and reclamation aspects.

**Table 3. Feasibility studies**

Feasibility studies
geology and resource determination
mine planning
process plant test work and plant design
infrastructure planning
water and waste management planning
environmental and socio-economic planning
community agreement(s)
mine closure and reclamation
operating cost estimates
capital costs
financial analysis



**Optional participant task B:**

Present a handout with the list of the feasibility studies in Table 3 and the list of potential questions from Table 4, which should be answered when evaluating whether a mine can be feasibly developed. Working in pairs, have participants draw a line on the handout from the key question to the appropriate feasibility study that would have the answer. Essentially, participants will match the feasibility studies to the appropriate key questions. Trainers will then prompt participants to present answers to the group.

**Table 4. Questions about feasibility studies**

Feasibility studies	Potential questions
Geology and resource determination	<ul style="list-style-type: none"> <li>• How large is the deposit or resource?</li> <li>• What is the grade of the minerals or metals in the deposit?</li> </ul>
Mine planning	<ul style="list-style-type: none"> <li>• What type of mineral will be mined?</li> <li>• How much will be mined?</li> <li>• How will it be mined (open pit/surface or underground)?</li> <li>• What equipment will be used to mine it?</li> </ul>
Process plant test work and plant design	<ul style="list-style-type: none"> <li>• What is the best way to extract the minerals or metals from the host rock?</li> <li>• Will there be a smelter? If so, where will it be located?</li> <li>• What mineral wastes will be generated?</li> </ul>
Infrastructure planning	<ul style="list-style-type: none"> <li>• What roads, airstrips, camps and complexes will be needed?</li> <li>• How many kilometres of roads will be needed?</li> <li>• Over what type of terrain will the road need to be built (ice, swamp)?</li> <li>• What are the energy needs? From where or how will power be generated?</li> </ul>
Water and waste management planning	<ul style="list-style-type: none"> <li>• What are the water needs? Where will it come from?</li> <li>• What are the discharge quality requirements?</li> <li>• How can waste water be safely disposed of?</li> </ul>

**Table 4. Questions about feasibility studies - *continued***

Environmental and socio-economic planning	<ul style="list-style-type: none"> <li>• What are the main issues raised in the environmental and socio-economic studies?</li> <li>• Are there rare vegetation species on the proposed site?</li> <li>• How can plans address these issues?</li> </ul>
Community agreement(s)	<ul style="list-style-type: none"> <li>• What agreements may be reached, when and with whom?</li> </ul>
Mine closure and reclamation	<ul style="list-style-type: none"> <li>• How will the mine site be cleaned up and reclaimed when operations are completed?</li> <li>• What labour transition plans are required?</li> </ul>
Operating cost estimates	<ul style="list-style-type: none"> <li>• How many workers are required?</li> <li>• What types and amounts of equipment and supplies are required during operations?</li> <li>• What are the annual operating costs?</li> </ul>
Capital costs	<ul style="list-style-type: none"> <li>• What are the costs to plan, permit and construct the facilities?</li> </ul>
Financial analysis	<ul style="list-style-type: none"> <li>• What are the costs to borrow money to build and operate the mine?</li> <li>• What are the yearly cost and earnings?</li> <li>• What is the expected profit or loss?</li> </ul>

**Tools B:**

- a handout with a list of feasibility studies and key questions that should be answered by the various feasibility studies

**Timing B:**

- 10 min for a description of the various feasibility studies needed for the mine evaluation
- 5 min for participants to work on handouts in pairs
- 5 min for answers and explanation, including sufficient coverage of mine closure and reclamation
- 20 min total time

**Content C: Planning for closure and reclamation**

*(Page 27 of the Exploration and Mining Guide for Aboriginal Communities)*

Describe how mine closure and reclamation are important in upfront planning, even though years away if the project is feasible. Explain the mine closure and reclamation plan in more detail.



### ***Optional participant task C:***

Ask each person to write down one social or environmental aspect that they would be concerned about after the mine closes. Write down on a flip chart or writing board all answers provided and group the common ones. Ask why each item is important and conclude with how these items can be incorporated into a mine closure and reclamation plan.

### ***Tools C:***

- flip chart or writing board
- writing materials (markers, chalk)



### ***Timing C:***

- 5 min to describe the tasks
- 10 min for participants' input
- 10 min for wrap-up
- 25 min total time



## **Content D: Environmental and social impacts**



***(Pages 32–36 of the Exploration and Mining Guide for Aboriginal Communities)***

Every mine is unique and will have an impact on the environment in different ways. An environmental assessment (EA) is a process to identify and assess the potential environmental effects of a project before it is built. In this section, the trainer may want to give more details about the EA process, laws at the federal and provincial and territorial level, and the inclusion of traditional knowledge.

## **Content E: Community participation**



***(Pages 37–38 of the Exploration and Mining Guide for Aboriginal Communities)***

Community input and information exchange should occur during each phase of the mineral development cycle, starting with exploration. During mine development, the importance of meaningful community input is critical. This is the time, before a project goes into operation, for communities to “get their issues on the table” and “say what they mean.” It is important to explain that a mine closure and reclamation plan will be developed and what that means to the people and the land throughout the mining phases.

## Content F: Community employment and other economic opportunities



*(Pages 38–43 of the Exploration and Mining Guide for Aboriginal Communities)*

A community can experience huge increases in employment during mine development depending on the size of the mine. A wide variety of jobs, from entry level to professional, are generally available. There are also many potential business opportunities, such as

- supplying goods (e.g. oil and gas, safety equipment)
- site services
- catering
- trucking
- surveying
- road maintenance
- goods and services associated with a community development project (e.g. an arena)

At this point, the trainer may want to give details about business arrangements such as a “joint venture” between two companies. Joint ventures are a good way to develop local business capacity to prepare for, and take advantage of, business opportunities related to mine development. The trainer may also want to talk about negotiating agreements that have economic benefits such as impact and benefit agreements.



### ***Optional participant task F1:***

Divide the main group in two or into groups of multiples of two (2, 4, 6 groups) and designate them the “Community.”

- Task one group with developing a list of questions and tasks that they would want addressed and performed by industry to help determine what labour resources are available or could be developed in the community. Write all the answers on a flip chart or writing board. This list may include
  - developing a skills and education inventory of residents interested in working at the mine
  - creating a matrix of mining jobs and the skills and education required for each position
  - determining if there will be priority hiring for community members
  - beginning skills training for potential available job opportunities
  - identifying community business opportunities and capacity
  - identifying the goods, services and labour needs of the project

- 
- establishing methods for receiving and conveying current and ongoing communication
  - determining how the hiring process will be managed
  - training and hiring economic development officers and/or employment and training officers
- Task the second group with developing a list of questions and tasks that they would want addressed and performed by industry to help identify traditional and cultural aspects that could potentially be affected by the mining project. Write all the answers on a flip chart or writing board. This list may include identifying
    - archaeological and heritage sites
    - “what, where and when” with regard to traditional land use activities:
      - hunting
      - fishing
      - trapping
      - gathering
      - cultural, ceremonial
    - what plans they have to mitigate the potential impacts of the presence of non-community members in the community
    - impacts on watersheds and water quality
    - impacts on fish and fisheries
    - social impacts of rapid development

***Tools F1:***

- flip chart or writing board
- writing materials (markers, chalk)



***Timing F1:***

- 5 min to describe the tasks
- 5 min for participants to work on developing questions
- 5 min for answers and explanation
- 15 min total time



***Optional participant task F2: Scenario 2. Big Rock Mining Ltd.***

The participants are asked to read Scenario 2. Big Rock Mining Ltd. The manner in which the case is presented can be varied (video, read aloud).



### ***Scenario 2. Big Rock Mining Ltd.***

In 2002, Big Rock Mining Ltd (BRML) purchased a junior exploration company's stake in a piece of land in the eastern Canadian Shield taiga, several hundred kilometres north of Montréal. In 2002, BRML believed that the lease could contain a substantial nickel deposit.

The landscape consists of rolling hills and coniferous forests. There is a significant river running through the northwest portion of the mine lease in addition to a couple of small creeks that intersect the lease several times. Wildlife in the area includes moose, black bear, wolf and other smaller fauna and fowl. In 2006, BRML decided to move forward with development and construction of the mine.

BRML anticipates that construction of the mine will take three years and directly involve approximately 1200 people. Labourers are expected to be housed on site once camp facilities are installed. To reduce construction times, crews will be doing shift work 24 hours a day, 7 days a week. Construction of the mine will include a number of site facilities and offices in addition to 16 km of roads within the mine lease and an additional 144 km to improve access to the mine lease. Explosives will be used for some of the road construction.

Aboriginal group 1 (AG1) has a reserve approximately 16 km east of the mine lease. From 2002 to 2005, BRML's manager of stakeholder relations, Jim Diggs, consulted AG1 on several occasions. He believed he had a strong relationship with AG1. In 2005, Aboriginal Group 2 (AG2), whose settlement is located 68 km down the river from the mine lease, approached Jim Diggs with some concerns. In 2006, both AG1 and AG2 told Jim Diggs that they would object to the mine.

In 2008, BRML obtained all approvals to proceed with development and construction of the mine. There were no outstanding objections from AG1 and AG2.

Divide the participants into an even number of groups (2 or 4). In those groups, have them read/watch the scenario. After the groups have read/watched the scenario, distribute the following list of questions for each group to answer. Provide groups with a flip chart and markers and 15 min to respond to the questions. Tell participants that they are able to ask the trainer questions to clarify aspects of the scenario. At the end of the 15 min, the groups are to present their answers one question at a time.

#### **Questions:**

- What activities occurred between 2002 and 2006 that led to the BRML decision to proceed with mine development?
- What concerns did AG1 and AG2 have that led to their objections to the mine in 2006?

- 
- What are some things that BRML might have done to mitigate the concerns of both AG1 and AG2 to earn their support for the project (i.e. consultation, mine visits, agreements, community input, mitigation measures, closure and reclamation plan)?

### ***Tools F2:***

- scenario handout: Big Rock Mining Ltd.
- questions
- flip chart or writing board
- writing materials (markers, chalk)



### ***Timing F2:***

- 5 min to read the scenario
- 10 min for groups to answer the questions
- 5 min to discuss
- 20 min total time



### ***Optional participant task F3:***

Using the same groups, designate each one as either: Aboriginal Group 1 or Aboriginal Group 2. State that each group must design an economic benefits plan for its community. Their objective is to decide on three activities that their community would like to pursue to secure employment and/or economic opportunities, based on the information and the scenario in the case study and what services they believe may be needed by the company during mine construction (i.e. catering). A list of potential services is on page 40 of the *Exploration and Mining Guide for Aboriginal Communities*.

Allow the groups 10 min to discuss this among themselves and then have one trainer go to each group posing as a BRML representative (industry). Allow the teams 5 min to present their community economic benefits plan to the BRML representative and negotiate a draft agreement. At the end of the 5 min, one member from each of the smaller groups presents at the front of the class on what they have agreed upon with BRML. If there is an overlap of services (i.e. two groups want to provide catering), discuss how this may happen and how it is important that industry manages these contracts and the expectations of the community.

**Tools F3:**

- flip chart and markers

**Timing F3:**

- 5 min to explain the exercise
- 10 min for groups to decide on economic opportunities to pursue
- 5 min to discuss opportunities with the industry (BRML) representative and negotiate
- 5 min to present in front of the class
- 5 min wrap-up discussion
- 30 min total time

**Additional suggested participant task: A case study on mine development on reserve lands**

Instead of presenting Scenario 2, the trainer may wish to explore how a First Nation might be able to pursue mine development projects on reserve lands. For example, the Muskowekwan First Nations potash mine project in Saskatchewan was accepted by the federal government under the *First Nations Commercial and Industrial Development Act*. This exercise would illustrate the regulatory regime on a reserve.

**Objectives of Module 2. Mine development and construction****Participants will**

- learn aspects about mine evaluation, and determine whether to proceed
- learn the purpose of the various feasibility studies
- apply knowledge of potential environmental and social concerns
- learn the importance of mine closure and reclamation planning at this early stage of the mining cycle
- learn about which environmental studies may be performed and what topics they cover
- gain basic knowledge of the regulations and permits required for operations
- build knowledge of key aspects and information to be exchanged with industry
- learn what employment and economic opportunities may be available with the development phase of mining
- learn about agreements that can be negotiated between Aboriginal communities and mining companies



# MODULE 3



## MODULE 3. Mine operation

- Content A:** What is mine operation and what are the activities?
- Content B:** A description of acts and regulations
- Content C:** Environmental and social impacts
- Content D:** Community participation
- Content E:** Employment and training opportunities



*This section explains the main activities, legal framework of mine operations and the opportunities for Aboriginal participation.*

### Content A: What is mine operation and what are the activities?

 (Pages 50–51 of the Exploration and Mining Guide for Aboriginal Communities)

Elaborate on some of the main activities involved:

- hiring
- training
- commissioning
- production
- mine expansion and contraction. (Some mines may experience an expansion or a contraction period.)

*By the time this phase occurs, the potential social and environmental impacts should be well understood.*

#### **Tools A:**

- no activity



#### **Timing A:**

- 20 min to deliver the content

### Content B: A description of acts and regulations

 (Pages 53–54 of the Exploration and Mining Guide for Aboriginal Communities)

Present the acts and regulations associated with a mine operation. It is recommended that on- and off-reserves be differentiated.



### ***Optional participant task B:***

Using their knowledge of mines or from personal knowledge, ask the participants what permits, regulations and rules a company needs to be concerned about during the operations phase. These answers can be stated out loud by participants. The trainer writes the answers on a flip chart or writing board and spends time on responses, detailing which ones could be more relevant and what mine activities they would relate to. Be sure to address the key items such as explosives permits, water licence and a Fisheries authorization permit.

### ***Tools B:***

- flip chart or writing board
- writing materials (markers, chalk)



### ***Timing B:***

- 10 min to deliver the content
- 5 min for the activity description
- 10 min for the participants to give answers and discuss
- 25 min total time

## **Content C: Environmental and social impacts**



**(Pages 55–57 of the Exploration and Mining Guide for Aboriginal Communities)**

The operation phase of the mineral development cycle typically has the most important environmental impacts. However, by the time this phase occurs, the potential social and environmental impacts should be well understood.



### ***Optional participant task C:***

Present the Type and Activities and potential impacts columns from Table 3 and Table 4 (without the shaded Mitigation column) and ensure that participants understand the meaning of the term “mitigation.” Have participants work in groups of two or three and have them fill in the blanks for what they believe would be the appropriate mitigation measures. Add to or comment on the participants’ mitigation measures by using the possible mitigation measures in the shaded column of Table 5 and Table 6.

**Table 5. Environmental impacts**

Environmental impacts		
Type	Activities and potential impacts	Mitigation
Land use	<ul style="list-style-type: none"> <li>land disturbance from mining activities, i.e. excavations in the mine, storage of waste rock</li> <li>tailings dams</li> </ul>	<ul style="list-style-type: none"> <li>Obtain approval of government regulators.</li> <li>Observe strict rules for locating, constructing, and operating.</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>dust from roads and mining activities</li> <li>emissions from trucks and on-site power generation</li> </ul>	<ul style="list-style-type: none"> <li>Apply water to roads to control dust.</li> <li>Monitor emissions to determine the effects on vegetation and air quality.</li> </ul>
Water quality	<ul style="list-style-type: none"> <li>dirt, rocks or contaminated or unclean water enter streams or lakes</li> <li>impacts on water flows</li> </ul>	<ul style="list-style-type: none"> <li>Establish a water management plan (must be approved by the government).</li> <li>Train employees and contractors on the water management plan.</li> <li>Monitor water quality and flow supplementation.</li> </ul>
Wildlife	<ul style="list-style-type: none"> <li>attraction of animals to garbage and food waste</li> <li>migratory patterns affected by the presence of humans, noise from aircraft and noise from blasting</li> <li>impacts on fish and fisheries</li> </ul>	<ul style="list-style-type: none"> <li>Use best practices for the incineration of food waste and garbage.</li> <li>Remove waste that cannot be incinerated.</li> <li>A waste management plan and employee training will help minimize wildlife impacts.</li> <li>Observe animal behaviour and modify operations as required.</li> <li>Avoid certain activities during migration.</li> <li>Protect spawning and rearing areas and fish farming.</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>Disturbance of archaeological and heritage sites</li> </ul>	<ul style="list-style-type: none"> <li>Protect land and identify and protect archaeological and heritage sites.</li> </ul>

**Table 6. Social impacts**

Social impacts		
Type	Activities and potential impacts	Solution
Social	Shift and rotational work <ul style="list-style-type: none"> <li>less time for traditional activities</li> <li>separation of workers from their families for several days or weeks</li> <li>increased wealth in the community</li> </ul>	<ul style="list-style-type: none"> <li>Plan activities around the work schedule.</li> <li>Create support groups or programs to minimize the separation stress experienced by families.</li> <li>Work with the changing dynamics of the community.</li> </ul>
Economic	Community partnerships <ul style="list-style-type: none"> <li>increased business opportunities</li> <li>employment</li> <li>wealth generation</li> <li>training opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Improve the community infrastructure.</li> </ul>
	Increased employment <ul style="list-style-type: none"> <li>increased training and skills development opportunities</li> <li>creation of positive role models</li> <li>increased gap between the employed and unemployed</li> </ul>	<ul style="list-style-type: none"> <li>Use the positive working role models within the community as examples.</li> </ul>



**Table 6. Social impacts - continued**

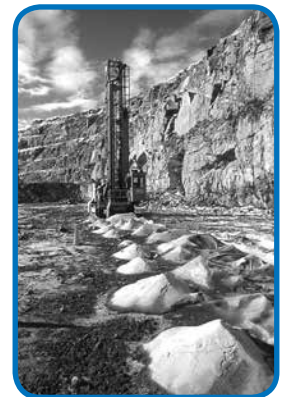
	Increased income	<ul style="list-style-type: none"> <li>• increased gap between the employed and unemployed</li> <li>• risk of increased substance abuse</li> </ul>	<ul style="list-style-type: none"> <li>• Establish or encourage the development of addiction response programs and support groups.</li> <li>• Create an information campaign.</li> </ul>
	Wage economy	<ul style="list-style-type: none"> <li>• more money in the community</li> <li>• more prosperous local businesses</li> <li>• decreased crime rates</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake efforts to distribute work opportunities among community members.</li> </ul>
Cultural	Strangers in the community	<ul style="list-style-type: none"> <li>• increased population</li> <li>• increased funding for traditional activities</li> <li>• strain on existing services</li> <li>• aggravation of existing social problems</li> </ul>	<ul style="list-style-type: none"> <li>• Offer cultural awareness training, delivered by community members, to make new people aware of the values and traditions of the community.</li> <li>• Support and maintain traditional activities.</li> </ul>

**Tools C:**

- handout of the Environmental and Social impacts tables

**Timing C:**

- 10 min to deliver the content
- 5 min for describing the task
- 10 min for the groups to list mitigation measures
- 10 min for comments on mitigation measures
- 35 min total time

**Content D: Community participation**

*(Pages 57–58 of the Exploration and Mining Guide for Aboriginal Communities)*

Community involvement should occur throughout the mineral development cycle as much as possible through employment, businesses and monitoring. Both companies and communities can be proactive in becoming involved in the mine operation process.

**Optional participant task D: Scenario 3. Jurassica Mining Ltd.**

The participants are asked to read the hypothetical Scenario 3. Jurassica Mining Ltd. The manner in which the case is presented can be varied (video, read aloud).

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### ***Scenario 3. Jurassica Mining Ltd.***

Jurassica Mining Ltd. (JML) has recently completed construction of its coal mine located in southeastern British Columbia. The mine is now ready for operations. It is 15 km west of the town of Crumley and is expected to produce approximately 6 million t of coal annually. At this rate, the mine is expected to have a life of 25 years and potential additional resources beyond that date.

The facilities of the mine include accommodations for 350 employees, administration and maintenance buildings, an airstrip, power plant, fuel tank, sewage treatment facility, electrical system and communications system.

Mary Roy is the principal contact on behalf of the mine with the town of Crumley. Crumley is a community of 4700 residents and has a community hall, a kindergarten to grade 12 school, a post office, a weekly newspaper and several small businesses. Beatrice Ladister is the mayor of Crumley and is also the principal contact for Mary Roy of JML.

JML has set up a business development centre that assists in employing local people. JML expects to employ 25 Crumley residents when the mine opens next week and an additional 100 people within three years. Beatrice and the Crumley community are appreciative of the jobs but would like Mary and JML to do more to help the community become more involved in the JML mine operation.

Allow the participants 5 min to read the Scenario 3 individually. The trainer then reads the case out loud and asks the participants to partner with one or two others. After this is done, explain that it is the participants' job to improve the involvement of and interaction between JML and Crumley in the project and that they must come up with five tasks or activities that JML or Crumley can do to make this happen. These tasks cannot be directly related to employment or economic development, such as hiring the local bakery to provide bread. Instead, ask them to consider non-employment and economic activities or engagement strategies such as JML staff taking residents out to the mine site for field visits.

#### ***Tools D:***

- handout of the scenario



#### ***Timing D:***

- 10 min to deliver the content
- 5 min for the participants to read the scenario
- 5 min for the trainer to read and explain the activity

- 5 min for small groups to come up with five activities
- 10 min for the presentation of ideas
- 10 min for the trainer to fill in gaps and give additional possibilities, for example,
  - talks at schools
  - monthly updates in the newspaper
  - evening learning or mine activities (waste handling) at the community centre
- 45 min total time

## Content E: Employment and training opportunities



*(Pages 58–60 of the Exploration and Mining Guide for Aboriginal Communities)*

Employment and training opportunities are usually the most significant benefit for a community during mine operations. The jobs are typically longer term, potentially lasting for many years.

The trainer can solicit input from participants on what some potential jobs may be using the list in Table 7.

**Table 7. Potential jobs**

Potential jobs		
Miners	Trainers	Camp catering and housekeeping
Drillers and blasters	Accountants	Site services
Electricians	Clerks	Ongoing construction services
Heavy equipment operators	Computer technicians	Recycling services
Mechanics	Administrators	Supply of goods – e.g. safety equipment
Welders	Managers and executives	Contract mining – underground and open pit
Pipe fitters	Security officers	Aircraft support – helicopters and fixed-wing aircraft
Carpenters	Laboratory technicians	Airport maintenance
Surveyors	Assayers	Laboratory services
Environmental scientists	Human resources specialists	Environmental consulting
Geologists	Public relations specialists	Trucking
Engineers and technicians	Marketing personnel	Road maintenance
Supervisors	Nurses	Photographers
Safety experts	Administrative assistants	Truck drivers

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Similar to during the mine development phase, communities should prepare to take part and continue asking these important questions:

- What businesses are currently available?
- What goods and services does the company require?
- What are the capabilities of the community?
- Are there joint-venture partnerships opportunities?
- Is there training available?



***Optional participant task E:***

Divide the group into groups of 4 or 5 participants. Tell each small group that they have been put together to form the economic development committee for the community where they live. Their objective is to prepare the community as well as possible for the economic opportunities of the operation phase of the Jurassica Mine from the scenario. The objective is to assess and increase the community's capacity to participate but not to state what types of jobs and economic opportunities that the community should pursue.

An example of an activity the economic development committee might do is

- Develop an inventory of the community's assets (businesses, equipment and people's skills). This will help Jurassica understand what project-related needs they can fill locally.

Remember, the aim is to give your community an advantage in obtaining long-term jobs and economic opportunities going forward. Be creative.

Give the groups 15 min to design their economic development plan and write it on a flip chart and then give each group 3 to 5 min to present to the larger group. The groups may come up with some ideas that are not in the following list. If the groups appear to be struggling with ideas, give them one or two examples from the following list:

- hiring a professional business manager to maximize their benefits from a project
- developing their own business and training capacity
- being creative and imaginative during the negotiation of any agreements
- beginning discussions about the development of partnerships with the mine developer as early as possible
- taking an inventory of the community's assets
- speaking to members from other communities to coordinate efforts
- understanding Jurassica's long-term perspectives (closure issues, training, strategic planning of resources)

***Tools E:***

- flip chart paper and markers

***Timing E:***

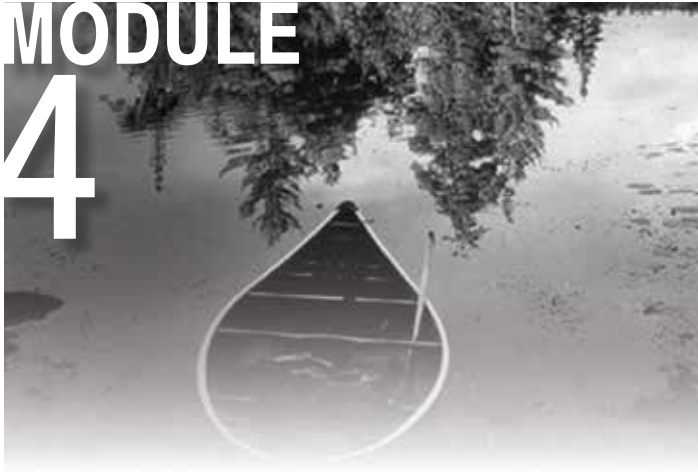
- 10 min to deliver the content
- 5 min for preparation
- 15 min to prepare the community economic preparation plan
- 10 min for the presentation and comments
- 40 min total time

***Objectives of Module 3. Mine operation*****Participants will**

- learn the key aspects of the operation phase of the mineral development cycle
- gain basic knowledge of regulations and permits required for operations
- learn about mitigation measures
- learn and develop strategies on how to prepare for employment and economic opportunities



# MODULE 4



## MODULE 4. Mine closure and reclamation

- Content A:** What is mine closure?
- Content B:** Mine closure activities
- Content C:** What are the regulations and permits?
- Content D:** Environmental and social impacts
- Content E:** How can Aboriginal communities get involved?
- Content F:** Community employment and economic opportunities

*All mines have one thing in common – no matter how long they last, they all will close eventually.*

### Content A: What is mine closure?



**(Pages 66–67 of the Exploration and Mining Guide for Aboriginal Communities)**

Mine closure is the last phase of the mineral development cycle. Sometimes, due to economic conditions, unfavourable commodity prices or declining ore grades, mining operations are put on hold temporarily. In these cases, the mine is placed on “care and maintenance” until the economic context improves. During a care and maintenance phase, production is stopped but the site is managed to ensure it remains in a safe and stable condition. A later decision to permanently close the mine may result in mine reclamation.

*During a care and maintenance phase, production is stopped but the site is managed to ensure it remains in a safe and stable condition.*



#### **Optional participant task A:**

The trainer can solicit answers from participants regarding what elements need to be dealt with when performing closure and reclamation activities. Participants likely have some knowledge of what infrastructure exists and the environmental impacts that have occurred because of prior workshop material or personal knowledge. Encourage participants to provide answers. Some of these may include

- buildings and other structures
- roads and airstrips
- tailings disposal facilities
- waste rock management
- petroleum and chemical storage areas and facilities
- pipelines and electrical transmission lines
- sewage and waste disposal areas and facilities
- mine and site drainage systems



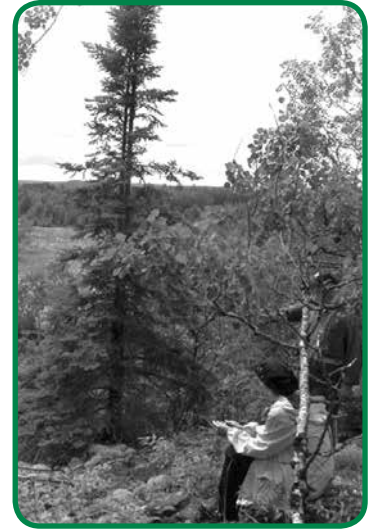
- mine workings
- mine shaft, passage ways and decline openings
- site water quality
- recycling of materials
- rehabilitation and revegetation of the site

**Tools A:**

- none

**Timing A:**

- 20 min

**Content B: Mine closure activities**

*(Pages 68–69 of the Exploration and Mining Guide for Aboriginal Communities)*

Present the main activities of mine closure (shutdown, decommissioning, reclamation, post-closure) and discuss the standard practices for rehabilitation.

**Optional participant task B:**

Allow the participants time to write down the components that they consider important to restoring the disturbed land when mining is finished. Then ask each person to state one item. Ask participants to think about longer term potential issues. At the end, the trainer may want to reiterate the importance of the closure and reclamation plan. This activity can also be done in the context of a temporary “care and maintenance.”

Some answers may include

- removal and recovery of saleable equipment and material
- cleanup and salvage of buildings
- reshaping the land
- cleanup of soil
- establishing a wildlife area
- restoring topsoil
- planting native grasses, trees
- developing and following plans for drainage management
- ensuring dams and tailings are stable

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### ***Tools B:***

- paper and pens



### ***Timing B:***

- 15 min to deliver the content
- 15 min for the participant task and feedback
- 30 min total time

## **Content C: What are the regulations and permits?**



***(Pages 71–72 of the Exploration and Mining Guide for Aboriginal Communities)***

Present the responsibilities, jurisdictions and liability issues associated with mine closure, explaining the distinction between the

- provincial mining regime (provincial crown lands)
- federal mining regime (Indian reserves)

## **Content D: Environmental and social impacts**



***(Pages 73–74 of the Exploration and Mining Guide for Aboriginal Communities)***

Present the potential environmental and social impacts a community may experience, along with mitigation, community input and monitoring programs.

### ***Tools D:***

- no activity



### ***Timing D:***

- 20 min to deliver the material

## **Content E: How can Aboriginal communities get involved?**



***(Page 75 of the Exploration and Mining Guide for Aboriginal Communities)***

Communities can mitigate the impacts of mine closure by planning well in advance, communicating with the mining company and government, understanding the process, and providing input.



***Optional participant task E: Scenario 4. Spoctar Mining Ltd.***

Allow the participants 5 min to read the hypothetical scenario below. The manner in which the case is presented can be varied (video, read aloud).

***Scenario 4. Spoctar Mining Ltd.***

The Spoctar mine is a diamond mine in northern Canada. Spoctar Mining Ltd. (SML) developed and operated the mine for 20 years. During operations, the mine employed approximately 450 people. SML has decided to start planning the closure of the mine in quarter 1 of next year because of the depletion of mineral reserves. Forty percent of the workforce comes from two small First Nations communities, Polstone Bay and Port Belmon, located within 50 km of the mine. The combined population of Polstone Bay and Port Belon is 1800 people.

The mine site itself covers an area of 4000 hectares and is adjacent to a significant wetland. Surface facilities and infrastructure for the project include several kilometres of road, an airstrip, a concentrator, a power house, maintenance service structures, dry rooms, offices, ore storage buildings, a security building, and an accommodation complex. Water for operations was drawn from a nearby river.

Over the 20-year-period, 3 million tonnes of rock were processed and 30 million carats of diamonds were extracted. Both Polstone Bay and Port Belmon have healthy relationships with SML, and together, the three entities have benefited from each other's contribution related to the mine.

After 5 min, organize participants into groups of three or four. Then task one third of the groups to portray SML, one third of the groups to portray the community of Polstone Bay and one third of the groups to portray the community of Port Belmon.

Reiterate that there is one year until the closure of the mine. Allow the groups 7 min to develop two to five questions that they would like to direct to either of the other parties that they feel are critical to assist with

- reducing or mitigating the negative impacts of closure
- maintaining a strong relationship with the other parties
- being involved in the closure process

Allow each group 2 min to present their questions.

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### ***Tools E:***

- scenario
- paper and pens



### ***Timing E:***

- 10 min to deliver the content
- 5 min to read Scenario 4
- 10 min to write down two to five questions
- 10 min for all groups to present and trainer’s input
- 35 min total time

## **Content F: Community employment and economic opportunities**



***(Pages 75–76 of the Exploration and Mining Guide for Aboriginal Communities)***

Even during mine closure, the mine can still create some value for the community in the form of jobs and business opportunities in reclamation, long-term maintenance and environmental monitoring. Alternative job creation and economic activities following closure can also be identified.



### ***Optional participant task F:***

Using the same groups and Scenario 4, give each group 20 min to respond to the following issues:

- For the groups representing the communities: In what manner would the community or residents like to participate in the closure after “shutdown?”
- For the SML group: outline a strategy (actions) for how they would involve Polstone Bay and Port Belmon in the closure phase of the mine.

Provide 20 min for groups to present their responses and for the trainer to comment on and enhance the responses.

### ***Tools F:***

- paper and pens

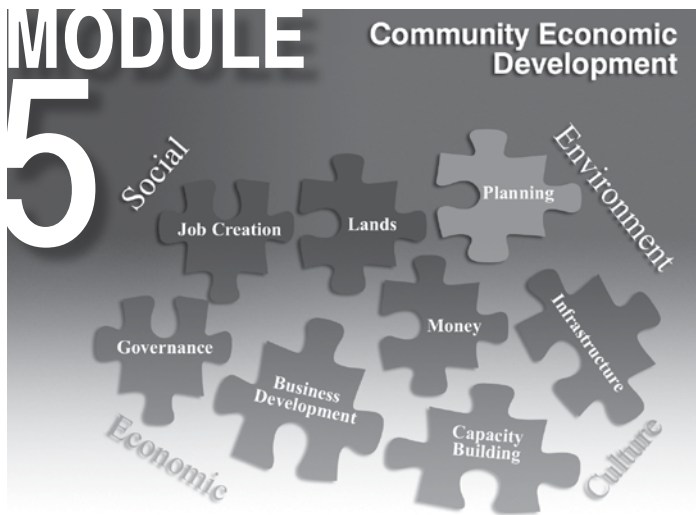
**Timing F:**

- 5 min to deliver the content
- 5 min to present the task
- 20 min to develop responses
- 20 min for presentations and trainer input
- 50 min total time

***Objectives of Module 4. Mine closure and reclamation*****Participants will learn about**

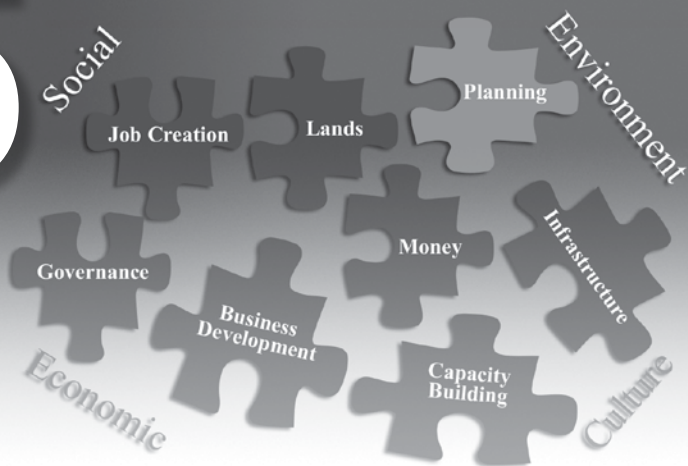
- the key aspects of the closure phase of the mineral development cycle
- the basics about the regulations and permits required for closure
- industry's obligation and commitment to close mines correctly
- potential impacts and mitigation strategies, with a focus on social elements
- employment and economic opportunities that may be available during this phase





## MODULE 5. Economic development strategies and tools

- Content A:** Economic opportunities
- Content B:** Assessment and development of a participation strategy
- Content C:** Best practices case study



## ECONOMIC DEVELOPMENT STRATEGIES AND TOOLS

*This section introduces participants to project planning and management tools and to the concept and usefulness of undertaking a gap analysis exercise to assist with proper planning.*

### Module content

At the end of this module, a case study is presented that demonstrates the positive benefits that employing a strategy for engaging in the mineral sector can provide to the community.

### Content A: Economic opportunities

*Economic and business opportunities exist at each phase of the cycle from early exploration to mine closure and reclamation ...*

This section builds on the information on the stages of the mineral development cycle delivered on the first day. Economic and business opportunities exist at each phase of the cycle from early exploration to mine closure and reclamation (e.g. provision of services during exploration, spin-off opportunities such as transportation and environmental monitoring). The trainer may want to refer to the sections on community employment and other economic opportunities in the *Exploration and Mining Guide for Aboriginal Communities* for a list of typical business opportunities generated by exploration, construction and development, operation and closure and reclamation.



#### ***Suggested participant task A:***

The trainer presents a photographic slide show of various mineral exploration and development projects in Canada. The slide show illustrates the various economic-related activities that are involved in the mineral development cycle. Following the slide show, the participants are engaged in an interactive group discussion that encourages them to link potential economic opportunities for their



community to the information about the mineral development cycle that was presented the previous day and during the slide show. In place of a slide show, the trainer can present parts of the DVD *Our Community ... Our Future: Mining and Aboriginal Communities*.

**Tools A:**

- photographic slide show of exploration and mining activities
- DVD *Our Community ... Our Future: Mining and Aboriginal Communities*



**Timing A:**

- 20 min to deliver the content
- 20 min for group discussion
- 40 min total time

**Content B: Assessment and development of a participation strategy**

The participants are introduced to the assessment of the community economic development readiness and the development of a community-driven “mineral industry participation strategy” and the various steps:

- getting organized (think about the project as a whole, objectives)
- planning
- community engagement
- communication plan
- gap analysis (analysis of the current state and identify how the gap will be bridged)
- final written strategy
- implementation and monitoring

One way to act on the opportunities presented by the mining industry is to develop and implement a mineral industry participation strategy for the community. This is a community-driven process that will strive to balance the cultural values of the community with the desired economic benefits from mining activities. The reasons a community would want to develop a participation strategy include

- high mineral potential in their traditional territory
- high level of mineral exploration and development in proximity to the community
- community’s need to have an approach for getting involved in the industry and take advantage of the opportunities offered (employment, training, business development).

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## **Content C: Best practices case study**

A case study of a community that developed a mineral industry participation strategy is presented and discussed with the participants. Many examples exist across Canada but the trainer may want to identify a case study that will be relevant to the specific context of the community where the workshop is delivered.

The objectives of a strategy include to

- enhance the involvement of the community in the surrounding mineral industry
- facilitate long-term beneficial partnerships among the mineral industry, the Aboriginal community and governments
- assist the community with achieving its goals

### ***Objectives of Module 5. Introduction to economic development strategies and tools***

#### **Participants will learn**

- about the economic opportunities arising from each phase of the mineral development cycle
- how a community can plan to get from “knowing potential opportunities” to being concretely involved and maximizing economic benefits
- about tools that can help the community develop its mineral industry participation strategy
- about communities that have successfully implemented strategies
- how to obtain contacts and resources should they need additional help with economic development



CONCLUSION



## Content: Wrapping it up

- Continue participation throughout all stages of contact.
  - Stress that participation by all parties, government, industry and community should be pursued at all phases of the mineral development cycle.
- Provide additional sources of information.
  - Inform participants about complementary sources of information. A list of additional resources is on page 85 of the *Exploration and Mining Guide for Aboriginal Communities*.
- Evaluate the workshop process and content.
  - Have participants complete an evaluation sheet.



### ***Participant tasks:***

Participants are given an evaluation form that provides the opportunity for participants to

- share their opinions
- state if the workshop objectives were met
- provide ideas on how the workshop could be improved
- provide feedback on the trainer

### ***Tools:***

- handout with sources of information
- workshop evaluation forms

**Timing:**

- 10 min to explain the importance of participation
- 10 min for sources of information
- 10 min for the workshop evaluation
- 30 min total time

**Objectives of the Conclusion****Participants will learn**

- that engagement and consultation are ongoing through all stages of the mineral development cycle and are key to establishing successful relationships and partnerships
- where to look and who to ask for additional information (e.g. Web sites)

Workshop evaluation form				
Overall	Poor	Average	Good	Excellent
How easy was the workshop to understand?				
Was the content relevant? Yes No				
Were topics covered in sufficient detail? Yes No				
Overall rating of the workshop				
Workshop activities	Poor	Average	Good	Excellent
Usefulness of the scenarios				
Your view of the work performed in groups				
Your view of the work performed individually (handouts)				
Overall quality of the workshop (handouts, scenarios)				
Trainer	Poor	Average	Good	Excellent
How easy the trainer was to understand				
The trainer's knowledge of the material				
The trainer's ability to keep the workshop interesting				
Additional comments on how the workshop can be improved (e.g. what information or details should be added). Please contribute.				



## APPENDIX A. TRAINING MATERIALS CHECKLIST

- copies of *Exploration and Mining Guide for Aboriginal Communities* (participant reference guide)
- laptop and projector
- flip charts and white boards, markers
- name tags
- notepads and pens
- DVD: *Our Community... Our Future: Mining and Aboriginal Communities*<sup>b</sup> (optional)
- optional material such as samples of minerals and rocks, geological maps, claims maps, photos, etc.
- slides of exploration fields, mining operations or reclaimed sites

<sup>b</sup> [nrcan.gc.ca/mining-materials/aboriginal/bulletin/7825](http://nrcan.gc.ca/mining-materials/aboriginal/bulletin/7825)



