A CONCEPTUAL DESIGN STUDY FOR THE BRITANNIA CENTRE FOR MINING INNOVATION

PREPARED FOR: NATURAL RESOURCES CANADA

FINAL DRAFT

MAY 2003

TOBY RUSSELL BUCKWELL & partners | architects

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1 PROJECT OVERVIEW

1.1 A VISION OF SUSTAINABILITY

For many years, the riches of the earth were taken for granted. Our increasing understanding of the fragility of nature and the impact of human development on the ecosystems that sustain us, is changing our view of how we should be interacting with our environment. This change in perspective has resulted in a new paradigm that defines the relationships between people, the environment and the economy that defines our progress as a society. Sustainable development, defined in the 1987 report of the Brundtland Commission "*Our Common Future*" as "development that meets the needs of today without compromising the ability of future generations to meet their own needs", is part of that new paradigm. Sustainable development is about achieving human and ecosystem well-being together.

This report presents a vision of future sustainability for Britannia Beach, a historic industrial mining property that is situated on Canada's rugged west coast just north of Vancouver. The stunning beauty of the area is currently contrasted with an image of an industrial past that, upon reflection, was not inherently sustainable. The project considers a means by which to realize a new future for Britannia. It is anchored by the design of a world-class mining and minerals research and innovation centre.

The Britannia Centre for Mining Innovation brings together business, education and research, community, government and local stakeholders in defining a vision for the future of Britannia that is based on the principles of sustainability.

The Britannia Centre for Mining Innovation project represents an unparalleled opportunity for Canada to create a lasting monument that will be on display for the world - a monument that is a reflection of Canadian values and innovation. The opportunity for world-class mine reclamation research on an existing legacy mining property, together with the more than 10 million people from all over the world that pass by the site every year, provides a unparalleled potential for Canada to continue its acknowledged leadership in the mining industry and communicate that leadership to the world. The exposure generated could be even more significant if the Vancouver-Whistler bid for The 2010 Winter Games is successful.

Canada is consistently ranked by the United Nations as one of the top places in the world to live. Part of the reason for this ranking is the commitment demonstrated by the citizens of Canada to carry out their activities, both at home and abroad, in a manner that is consistent with the principles of sustainability. The concept presented herein provides a design for a world-class research and interpretive facility that will display to both a domestic and international audience the values by which Canadians live and the spirit of innovation that characterizes us as a people.

1.2 MINERALS AND METALS – CANADA LEADS THE WAY

Canada is a world leader in minerals and metals development, processing and research. It is a major supplier of equipment, services and technology to the global mining community. Canada's knowledge of mineral exploration and development is founded on more than 100 years of expertise and collaboration worldwide. As a result, Canadians have developed a large global network of infrastructures to find, mine, process, distribute and recycle minerals and metals. Canada's vast geological assets, combined with a well-established mining, transportation and communications infrastructure and a highly skilled and productive workforce, have earned it an international reputation for excellence in mining.

The minerals and metals industries represent a key component of Canada's economic and social well-being. For example, well over 100 communities across Canada, with a total population of more than 600,000, are dependent on the mining industry. These communities are located in all regions of the country, but are mainly found in remote and rural regions. More than 2,200 Canadian-based companies sell specialized equipment and services to the mining industry in Canada and around the world. The urban centres of Toronto, Montreal and Vancouver are home to a substantial component of the international mining community. This includes a large number of corporate head offices and the financial institutions that account for the majority of worldwide financing for mining projects. For Canada's Aboriginal population, the minerals and metals industries hold promise of significant economic development opportunities. In recent years, examples of these opportunities have been demonstrated by the world-class Ekati and Diavik diamond mine developments in northern Canada.


Raw diamonds from the Ekati diamond mine

Canada is well known for the quality and innovation of its minerals and metals sector. For example, the Government of Canada is a partner in a global mining research alliance which links major government-funded mining research organizations in the world's most advanced mining countries. Canada, South Africa, Australia and the United States are all working together on this initiative. This partnership allows for the sharing of research and technical expertise with others around the world, particularly research and technologies that lead to more sustainable industry practices.

As much as the statistics quoted above are impressive and substantiate the importance of the minerals and metals industries to the development and continued prosperity of Canada, mining is also about stories and people. Whether the subject is the Yukon Gold Rush of the late 1800's or the many remote communities that were founded on the basis of the riches held in their soils, mining is part of the lore and adventure that characterizes the building of Canada as a great nation. The community of Britannia, which is nestled amongst the trees and snowcapped mountains of British Columbia's west coast, is part of that lore. In its early days as one of the largest and most prolific copper mines in the world, Britannia represents both the proud history of Canada and the Canadian mining industry. As values and technologies changed through time, Britannia came to symbolize mining practices that were the antitheses of sustainable development.

1.3 PURPOSE OF THIS DOCUMENT

The opportunity now exists to write a new chapter in Britannia's history. This document is first and foremost the articulation of a vision of what is possible. The objective of this project was to present the conceptual design of world-class mining and minerals research and innovation centre and the means by which this design can be realized. It is a collection of thoughts and principles that form an overall notion for a project that will combine a world-class research facility with a major public interpretive centre. Together these elements are known as the Britannia Centre for Mining Innovation.

The following key components are described herein:

- **Chapter 2 – The Concept.** This chapter defines the underlying principles for a major new research facility and interpretive centre with regional, national and international appeal;
- **Chapter 3 – Site Development.** This chapter describes the planning concepts for the project, based on a critical analysis of the site;
- **Chapter 4 – The Business Case.** This chapter outlines critical factors that will ensure success for this project;
- **Chapter 5 – Next Steps.** This chapter describes what steps will be necessary to move from this concept towards implementation.

1.4 NATURAL RESOURCES CANADA

Natural Resources Canada (NRCan) is a federal government department specializing in the sustainable development and use of natural resources, energy, minerals and metals, forests and earth sciences. These issues are considered from both a national and international perspective, using the department's expertise in science and technology, policy and programs. The department carries out and applies leading-edge science and technology research, maintains a national knowledge infrastructure on Canada's land and resources, and ensures that federal policies and regulations on issues such as the environment and trade enhance the natural resources sector's contribution to the economy. At the same time, NRCan is responsible for ensuring that these policies and regulations protect the environment and the health and safety of all Canadians. Together with international agencies and other nations, NRCan promotes open access to global markets to the benefit of Canadian products, services and technology.

The project considered in this report has been undertaken through the leadership of the Mineral and Metal Policy Branch, Minerals and Metals Sector of Natural Resources Canada.

1.5 BRITANNIA BEACH

1.5.1 Britannia - The Site and the Past

The community of Britannia Beach lies approximately 45 minutes by car (52km) north of Vancouver. Britannia is situated along the famous Sea-to-Sky Highway and is on the shores of Howe Sound. It is a typical picture of a rugged but beautiful coastal town. The mine, which was named after the community, was established some 110 years ago and, at one point, was the largest producer of copper concentrate in the British Empire. Through the late 1930's to the mid 1940's the mine was a significant contributor of raw materials to the allied war effort during WWII. A key feature of Britannia is the Concentrator Building. This building has been designated a National Historic Building by Parks Canada and is a lasting symbol of Canada's storied industrial and pioneering past.

Despite Britannia's proud history of economic achievement, the current legacy of the property has become a symbol of industrial development and its unsustainable practices. Indeed, the Outdoor Recreation Council of BC has consistently ranked Britannia Creek, which flows through the property, as one of the most "endangered" rivers in the province. Acid mine drainage, elevated levels of heavy metals in runoff from the property and the decaying infrastructure have all plagued the community of Britannia for years.

Through this stark visual representation of an unsustainable past, Britannia has been reinforcing the negative stereotypes, so common in public discourse, about mining and minerals extraction and use.

1.5.2 Britannia - A Reclamation Strategy

The situation at Britannia is improving. The work of UBC's Centre for Environmental Research in Mining, Minerals and Metals (CERM3) in preventing acid mine drainage from entering Britannia Creek is an example of recent efforts to clean up and remediate the property.

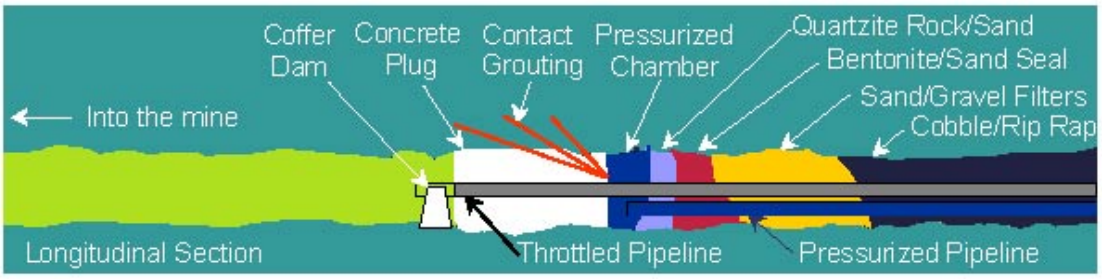


Fig 1.1 - A schematic longitudinal section of the 'Millennium Plug' installed at the Britannia mine site

The Millennium Plug Project is the first step in a remediation plan to eliminate all pollution at the site. The plug prevents Britannia Creek and the surface waters of Howe Sound from being contaminated and at least 20% of the metal content in the mine waters now precipitates within the mine workings and no longer is discharged into the environment.

In addition and as a complement to the work by UBC, the Government of BC, through the Ministry of Sustainable Resource Management, has been developing a comprehensive plan for remediation of Britannia. Studies are ongoing in this regard and the next major step is the construction of a water treatment plant. It will be used to treat all contaminated surface waters from the site prior to their discharge into Howe Sound. Construction is proposed to begin in the spring of 2003 and is to be in full operation by early 2004. Additional work on the cleanup of contaminated soils and flood control are also planned as part of these remediation efforts.

The CANMET Mineral Technology Branch (CANMET-MTB) of NRCan has also assisted in the remediation efforts at Britannia. Scientists from the Mining and Mineral Sciences Laboratories of CANMET, one of three main technology laboratories operated by the MTB, are investigating methods for the treatment of acid mine drainage from the site, defining appropriate methods for remediation and reclamation of contaminated soils and carrying out test programs for revegetation of disturbed mining areas. NRCan has established a small site office at Britannia that is used to conduct these research activities.

The Britannia Beach Historical Society operates the BC Museum of Mining at Britannia Beach. The Society owns approximately 40 acres of land in Britannia, much of which contains the historical remnants of the past mining activity. With modest resources, the Museum manages to attract more than 30,000 people per year to their exhibits with many of these being school-aged children from the surrounding region. The Museum also receives significant revenues from the motion picture industry. Such famous movie productions as Scooby Doo and X-Men and numerous TV productions such as X-Files have been shot at Britannia. It is expected they will continue to look to the site as an excellent location for dramatic sets and stunning scenery.

The community of Britannia supports some 250 people, many of whom have been residents here for 20 or more years. Much of this community has taken advantage of the infrastructure that supported workers at the mine. A private company based in Vancouver owns the land that constitutes the Community of Britannia. Although there have been attempts in the past to try and re-develop and improve the area, they have always failed due to issues around potential liabilities associated with site contamination from historic mining practices. The work by UBC and the BC Government in recent years have begun to address many of the liability and contamination issues and a number of plans are now being proposed to move forward with community redevelopment including a major upgrade in site infrastructure. The project considered in this report will have a significant positive influence in helping to stimulate a more prosperous future for Britannia.

1.6 THE BRITANNIA CENTRE FOR MINING INNOVATION

The theme of the Britannia Centre for Mining Innovation is envisioned as 'the legacy of the past – the promise of the future'. The project is being carried out in cooperation with the BC Museum of Mining. Other contributors in development of the ideas presented in this report include the University of British Columbia (UBC), the Government of British Columbia, the community of Britannia Beach, representatives of the Canadian mining industry, a number of non-governmental organizations and several departments of the Government of Canada, including Parks Canada and Canadian Heritage. Based on the themes established for this project, the following objectives were identified to guide the development of the project concept:

- Prepare a conceptual design of a facility that will feature the significant role Canada plays as a leader, investor and innovator in the international world of resource development, environmental stewardship, reclamation research, technical and social innovations and sustainable development;
- Prepare a conceptual design of a site concept that will communicate the history of mining and its impacts on the economy, society, the environment and communities. The design should allow for telling the story of mining today and into the future as it adapts to meet society's values and expectations concerning a high quality of life;
- Develop a strong and appealing visitor experience incorporating these themes;
- Help to establish Britannia as a site for research and testing for innovative mining technologies and processes;
- Stimulate partnerships and collaborative mechanisms on a local, national and international level and provide a forum for dialogue on issues relating to sustainability, communities, innovation and responsible resources use;
- Foster the development of Britannia as one of the top visitor destinations for the Vancouver – Whistler area.

To meet the objectives outlined above, a number of major elements have been identified as critical components in developing a successful centre for innovation. These elements are as follows:

i. The facilities must be designed in such a way that they foster an interface between research, education and the public.

ii. The site should be envisioned as a window on Canada for the world. A world-class Centre for Innovation will be seen as a flagship for displaying and interpreting Canadian technological innovations, our commitment to sustainability and Canada's approach to the responsible development of natural resources.

iii. Partnerships are the key to success. Public sector institutions, academe, the private sector and community stakeholders will all be important players in making the concepts presented herein a reality.

iv. The visions, values and desires of the residents and stakeholders associated with the community of Britannia must be respected in all aspects of any future development proposals considered for this site.

v. Financial sustainability in all of the design concepts is essential.

Britannia is ideally placed to host a world class centre for innovation. The site provides a working example of Canadian researchers and businesses developing globally relevant site reclamation and mineral processing technologies. This research can then be combined with a strategic location that has the ability to support a major public attraction. Together, the Britannia Centre for Mining Innovation can be used to communicate Canada's leadership role in promoting the responsible use of the earth's resources to the world.

1.7 PARTNERSHIPS & COLLABORATION

As discussed above, partnerships and collaboration will be key aspects to achieving success in this project. Partnerships refer to the involvement of a number of groups and institutions, government and industry, community and public, non governmental organizations (NGO's), and international organizations that will contribute to making this vision a reality. Collaboration suggests an active dialogue with all stakeholders with an interest in the future of Britannia.

A dialogue with a number of public stakeholders has been initiated as part of this conceptual design project. However, much more needs to be done. We have only scratched the surface with other Federal Government departments, the community, local and regional governments, the Province of BC and other important stakeholders. Expanding this dialogue will be a key aspect of any future work on this project and its ultimate success.

2 THE CONCEPT

2.1 A NEW FUTURE FOR BRITANNIA

Significant progress is being made in the efforts to rehabilitate the Britannia site. This progress, together with plans for the installation of a water treatment plant in the summer of 2003, the UBC millennium plug project and other community based initiatives is providing the foundation for a new, more sustainable future, for this storied community. The proposed Britannia Centre for Mining Innovation project could be an important part of stimulating a new future for Britannia. Building on the strategic location of the site and the more than 10 million people that travel past the site per year, there exists an unparalleled opportunity for developing a world class research and interpretive facility that is recognized internationally for excellence and innovation and serves as a tangible example of sustainability and its ideology.

2.2 MAJOR ELEMENTS OF THE CONCEPT

The concept envisioned for the Britannia Centre for Mining Innovation combines a world-class research facility with a major public attraction designed to be one of the top 5 destinations in the Greater Vancouver area. The common element and connector between these two is an International Dialogue and Conference Centre that serves as both a symbolic and physical link between scientists and researchers engaged in cutting edge research and the general public. The Britannia Centre for Mining Innovation will consist of a series of new contemporary structures that will support the research, dialogue and conference centre and public attractions. Together these will showcase the future of sustainable mining and minerals development.

Fig 2.1 - A widely used image, sustainable development is seen as a three legged stool, equally supported by social, environmental and economic considerations.

Fig 2.2 - Graphic of the major project components

The history and stories of mining at Britannia will be communicated through a number of restored historical buildings, including the dramatic Concentrator Building, which is a Canadian National Historic site. Complementing all of this is a vibrant commercial area based on a mining theme that provides the necessary amenities and infrastructure services that are required to support the Britannia Centre for Mining Innovation. These elements, taken together, constitute the critical success factors for the project and are defined in detail in the next pages.

2.2.1 A World-Class Research Centre

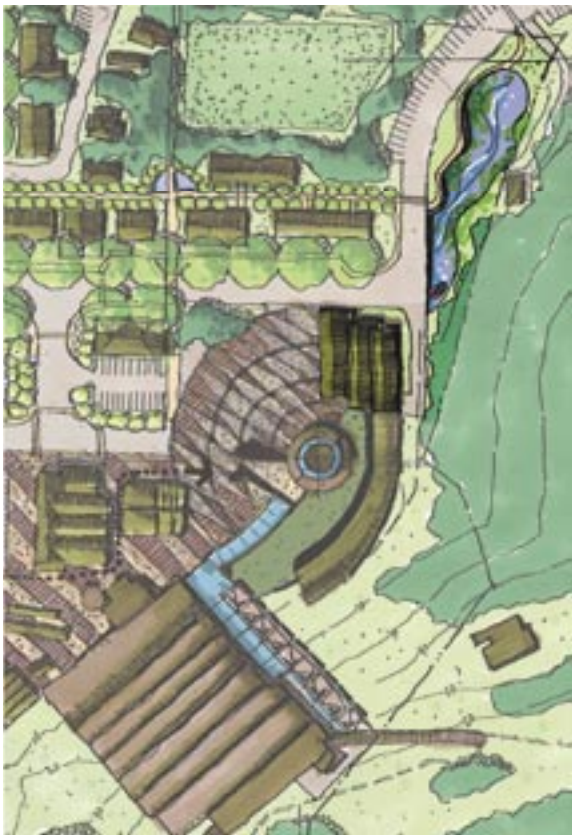
The Britannia Beach of the future can be a living testament to current and evolving research and technologies that are helping to define responsible mining practices in the new millennium. This will be made possible through a partnership between NRCan, specifically the Department's Mineral Technology Branch, and the UBC's CERM3. The NRCan-UBC partnership has been formed around the idea of developing a world-class research centre at Britannia, which constitutes one of the three legs of the overall Britannia Centre for Mining Innovation concept.

The CANMET Mineral Technology Branch (MTB) is a key research and technology development arm of Natural Resources Canada. CANMET-MTB comprises three laboratories that focus on mining and mineral sciences, metals and materials technology, and explosives. CERM3 is part of the Department of Mining Engineering at UBC and focuses on innovative research into the challenges of mining in the 21st century.

The Britannia Research Centre will have application to the work of all three of the CANMET-MTB laboratories, but most specifically to the Mining and Mineral Sciences Laboratories (MMSL). The CANMET-MMSL focuses on research and development in the following main areas of mining, processing, and related environmental issues:

- mine site reclamation;
- ground control;
- mine mechanization/automation;
- underground mine environment;
- metallurgical processing;
- mineralogy;
- mining effluents;
- tailings and waste rock; and
- metals in the environment.

CANMET-MMSL's has an international reputation for technical excellence in conventional mineral processing and are recognized leaders in the development of technological solutions that reduce the environmental impact of mining activities. CANMET-MMSL works in partnership with industry, provincial/territorial governments, universities and other research institutes. Current activities of MMSL focus on three principal strategic directions:



NRCAN/CANMET-UBC ENVIRONMENTAL MINING RESEARCH LABORATORIES

Natural Resources Canada

Ressources naturelles Canada

CANMET Energy Technology Centre - Ottawa

cerm3

Centre for Environmental Research in Minerals, Metals and Materials

- promoting sustainable development by finding technically sound solutions to environmental problems;
- improving industry competitiveness through enhanced productivity; and
- improving health and safety in the underground mining environment.

The unique characteristics of the Britannia site allow for applied research to take place within an actual mining environment. Research carried out at Britannia could lead to the development of solutions to technical challenges faced by the industry and society both within Canada and around the world. Some examples of the more prominent challenges that could be investigated at Britannia include: mitigation of Acid Rock Drainage (ARD), reclamation of contaminated soils and underground safety. These and other technical problems have broad based application to mining companies, governments and communities around the world who have an interest in mining. Given the global reach of Canadian mining companies, the opportunity for the transfer of knowledge gained through research at Britannia is significant.

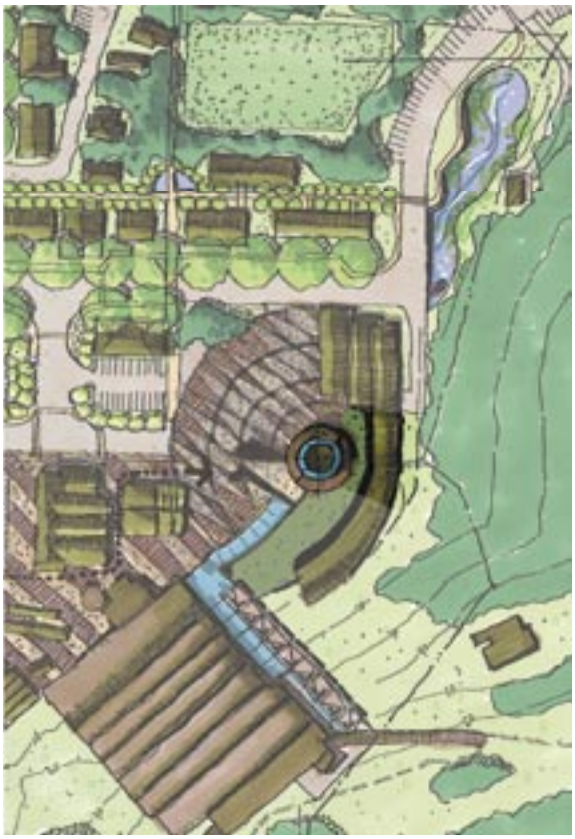
The objectives of the Mineral Technology Branch at Britannia are, in turn, complementary to those of UBC's CERM3. UBC is in the process of applying for funding from several sources including the Canadian Foundation for Innovation (CFI) to support their research objectives at Britannia. UBC received their initial funding for Britannia in the amount of $3.5 million for the Millennium Plug Project. A decision on funding for this research centre project is expected by November 2003.

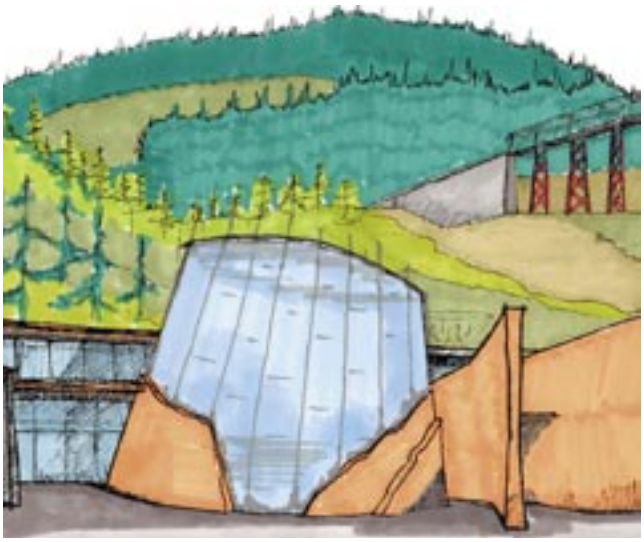
Research proposed by CERM3 at Britannia is to initially focus on the operation of a water treatment plant and the treatment of ARD from the mine. In addition, research will also be done to reduce the operating costs of the research facility with respect to renewable energy use and water recycling practices. A set of constructed wetlands is proposed for the site, which would be used to conduct investigations into passive treatment technologies.

The research objectives of UBC are consistent and complementary with the interests of NRCan. Together, the skill, expertise and global reach of NRCan with CERM3 provide an excellent opportunity for the development of a world-class research facility at Britannia. The outcomes of this research will be applicable worldwide to industry, other post-secondary institutions, governments and the millions of people globally who rely on the mineral and metals industries as a significant part of their well-being.

2.2.2 An International Dialogue and Conference Centre

An International Dialogue and Conference Centre is the second leg of the Britannia Centre for Mining Innovation concept. It will demonstrate the intense national and international interest in discussing and developing new and more sustainable ways of approaching resource development in the future. This centre will act as a 'link', both physical and symbolic, between the NRCan-CANMET/UBC Research Facility and the new Innovations Gallery discussed in the next pages. This centre can provide institutional and support services expressly designed and dedicated to foster understanding and positive action for the resource dependant communities locally, nationally, and





INTERNATIONAL DIALOGUE & CONFERENCE CENTRE

An example of constructed wetlands

internationally. The centre can host any number of industry specific conferences and internationally significant issues that require communication and collaboration. The state of the art facility will provide a venue that will again place Canada at the forefront of the industry and lead it into a positive 21st century.

In addition, this will be the area of the Centre for Innovation that will serve as the administrative centre for the entire facility and house a number of offices for use by people engaged in both the research facility and the public attractions, a conference room and break-out rooms.

"The World Bank estimates about 3.9 billion people live in today's 56 "mining countries". About 3.5 billion of them live in 51 developing and economic transition countries where mining contributes more than 6% to exports and domestic mining sectors are large."

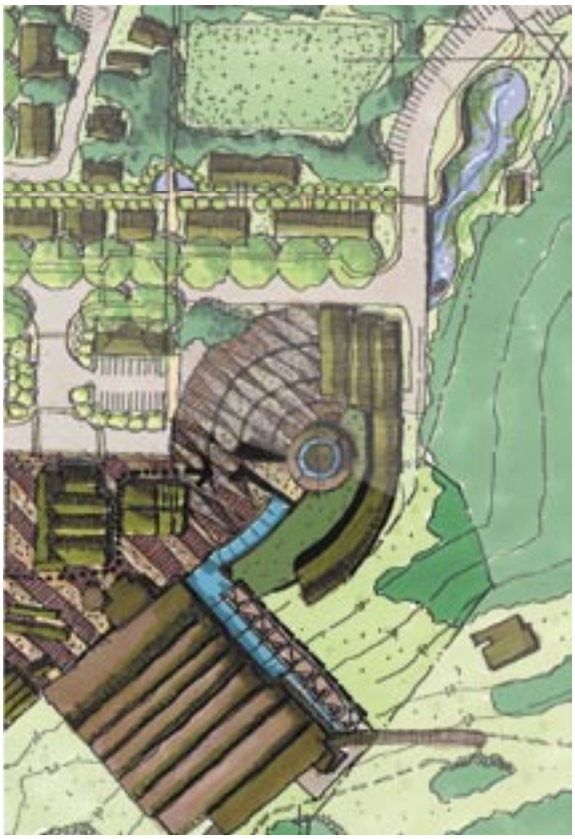
Speech to Global Mining Initiative Conference, Toronto, May 13, 2002 by Dr. Emil Salim, Chair, Extractive Industries Review Project,

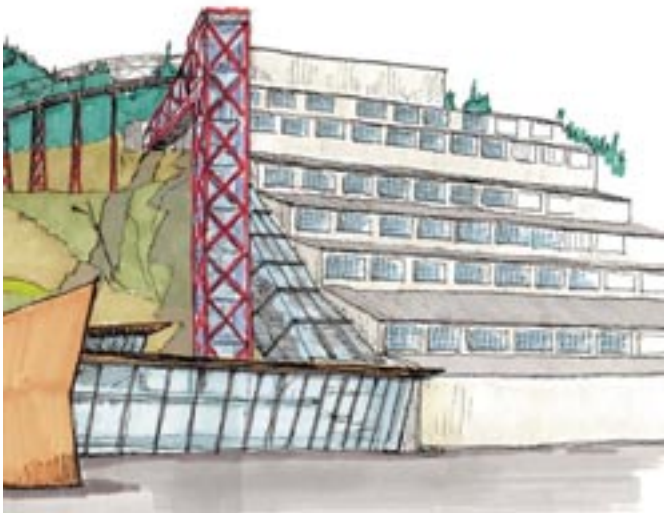
The main intent of a dialogue and conference centre such as this is to provide a venue that fosters ongoing dialogue and collaboration on issues relating to people, the environment and the responsible use of our natural resources. It will also have a number of other uses such as a place to hold conferences and meetings, serve as a resource and meeting place for stakeholders worldwide interested in discussing sustainable development issues and ideas, and as an educational facility open for use by schools, universities and colleges and other public institutions. Canada could use the dialogue centre as a place through which to establish an international awards program for sustainable mining and as a host to a repository of best practice and research publications available to all interested in this field. There remains a tremendous opportunity to link this within a broader international initiative to support sustainable development within the mining industry. The Britannia Centre for Mining Innovation could become the place in which these international efforts are focused and catalogued.

The configuration and the size of the Dialogue and Conference Centre will require careful consideration. As there are a number of other facilities in Vancouver and Whistler that are in the business of conferencing and dialogue, how the Britannia Centre for Mining Innovation is positioned will require careful consideration. It is not the intent of this project to compete with these facilities but rather to provide a unique alternative that is not currently available elsewhere.

2.2.3 A World-Class Museum/Visitor Attraction

The final leg of the Britannia Centre for Mining Innovation concept is a world-class attraction that combines a dramatic and engaging historical interpretive experience with a vision of mining today and into the future. This component of the concept is the "paid" visitor experience. It will house a state-of-the art innovations gallery, that will showcase high technology advances in the industry pioneered by Canadian companies and institutions such as robotic mining and the life-cycle use of





MINING INNOVATION GALLERY & MAIN EXHIBIT HALL

metals in all facets of our lives. It will also be the place in which to interpret and demonstrate to the world how practices have changed over time and how sustainable development is very much a part of the operating principles employed by mining companies within Canada and around the world.

Additionally, the new centre for innovation can also be a lesson in revitalization of existing infrastructure and fostering new modes of adaptive re-use . The new facility can evoke and portray Canada as a leader in sustainable development in all facets of society, through both design and technology. The new facility can reach beyond being a simple enclosure, it can act as a catalyst for new studies in designing and building sustainably. The possibilities for this new facility go much further than the simple act of building. The notion that sustainability is a driving force throughout the world today must reinforce every decision we make. The project's true intent must be the responsible treatment and use of the environment.

The Innovations Gallery/Main Exhibit Hall, illustrated on Page 15, is a centre to display and interpret Canada's commitment to sustainable development in the resource sector. The following is a partial list of some of the interpretive opportunities the Britannia Centre for Mining Innovation can create:

- Issues around the life-cycle of mining, minerals and metals;
- The materials used in construction;
- How metals and minerals are recycled for re-use;
- Mining and metals in the biomedical and pharmaceutical industries.
- The technology behind hydrogen fuel cells and their use in underground mining;
- Climate change and how Canada is implementing the Kyoto Protocol;
- How chemicals are transported in the environment;
- Marine and freshwater ecosystem science;

This new facility could present these and many more interpretive experiences and will offer a venue in which Canada speaks to the world on the leadership role the country is actively taking in finding solutions to today's environmental and social challenges.

Mill No 3 - The Concentrator Building

The Concentrator Building, a phenomenal exhibit and artifact in its own right, will be essential to the success of the whole project. This National Historic Site along with its commemorative integrity will at first be stabilized and then fully integrated into an adaptive role for communicating a message to visitors (See appendix C-3 for the Commemorative Integrity Statement). The scope and size of the building is never fully realized until a person enters it, whereupon the scale can be truly overwhelming. The building sat on the mountainside for decades as a stoic reminder of the past age of mining. Through this project it will be transformed to become a relevant symbol of progress once again. The notion of revitalizing the building is an important component of this concept and will be pivotal to telling the story of mining in Canada. Visitors will have access to several levels of the concentrator, fully interpreting the huge scale of operations that existed here.

2.2.4 Concept Esquisse Sketches

BRITANNIA CENTRE
FOR MINING
INNOVATION

MAY 2003

PRELIMINARY PERSPECTIVE

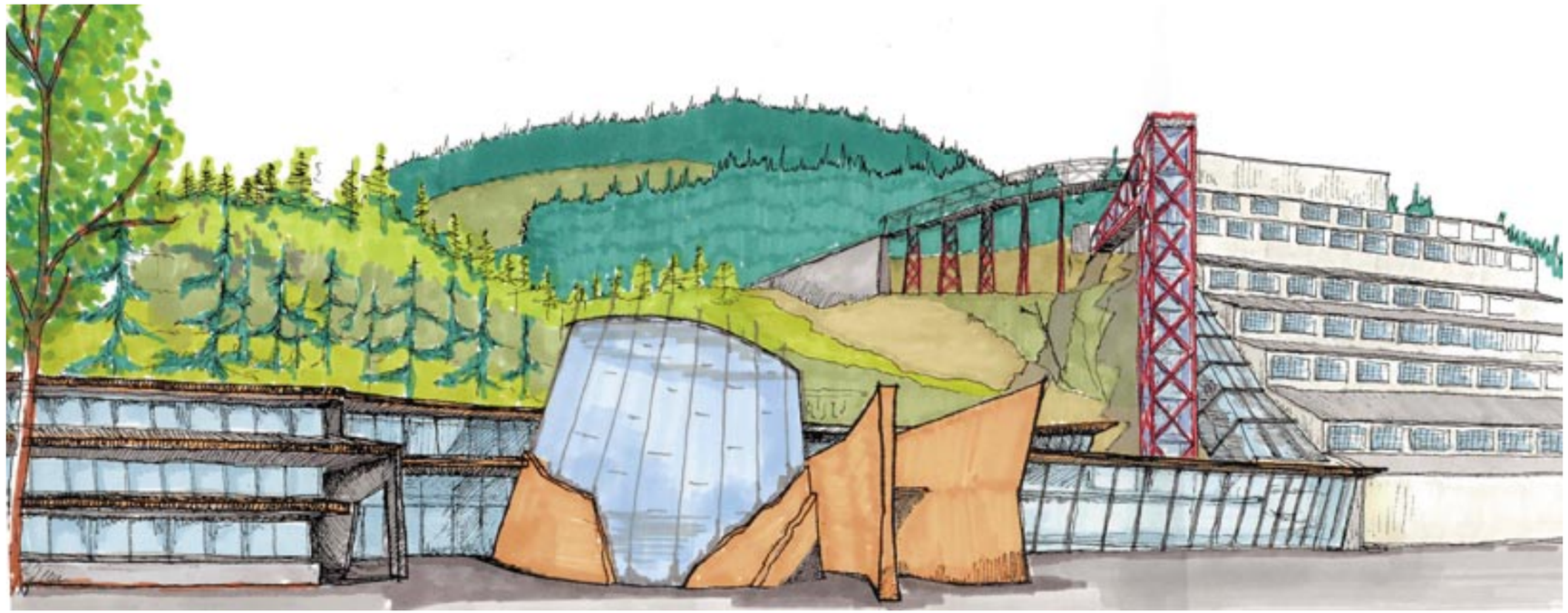


Fig 2.7 - Preliminary Perspective

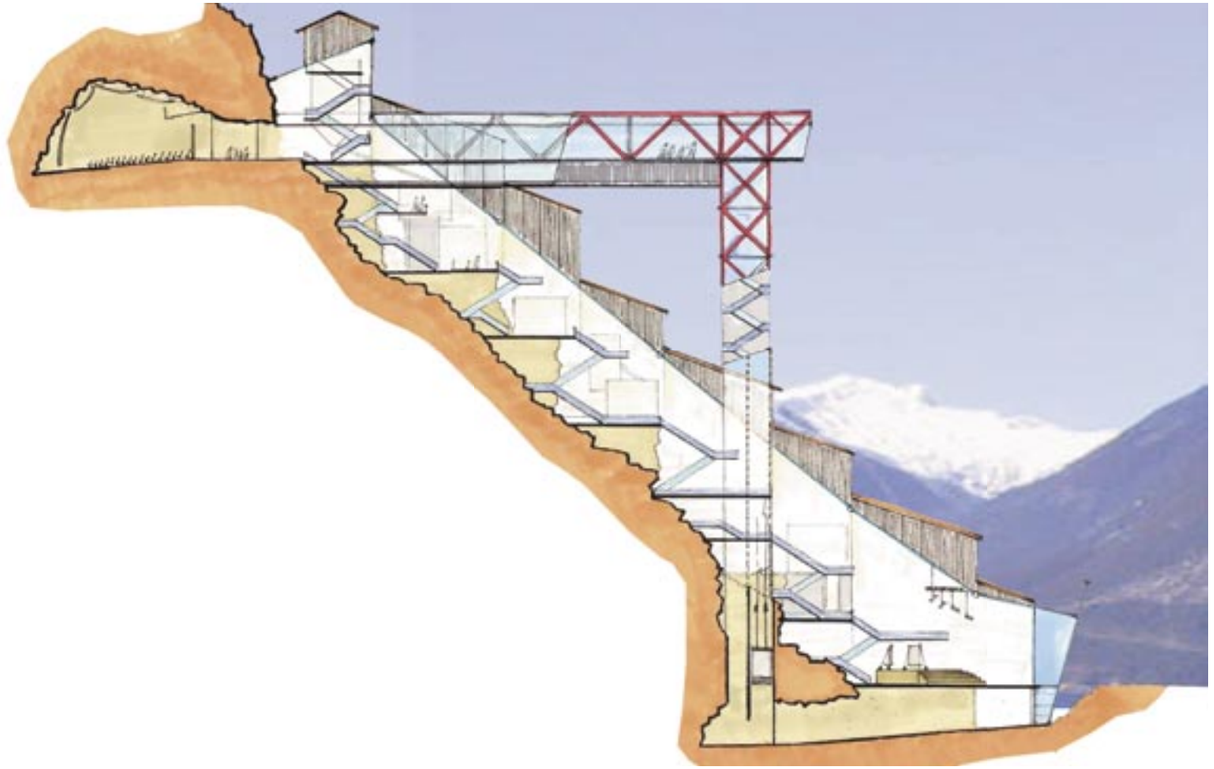


Fig 2.6 - Section through mill and People Mover

BRITANNIA CENTRE
FOR MINING
INNOVATION

MAY 2003

SECTION THROUGH PEOPLE MOVER
AND CONCENTRATOR BUILDING

2.3 INTEGRATING THE CONCEPT COMPONENTS

Originally the mandate of this conceptual design study was to assess and create an experience that was bound by the existing museum lands. It was quickly realized, however, that moving beyond the physical boundaries into the broader site was essential.

Taking into account adjacent lands and the interests of the Britannia community, a private developer, governments and the BC Museum of Mining alike was the best possible course of action to ensure success. Our reason was a simple one: a common vision for the entire area is required to make this project work.

The concept components are still notional yet they are seen as representing physical space on the site during the design development. The main theme of the site and exhibit presentations is innovation and more specifically sustainability. Each of these themes informs the other and the connection is a natural one. By utilizing the Britannia site as an example of how things used to be, the intention is to contrast mining practices of the past with the new techniques and technologies of today, including research into future improvements. To achieve all this it is necessary to provide a template to emphasize the planned relationships for the various design components. By allotting these components within a spatial or diagrammatic relationship on the site, a preliminary visual graphic of the planned interrelationships of all the individual components on site emerges. This now provides a sense of how the various components relate to the visitor experience. As the entire process moves forward into a full feasibility study a comprehensive program and list of requirements and services can be developed.

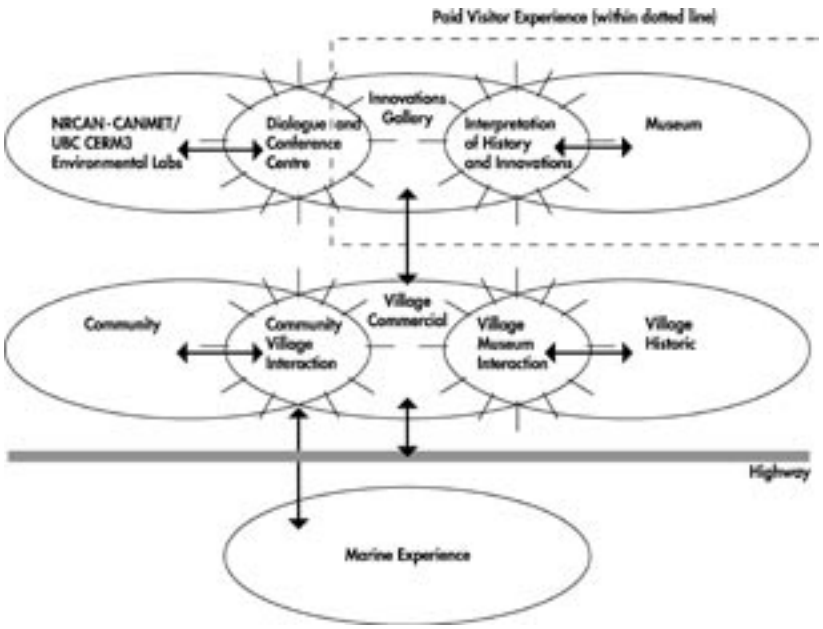


Fig 2.8 - Diagrammatic view of the spatial relationships on site.

2.4 THE VISITOR COMMUNICATIONS STRATEGY

The strategy to best communicate key themes and messages is to both complement and contrast the old with the new. Complement, in the sense that everything on the site will relate in some way to mining and offer a glimpse of the early industrial heritage of BC. Comparing old and new mining practices using the vernacular of existing, dormant, early industrial buildings simultaneously contrasting and 'reflecting' with contemporary architecture and exhibitry.

Part of this contemporary approach to architecture is utilizing materials, methods and systems that produce a project that is inherently sustainable, or as popular definitions go, 'green'. All aspects of design and development reflect the concept of sustainability as an environmental, economic and social movement for the betterment of society. To do this, a built form can imply and demonstrate itself as sustainable through all its systems, which in many ways was brought from the earth through mining minerals and metals.

Relevancy is also an important aspect for any new facilities on site. Designing and constructing with a designated National Historic Building such as Britannia's Concentrator must be done with skilful creativity. The creativity lies in acknowledging and respecting the past and what it stands for without blindly mimicking it. New architecture and buildings must be relevant to today's technologies and social values as well as aesthetic tastes. A contemporary approach to the site is introduced with a drive to reinforce the past both physically and through subtleness in building. A creative solution to a complex problem does not only stand for exhibitry and displays but can be further iterated through design and material choices as well as construction methodologies and practices on how old and new interact with each other.

An effective way of achieving a successfully themed project is through the presence of an 'authentic' atmosphere. The site, being an authentic mining town with actual equipment is one way. The fact that researchers will be conducting internationally acclaimed research in the vicinity is yet another. Britannia Beach is a community built by the mining industry, like many others around Canada. Preserving that authenticity is paramount for this community and this project. It is therefore important that visitors have opportunities to interact with people involved with the business of mining, scientists doing research into improved mining practices, and people from the Britannia community.

2.4.1 Goals

Within this context the following goals are suggested for the visitor experience, as reflected in what they will experience, see and hear during their visit to Britannia.

- Make the stories of mining relevant to the visitor by showing the important role minerals and metals play in people's everyday lives.
- Recognize and serve diverse audiences.

In general, the visitor to the site is seeking an enjoyable experience with opportunities to shop, eat, explore, relax and interact with others. There should also be recognition and celebration of the First Nations of this region: their history, stories and way of life today.[1] The community of Britannia needs to be actively engaged in this project from the beginning to ensure economic viability within the community. The facility will obviously need to provide the community with opportunities to participate in related commercial activities as well as enjoy the programs and amenities supplied. The mining community is interested in sharing innovations, presenting new sustainable technologies and showcasing mining as a high-tech and innovative industry.

The visitor experience will be based not on traditional museum exhibitory and Audiovisual presentations but rather on treating all aspects of the site and facilities as the "exhibit". This includes the buildings, landscaping, street furniture - anything that helps communicate a message consistent with the character of the intended theme. By this definition, everything on the site can be seen as an exhibit. The success of this project depends in large measure on how well all the various site components are integrated to provide one consistent, authentic, engaging and informative 'exhibit' experience. The notion of a truly interactive experience coupled with educational and informative displays and presentations will touch visitors from around the world as mining and mineral development has.

2.4.2 Message Themes

In addition to the themes and objectives of the original project brief detailed in Appendix C-1, an additional step was taken to ensure that all issues were identified. Preliminary consultations were undertaken to assist in identifying the priority messages for this project. This included a workshop in which professionals representing a broad range of interests within and outside of the industry brain stormed, ranked and prioritized the most important themes as they saw it. The main themes, ranked in order of importance, are noted below and are elaborated in Appendix C-3.

1. Sustainability
2. Benefits of Mining
3. Innovative Technology
4. Green Space and Environmental Issues
5. Society and History
6. Project Financing
7. Image of Mining

2.5 THE VISITOR EXPERIENCE CONCEPT

To fully detail the potential for a public attraction a walk-through of the visitor experience can help to visualize what will exist on the site. An understanding of how a visitor moves through exhibits and sees interpretive displays is also helpful in understanding the methodology used to design an attraction such as this. Exhibit design guidelines are elaborated on in Appendix C-2. A preliminary look at the visitor experience envisioned can be narrated as follows:

Arriving at Britannia

Coming north or south on the beautiful Sea-to-Sky highway, a traveller will come upon Britannia Beach differently. Travelling north, a visitor will descend to sea level, encounter a rock face then immediately view the west face of the Concentrator Building and Britannia Beach community. Travelling south a visitor will see the astounding concentrator structure through the cut in the trees growing ever larger as the approach continues. Turning off an expanded and well-marked highway, visitors drive up the main road of Britannia Beach with artifacts roadside and beyond setting the theme for the mining adventure to follow.

Image of the town of Britannia Beach, B.C.

The character of the town is early Britannia, sturdy little structures with minimal frills and a wooden boardwalk as a connector element. The buildings are positioned in an identifiable grid on either side of the main street, as they were originally. Open space between these buildings allow for visual connections through the site north to south. Likewise, the streets and lanes would afford views east to west. In this manner, the town reads as one collection of buildings retaining views to site activities, facilities, and surrounding scenery. A stream, that also acts as a stormwater drainage system meanders through the town to a pond lined with indigenous plants and greenery. Behind the buildings lies open green space for the community and historic buildings are restored to recapture their original character. The buildings on the main street provide the visitors and the community of Britannia with shops, restaurants, services and more. To the south, the imposing and magnificent rehabilitated Concentrator Building with the restored historic mining buildings of Britannia Mines adapted for demonstrations, and presentations by craftspeople making and selling merchandise relevant to the Britannia Beach historical past.

The Public Attraction

From the parking area visitors are drawn eastward towards the entrance of the Innovation Centre by a well-defined path. A jitney train service using a restored air powered locomotive can bring visitors from the parking area to the Innovation Centre entrance.

The Innovation Centre is slowly revealed to the approaching visitors. Elements of stark form and colour, symbolic of the mountainside and materials contained therein rise from the landscape to providing a sculptural entry that surrounds visitors as they begin their journey. The scale of old buildings reflects the early age of mining and exploration. The scale of the new Innovation Centre is respectful of that past, merging closely with the landscape yet still stands, efficiently, modern and relevant on its own. Visitors enter into a grand atrium, open and bright with natural light, it encourages visitors to begin their exploration of the story of mining–past, present and future.

Large industrial equipment on display is contrasted with the high-tech machinery of today. Interactive exhibits and audiovisual presentations will help visitors appreciate the knowledge and imagination needed to develop and operate mines in the modern age. Behind these exhibits stands a rock wall carved from the mountain backing this building. A roof deck affords a panoramic view out over the town, and down Howe Sound to the magnificent snow capped peaks and glaciers beyond.

Taking the tour a visitor is drawn along the front of the Innovation Gallery steadily ramping down where the rock slowly surrounds the group. The group is lead to a larger open cavern where everyone boards an elevator to ascend upwards to a viewing area 200 feet above ground. A connecting gallery walkway affords the visitors magnificent views up Howe Sound and of Britannia Beach. The visitor proceeds to a large, man-made cavern. Within the cavern, an audio visual presentation tells the stories of Britannia, mining across Canada as well as mining around the world. Following the film, visitors can move from this dark cave interior back out to a viewing area, again taking in the natural light. Visitors can linger in a cafeteria to enjoy the vista or have a bite to eat before proceeding back down the mountain. A train ride experience for visitors into one of the old mine tunnels, much like the ones that were used in the early days of mining at Britannia, gives the visitor a memorable underground experience. A grand stair and funicular inclined railcar runs down the length of the Concentrator Building's east face. It acts like a window, revealing the past. The grand stair is a large open space that fully reveals the inner workings and

Train ride through the Britannia Mine tunnels

A view at the base of the Concentrator Building

machinery of the old gravity-fed mill. Visitors can descend and experience the size and immensity of this building at various levels. Reaching the base, where the historic collection is presented to the visitor to learn of the past. Travelling back into the new innovation gallery visitors experience the present and the future of mining and mineral development.

Britannia's Great Outdoors

After leaving the Innovation Centre, visitors still have much to see and do in Britannia. Trails invite visitors to explore the hills behind the town. These hills are rich with the remains of old buildings and mining equipment. Discreet signs highlight and describe these artifacts as well as the native plants found along the way. Trail maps and directional signs allow visitors to choose a length of walk appropriate to their abilities. The more adventurous will be rewarded with some spectacular views of sea, sky, and mountains on their ascent up into the hills above the town.

For those more interested in shopping and eating, the village provides great opportunities for both. As visitors move through the village, they can cross the highway and walk towards the waterfront area busy with boats of all sizes and shapes coming and going.

A seawall walk gives visitors chance to sit and enjoy ocean views. A play area close by with an industrial maritime theme provides something for kids of all ages. Snack bars offer light refreshment or visitors can choose the restaurant on the point for great seafood with one of the best 180 degree ocean views anywhere on the coast.

Beautiful views are everywhere at Britannia Beach.

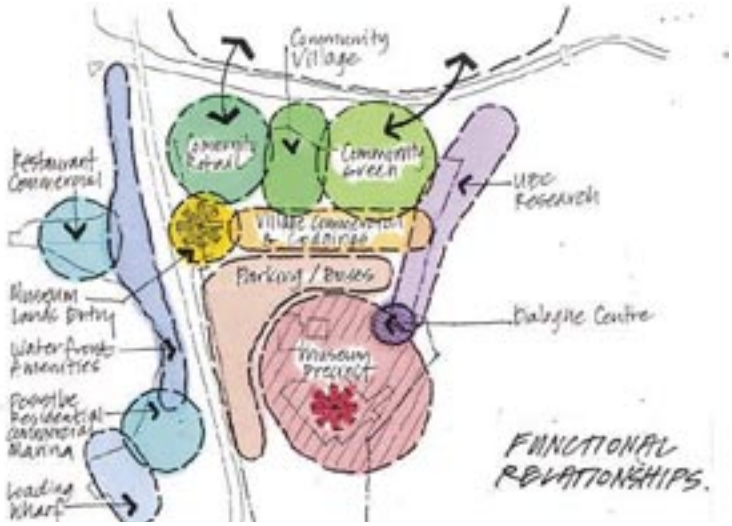
2.6 WHO WILL VISIT THE BRITANNIA CENTRE FOR MINING INNOVATION?

The majority of visitors to the Britannia Centre for Mining Innovation will be residents of the Greater Vancouver area and tourists. As a major attraction in the region, visitation patterns similar to the top attractions in the region can be expected. The business case for this project (discussed in Chapter 4) has been based on the Britannia Centre for Mining Innovation being in step with the top five attractions in Vancouver which draw between 400, 000 and 900, 000 visitors per year. The highest visitation will be in the summer months with specialty program and school groups playing an important role in the shoulder season and winter months. The audience for Britannia does not end with tourists and residents of the region however. It will also include:

- Researchers from around the world,
- International government dignitaries visiting Canada who are interested in Canadian resource development practices and technologies;
- National and international industry representatives interested in Canadian mining technology;
- Representatives of educational institutions that may be interested in the subjects being discussed at the Britannia Centre for Mining Innovation or who are participating in conferences and symposiums with their industry counterparts;
- Convention groups and multi-disciplinary professionals involved in corporate development and networking internationally.

(Footnotes)

[1] It is recognized that the development of material relating to Canada's Aboriginal peoples will require considerable collaboration with individuals and communities of Aboriginal descent, particularly with the people of the Squamish First Nations whose traditional territory encompasses Britannia. It is also understood that a major cultural centre is being considered in Whistler and that the Britannia presentations will obviously need to complement these in some way. The resources available for this brief study have not permitted the time required for a meaningful exploration of these issues. Therefore, although Aboriginal themes are understated within this report they are seen as important to this project and will be carefully considered in the work to follow.



3 SITE DEVELOPMENT

3.1 SITE DEVELOPMENT STRATEGY

A critical analysis of the site and development of a series of working ideas that apply specifically to the Britannia Beach property has been undertaken. This strategy incorporates many of the design components with such site development studies as land-use zones, pedestrian and vehicular traffic and view corridors.

The methodology used to develop a preliminary site development strategy for the Museum Lands layers new functional requirements for the Britannia Centre for Mining Innovation over the existing conditions of the site and its environs. Detailed site development sketches and notes are in Appendix B. Sustainability, the Visitor Experience and the Community's needs are the primary decision-making drivers of decision making for a Masterplan. These three drivers are inseparable and interdependent.

It should be noted that for this preliminary work the assumption has been made that the existing ground plane is our base regardless of any future remediation. It is understood that the plan may have to accommodate changes in the future. The residents of Britannia Beach have a direct interest in the northern portions of the site with their playing field. The site development strategy has embraced a theme of considering the needs of the community on a holistic basis rather than a fragmented way

Fig 3.1 - Key map of southwest British Columbia

Fig 3.2 - Aerial photo of the Britannia Beach town site.

Panoramic view of Britannia Beach.

3.2 SITE AND CONCEPT

In order to effectively communicate the ideas being described in this report we have considered the entire site including lands adjacent to the museum. Taking the next step and sketching these ideas, spaces, interchanges on the Britannia site we can see a formal concept for the plan evolving. The concept plan and the constituent parts identified in the previous chapter are a large part of the Conceptual Masterplan shown in its entirety on page 29.

View of the town site from the top of the concentrator

In short, the plan is a conceptual idea. There are many different solutions and the path chosen will be depend on a number of different factors. The first step - identifying a concept, its principles and what to achieve - is presented in this report. The next step is to determine a design route for the project; Identify and detail what will be required to fulfil this concept and the principles outlined in this report; determine the physical shapes and define the parameters; explain the process of physical integration of this new concept within the site and begin to determine the path that will lead to the best possible experience both ecologically and economically for all stakeholders.

The image shown on page 29 is a conceptual masterplan of the Britannia Centre for Mining Innovation and on a larger scale the Town of Britannia Beach. The Britannia Centre for Mining Innovation including the Research Labs, The International Dialogue and Conference Centre as well as The Innovations Gallery and Concentrator Building is the basis of the conceptual plan. The Concentrator building is discussed throughout this document and a structural assessment of the building is provided in Appendix A. The other historic buildings are briefly defined and explained in the appendix but they remain inherent to maintaining the character of the town.

The concept plan identifies all the key components for the site and the Britannia Centre for Mining Innovation. Along with these, other key components, inherent to the philosophy of the design, will sustain and complement the Innovation Centre. They include a commercial centre for community, open green space for visitors, hikers and the community, the potential for re-establishing a waterfront presence including ferry service and a cruise ship berth, restaurants and amenities.

3.2.1 Conceptual Masterplan

BRITANNIA CENTRE FOR MINING INNOVATION

MAY 2003

CONCEPTUAL MASTERPLAN

4 THE BUSINESS CASE

4.1 BACKGROUND

The business case for the Britannia Centre for Mining Innovation will ultimately rely on two main factors, the partnerships program and the world-class museum and visitor attraction.

The partnership program, will bring the necessary energy, synergy and commitment to ongoing research and dialogue related to sustainability and natural resource development issues. It will generate considerable ongoing investment in research, commitment to funding best practices publications, resource libraries (virtual), and conferences, symposiums and awards ceremonies, all of which contribute revenues to the Britannia Innovation Centre.
A major world-class museum and visitor attraction, appealing to a resident market in British Columbia and visitors from the rest of Canada and internationally will also generate revenues. The Britannia Centre for Mining Innovation will serve as a significant destination, offering an outstanding and relevant visitor experience related to sustainable mining in a beautiful setting and with all of the support amenities one would expect from one of the top five attractions in the Vancouver area.

In order to achieve sustainability for the visitor experience component of the concept, Britannia must establish itself as a destination. The market opportunity is significant including:

- the visitor market to Vancouver including both overnight and cruiseship visitors;
- the resident Vancouver Greater Vancouver Regional District (GVRD) market;
- summer and winter markets for Whistler – the vast majority of which pass by Britannia on the Sea-to-Sky Highway both to and from Whistler; and
- specialty markets including convention participants in Vancouver, a specialty meeting market that may hold events and sessions in the Britannia Innovation Centre.

The business case for the Britannia Centre for Mining Innovation will be developed through a comprehensive feasibility analysis (see Chapter 5 – Next Steps). The key consideration is the degree to which the project can achieve sustainability on an operations basis.

The market opportunity described in this chapter indicates that there is good reason to expect that the project can meet this requirement, provided it is designed to have a strong destination orientation and proper market positioning. A basic premise of the project is that the world-class museum and visitor attraction aspect of this concept will support the research and dialogue centres.

An overview of the potential market opportunity is discussed below. It begins with a review of attraction trends and implications for establishing Britannia as one of the top five attractions in the Vancouver area.

4.2 ATTRACTION TRENDS

Attractions face considerable competitive challenges in today's markets. As more attractions are introduced to the marketplace and as more destinations vie for tourists, major attractions play a key role in the competitiveness of any destination. At the same time, most of the significant attractions in cities throughout North America are managed either by the public sector or by non-governmental organizations. They have arisen from a need on the part of the public sector to reflect public values to protect historical artifacts (e.g. museums), showcase historical stories particular to a destination, impart messages related to scientific endeavours (e.g. science centres), protect and interpret nature (e.g., national parks) as well as other similar motivators. As government agencies have gradually curtailed financing support for attractions, attraction managers have found themselves in positions where they need not only to ensure that the integrity of the values and messages for which they are responsible are successfully delivered but also to ensure a self-sustaining attraction, to the extent possible. As such, they find themselves in the tourism, events and meetings business, in addition to operating as an attraction.

Some of the key competitive trends driving the attractions business today include:

- the introduction of interactive and multi-media exhibits and programming;
- maintaining relevance for the story lines and the main messages of an attraction – including constant "refreshing" of exhibits;
- the adoption of professional, private sector oriented marketing and business practices;
- seeking multi-use from the physical facility including such strategies as providing space for meetings, events and even weddings;
- strengthening linkages to communities in which the attractions are located and fostering partnerships in corporate programs that help to support attraction activities and drive additional business for the facility.

These are all trends that must be carefully considered in the development of a major "attraction" at Britannia. In addition to these broad trends, there are a number of attractions strategies that can be adopted as a strategy for success on the part of attractions. There are several examples in Vancouver.

Strategy	Example
Destination approach	Capilano Suspension Bridge/Canyon (800,000 visitors annually) – where the suspension bridge is the main attraction but the facility includes a range of shopping opportunities and food services. It is marketed as a destination attraction.
Entertainment "Edu-tainment" approach	The Science Centre (600,000 visitors annually), with its strong multi-media experiences base and with the IMAX Theatre, all geared to providing a 2+ hour experience for visitors.
Community integration approach	Science North in Ontario, with a very strong community based programming partnership, programming for children including interactive and ongoing programs such as providing "trading" programs for children in the community with storage at Science North. The Vancouver Aquarium has also excelled at this.
Education programs approach	The Vancouver Aquarium (900,000 annually) which has "reinvented itself" with an extensive interpretive program base, led by Vancouver Aquarium biologists and specialists. It is well integrated into the community and provides a foundation for business for the Aquarium.

Table 4.1 - Different approaches to attractions

4.2.1 Implications for Britannia

Britannia has both pluses and minuses in terms of location. It is situated along the Sea-to-Sky Highway, rapidly becoming one of Canada's most famous drives and home to some 2 million vehicles per year travelling from Vancouver to Whistler. At the same time, it is about a one hour driving time from Vancouver – a long distance for a typical 2-hour attraction visit.

The most strategic approach for Britannia Centre for Mining Innovation in terms of generating revenues for operations will be to position the project around the market opportunities it has – a generally up scale Whistler-based tourism market, a destination for a day trip from Vancouver, a meeting centre for the project partners, and an amenity stop for highway travellers who could be enticed to stop to shop or dine.

While the research facilities, dialogue and conference centres and the Britannia Centre for Mining Innovation show-casing resource development and sustainability will all be an important feature in generating visitor demand, in today's attractions markets it will not be enough. Even with the amount of traffic passing by on the Sea-to-Sky Highway, there will need to be a major "show-stopper" experience in order to drive demand. It is for this reason that the people mover bringing visitors from the Innovation Centre to the top of the Concentrator building, the underground experiences and the train ride, together with an audiovisual presentation in the mountain, have been included. This will be complemented by high quality shopping and food services – catering to a sophisticated and national/international audience.

Under these circumstances, the success criteria for the Britannia Innovation Centre will include the following:

- a destination orientation – establishing Britannia as a "must stop" location with all of the services;
- a travel generator experience – rising to the top ten attractions level for the Greater Vancouver Area;
- quality interpretation and experiences – making sure that integrity and values are evident in the messages in are responsive to the market expectations concerning sustainability, quality and respect;
- high-quality shopping and food services – catering to a sophisticated and national/ international audience;
- market positioning to appeal to an international audience;
- ensuring that the mining industry world-wide and agencies that deal with/collaborate with the mining industry are involved.

4.3 THE AVAILABLE MARKET IN VANCOUVER

This market comprises both overnight visitors and residents. The total market was estimated at 10.4 million in 2001, of which visitors comprise about 80% (8.3 million) and residents about 20% (2.0 million).

4.3.1 Vancouver Visitor Market

Overnight visitation to Vancouver in 2001 was 8.3 million, based on growth rate forecasts developed by tourism authorities in Vancouver. Growth in the tourism market is expected to increase to over 10 million visitors annually by the Year 2010.

Market Segment	2004	2010
Overnight visitors (excluding cruise)	8.2 million	9.75 million
Cruise visitors	0.87 million	1.2 million
Total	**9.07 million**	**10.95 million**

Table 4.2 - Source: Tourism Vancouver and Port of Vancouver.

For the overnight visitor market, Canada is the primary market source, providing about 58% of all visitors in 2000. The top provincial markets include BC (30%), Ontario (about 11%) and Alberta (about 8%). The second most important market source for Vancouver overnight visitors is the US (26.7%), followed by Asia Pacific (9%) and Europe (5%).

Based on surveys conducted by Statistics Canada (1999) overnight visitors to the Greater Vancouver Area show high interest in sightseeing (58%), visiting friends and family (57%), and parks and historic sites (36%). It is particularly relevant for new attractions in that friends and family are excellent "attractions marketers", taking their visitors to explore the destination and participate in attractions. The propensity for sightseeing and visiting parks and historic sites provides a strong indication that a significant proportion of the market constitutes a target market for such a facility as the Britannia Centre for Mining Innovation.

4.3.2 Cruise Market

The Vancouver cruise market grew from about 700,000 passengers in 1996 to 1.1 million in 2001 (both embarking and disembarking). Eighteen percent or more growth rates experienced from 1996 to 2000 ended with 9/11 impacts, resulting in a growth rate of only 0.6% in 2001. The cruise industry expects that cruiseship travel will rebound with an average growth rate of 5%-6% annually in the next few years, as shown in the table below.


Canada Place cruise ship berth.

Total (individual) cruise passenger visitation is characterized by 42% who stay overnight, 23% who stay an average of 4.2 hours in Vancouver, and the remainder (35%) who stay less than one-half day (Exhibit 7.1). The former are important potential markets for the Britannia Centre for Mining Innovation. Overnight visitors taking a cruise also showed a high propensity for sightseeing (76%), parks and natural attractions (67%), and other paid attractions (24%), and museums/art galleries (21%).

4.3.3 Resident Market

The Vancouver resident market is forecast to grow at about 1.4% per year with a slightly lower growth rate forecast for the school population. Comprising about 20% of the available market for Britannia in any given year, forecasts for this market show an increase of the resident population excluding school aged children to about 2 million by the Year 2010. The growth in school population is modest, increasing from about 290,000 in 2004 (estimated) to 301,000 in 2010. The resident population from which a Britannia Centre for Mining Innovation can draw markets is significant. In addition, facilities such as these rely on generating winter business through such techniques as school programs developed in conjunction with school boards and districts. This is an important market for any attraction during the off season and also one that encourages visits from others through word of mouth. While it is a journey to get to Britannia from the Lower Mainland, this should be readily packaged as a day excursion for school children perhaps including a stop at other locations in the vicinity such as Squamish, Shannon Falls, and others.


Downtown Vancouver.

4.3.4 Vancouver Attractions

A recent study (1999) found that key Vancouver attractions influence almost 70% of visitors interviewed in their decision to visit the city. This same survey also noted that 56% of the sample had visited at least two of the associated attractions.[1]

The new Tourism BC project, the "GVRD Attractions Data Collection Project", assembled attendance data on the top 11 GVRD attractions[2],and shows that they received more than 3.2 million total visitors in 2001. July and August represent one third of the total attendance received. Total attendance from May to September comprised 60% of all attendance recorded.

Month	Attendance	% of Total
January	172,496	5%
February	189,428	6%
March	249,360	8%
April	224,554	7%
May	246,468	8%
June	318,463	10%
July	511,151	16%
August	539,844	17%
September	288,668	9%
October	159,300	5%
November	108,418	3%
December	207,565	6%
TOTAL	**3,215,715**	**100%**

Table 4.3 - Source: Tourism BC, 2002

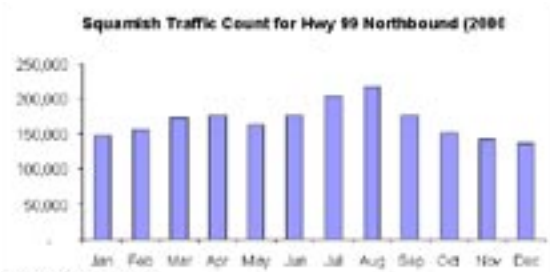
The visitor performance of selected GVRD attractions for 2001 is significant. Grouse Mountain leads the group at over 1.1 million visitors per year with the Vancouver Aquarium attracting 905,000 in 2001 and the Capilano Suspension Bridge attracting 800,000. Science World attracts about 600,000 visitors per year and the CN IMAX theatre located at Canada Place attracts about 400,000 annually.

4.4 TOURISM IN THE WHISTLER-SQUAMISH AREA

The Whistler destination provides an excellent market opportunity for Britannia Centre, attracting as it does almost 2 million visitors per year. Important features of the market opportunity are discussed below.

4.4.1 Sea-to-Sky Highway Use

An estimated 2 million vehicles pass by the Britannia site every year. In 2000, about 6,800 vehicles per day were counted by Ministry of Transport officials on average during the summer (June through August). Winter was not significantly less, with about 5,600 annual average daily vehicles on the Sea-to-Sky Highway during the winter months in 2000. Northbound traffic counted at Squamish in 2000 showed an estimated 2 million vehicles heading north to Squamish and beyond.



Graph 4.1 - Source: Ministry of transport.

4.4.2 Whistler Tourism

In 2001, Whistler attracted about 2.04 million visitors, of which 59% were summer visitors. This represents a decline from 1999 attributable to the 9/11 event. Whistler day visitors ranged from about 6% in the winter months (1999/2000) to about 14% during the summer months (2000). Winter visitors to Whistler showed a relatively even distribution by major market origin as compared to summer visitors.

Visitor Type	Winter (% of visitors)	Summer (% of visitors)
Canada	31%	44%
US	35%	36%
Overseas	34%	20%

Table 4.4 - Seasonal Visitor Table

4.5 SPECIALTY MARKETS

Britannia will be host to specialty markets, beyond those typical of any attraction in the Vancouver area (tourists, residents and school children). These include the movie industry, research projects on-site, and conferences/symposiums.

The Movie Industry. Britannia has attracted the movie industry to shoots in the area and on the property of the BC Mining Museum. This has proven to be a significant source of revenue for the mining museum and is expected to continue. The presence of movie-making activity on the site adds additional appeal to visitor markets. It is expected that this market will continue to provide a source of revenue for Britannia.

An International Research Community. This market, while modest in numbers, will contribute to Britannia activity because of their full-time presence while on research projects at the Natural Resources Canada/UBC research centre. It will include an international and national cadre of researchers who will probably work full-time at Britannia and live in the vicinity of Britannia while undertaking research projects.

The Conference and Symposium Market. This will range from conferences on sustainable development and resource use to symposia on specific issues related to local environmental or development issues for smaller groups to annual meetings of corporations and institutions. The availability of a Conference and Dialogue Centre provides an important infrastructure for the research activities of Britannia, the Innovation Centre, and the potential to host a variety of meetings and conferences. In off-peak times, the facilities can be utilized for local and regional activities on a rental basis.

4.6 RESEARCH, DIALOGUE AND CONFERENCE CENTRES

The business case associated with the Research Centre and the Interantional Dialouge and Conference Centre have not been explored in detail in this report. These aspects of the project will require their own detailed assessment in the next phases of this project.

Notwithstanding the lack of market information on these aspects, several key considerations should be noted. Regarding the Research Centre, the partnership between NRCan and UBC combines for a powerful synergy of interests and resources which will help to ensure the relevancy and marketability of the research both nationally and internationally. With respect to the dialogue and conference centre, there exists tremendous potential to attract parties to the site if it is developed in a manner that caters to an international audience. Infrastructure such as hotel accomodations would be needed for this to be successful and would require significant private sector involvement.

4.7 CONCLUSIONS

The market opportunity for the Britannia Innovation Centre is significant. It can draw on the markets exceeding ten million for Vancouver and Whistler including the resident market for the visitor experience. Moreover, Britannia is located on the Sea to Sky Highway, with over two million vehicles travelling northbound past the site every year.

Market Segment	2001
Visitor Market - Vancouver	8,347,000
Visitor Market - Whistler	2,030,000
Resident Market - Vancouver	2,048,000

Table 4.5 - Market Opportunity

With the concept designed to establish Britannia as a destination attraction including an exciting, high travel generator component, a relevant and high quality visitor experience and shopping and dining amenities, one can reasonably expect that Britannia could become a top five attraction in the region. Add to that the synergy and extensive market awareness that will be achieved with local, national and international partners through the research, innovation and dialogue centres, and one can further expect a continually relevant and refreshed attraction contributing to long term sustainability. A comprehensive business plan will be required to test and refine the concept and a sustainable business model. This preliminary assessment of the market opportunity provides confidence that the financial sustainability objectives for operations can be achieved.

(Footnotes)

[1] Marktrend, 1999. The attractions were the Burnaby Village Museum and Carousel, Capilano Suspension Bridge, CN IMAX Theatre, Dr. Sun Yat Sen Classical Chinese Garden, Grouse Mountain, Harbour Cruises Ltd., Hell's Gate Air Tram, The Lookout, Minter Gardens, Science World, and the Vancouver Aquarium

[2] Capilano Suspension Bridge, CN IMAX Theatre, Dr. Sun Yat Sen Classical Chinese Garden, Grouse Mountain, Harbour Cruises Ltd., Hell's Gate Airtram, The Lookout!, Science World, Vancouver Aquarium and Bloedel Conservatory

5 NEXT STEPS

5.1 MOVING FORWARD

The Britannia Centre for Mining Innovation concept provides a sound framework for proceeding to feasibility analysis and the preparation of a business plan. One of the key challenges will be to organize for implementation once there is consensus from partners on the business plan. Borrowing from previous successful experiences of the Federal Government on development projects involving many partners, it is suggested that a "Britannia Centre Development Corporation" (BCDC) approach be taken to meet implementation requirements.

5.2 FROM CONCEPT TO BUSINESS PLAN

The overall implementation approach is shown in Exhibit 1. The concept provides the basis for proceeding to detailed planning, research and analysis sufficient to establish the feasibility for Britannia Centre for Mining Innovation. This includes several components:

5.2.1 The preparation of a Master Land Use Plan for Britannia Beach

For this purpose, a partnership committee is recommended to oversee development of the Master Plan and ensure that project will complement and enhance existing and planned land use activities in the Britannia Beach area. The Master Land Use Plan should include specific consideration for community protection and enhancement, public access to the waterfront associated with the project activities, pedestrian and traffic circulation, heritage preservation and signage.

5.2.2 Partnership potential

One of the strengths of the Britannia Centre for Mining Innovation concept is the commitment of a variety of partners from international and national organizations to local participants. The feasibility analysis and business plan will need to specify potential roles and financing for the project in order to shape the final form of the Britannia Centre Development Plan. The range of potential partners for the project is shown in the table on page 38.

Area	Illustrative Potential Role	Comment	Potential Partner
Research Centre	▪ Site remediation ▪ Participation in research programs	Site remediation including research and environmental management projects directed by UBC have been ongoing for some time, funded by industry. The ongoing research can be expanded through the intent of UBC to establish a research centre for best practices and sustainable mining at Britannia. Their work has already attracted international attention and can form a strong foundation to illustrate to the public how mining practice can be sustainable and to demonstrate to the world industry how best practices in sustainable mining can be achieved.	▪ UBC ▪ Mining industry ▪ Natural Resources Canada ▪ International agencies such as United Nations and the World Bank ▪ BC Government agencies ▪ International research and educational institutions
The Museum/ Visitor Attraction	▪ Funding support for creating and delivering the visitor experience ▪ In kind support for interpretation ▪ Sponsorships	Collaboration among partners has already commenced with the identification and ranking of key themes/messages for the Britannia Innovation Centre. (See Chapter 4). Continuation of this partnership and attraction of partners to assist in financing through both financial contributions and in kind services will be an important aspect of concept implementation. Sponsorships will play an important role and could range from financial contributions to sponsorship of specific historical, present day and future "rooms" or exhibit spaces and interpretive elements in the facility.	▪ Local and international mining industry ▪ International agencies ▪ Federal Government ▪ BC Government ▪ the corporate sector (including mining and other sectors such as hospitality) ▪ suppliers to the industry including those involved in the original mine and concentrator building ▪ BC film industry ▪ First Nations ▪ Asian-Canadian cultural organizations.
Dialogue and Conference Centre	▪ Sponsorship of research publications and best practices series ▪ Sponsorship and support for industry meetings & symposiums ▪ An annual awards program for sustainable mining practices	The Dialogue Centre will touch on many aspects of sustainable mining practice world-wide. It will be the repository of sustainable best practices, a communication facility for discussing and publishing research results, a mechanism through which annual sustainable mining best practices awards will be identified and presented, a forum for dialogue and discussions on various aspects of sustainable mining including corporate governance practices related to sustainable development.	▪ International mining industry ▪ National mining industry ▪ World Bank, United Nations and other agencies interested in mining issues ▪ Federal Government agencies ▪ BC Government agencies ▪ UBC and other educational institutions ▪ Research institutions ▪ BC hospitality industry

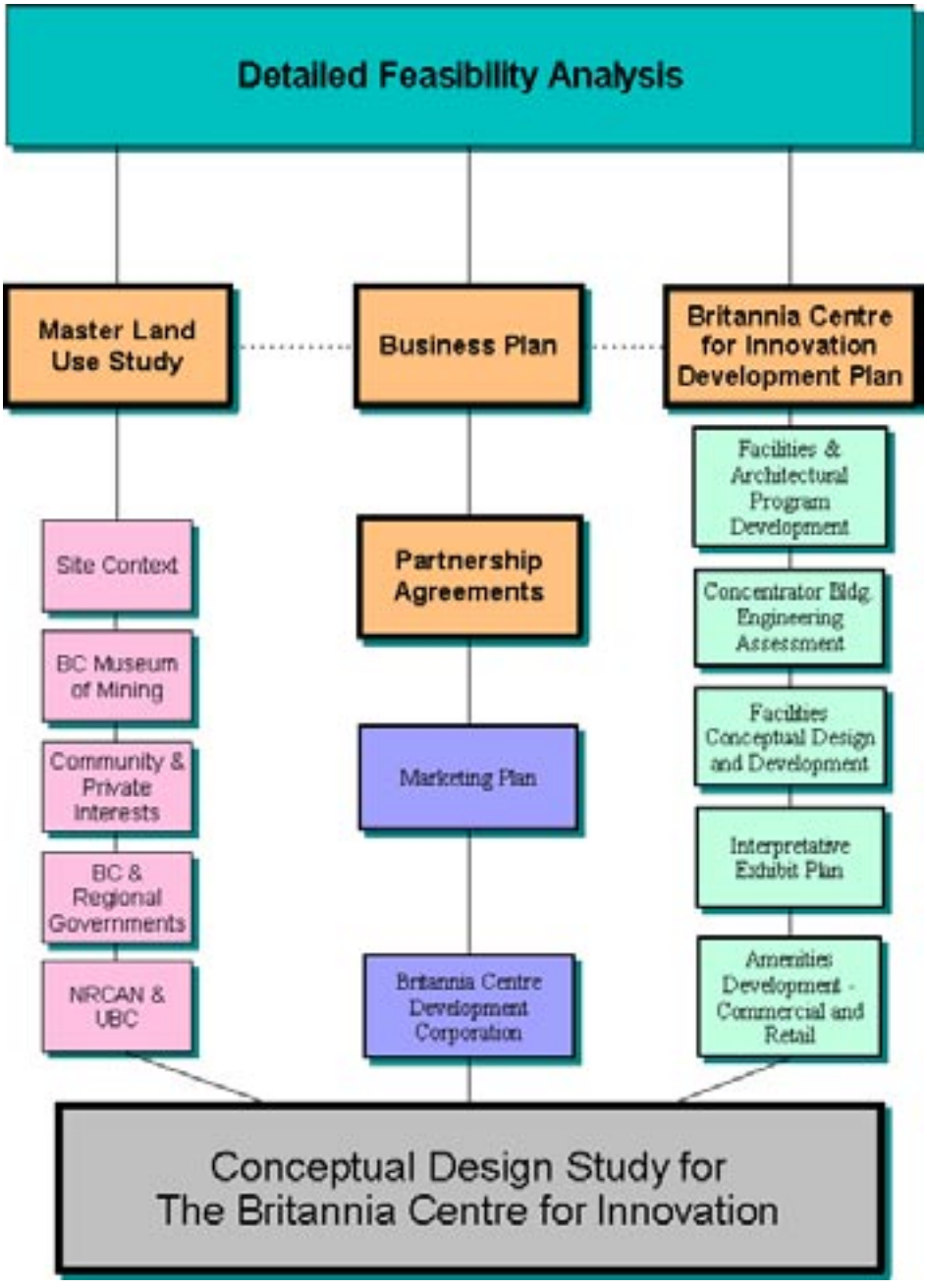
Table 5.1 - Potential partnerships in concept components.

5.2.3 Preparation of the Britannia Centre Development Plan

This includes architectural and engineering analysis related to the proposed concept components, the preparation of a comprehensive interpretation and exhibitry plan, visitor services facilities, restaurants and retail space, and a detailed market analysis to test market potential. The Britannia Centre Development Plan will be developed in parallel with the Master Land Use Plan for Britannia Beach and complement the provisions of the Master Plan.

Following these steps, the results will be synthesized as part of a comprehensive feasibility analysis including financial forecasts. The conclusions of the feasibility analysis provide the basis for the preparation of a comprehensive business plan for the Britannia Centre for Mining Innovation.

5.2.4 Feasibility Study Organizational Chart



5.3 FROM BUSINESS PLAN TO IMPLEMENTATION

The proposed organizational approach for implementation involves the creation of the BCDC which is mandated with responsibility for implementation on behalf of the partners in the Britannia Centre for Mining Innovation. This is a technique that has been used successfully by the Government of Canada to encourage redevelopment of many of Canada's urban waterfronts (e.g., Halifax, Toronto Harbourfront). In this case, a corporation comprising all levels of government (local, provincial and federal) created a business entity including private sector participation with the authority to implement the waterfront development plan. A model such as this could be appropriate for the Britannia Centre for Mining Innovation.

A business plan, will set out proposed roles and responsibilities for each of the partners in the project. This will include agreement on the Master Land Use Plan, the Britannia Centre Development Plan, site landscaping, circulation and public space elements,. It will also include partner roles and responsibilities including proposed financing contributions by partners. Finally, the business plan will set out the structure for the BCDC and its mandate. The corporation structure should include all participating levels of government, The BC Museum of Mining, together with national mining industry representation, the community, UBC, and other partners as appropriate. The corporation would be structured as a legal entity with authority under its charter to carry out the implementation for the Masterplan, operate the Britannia Centre for Mining Innovation, raise funds as appropriate, and develop land consistent with the Britannia Centre Development Plan for those parcels of land transferred to its ownership by the partners.