

HEALTH IMPACT ASSESSMENT IN ENVIRONMENTAL ASSESSMENTS:

THE CANADIAN EXPERIENCE

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Agenda

- Overview of Environmental Assessment (EA);
- Canadian EA process;
- Health & Health Impact Assessment (HIA) – definitions and concepts;
- HIA as a component of EA;
- Application of the determinants of health concept;
- Determinants of health using health indicators;
- Case Study – Jericho Diamond mine;



Environmental Assessment of Development Projects

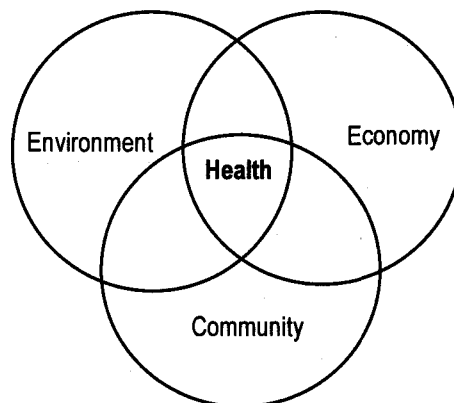


- A **planning** tool to **identify**, **assess** and **mitigate** potential consequences of a project or activity on the biophysical and the socio-economic environment and human health before the proposal is allowed to proceed
- A single process that **integrates** all relevant environmental, **health and safety**, socio-economic, community, and aboriginal issues together.



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Health: An Integral Part of Environmental Assessments



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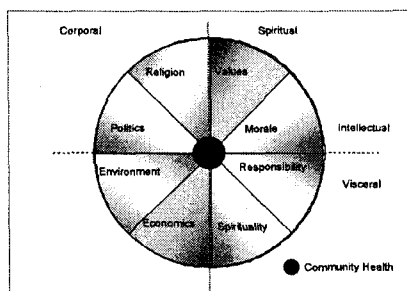
World Health Organization's Definition of Health

- state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (1967).
- Includes the extent to which an individual or a group is able, on the one hand, to realize aspirations and to satisfy needs, and on the other, to change or cope with the environment (1984).



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Canadian Aboriginal View of Community Health



Source: Henry Lickers (2000)

Health:

"Obtaining and maintaining a balance of all aspects of the self -mental, emotional, spiritual and physical - with and through the help and involvement of the family and the community."

- First Nations of British Columbia



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Health Component of Environmental Assessments

- Historically, the impact on *physical health* has been the main focus of the health component of environmental assessments.
- More recently, the *social, community* and *psychological* dimensions of health and well-being are being incorporated.



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Health Impact Assessment (HIA)

Canada has adopted the following definition of HIA:

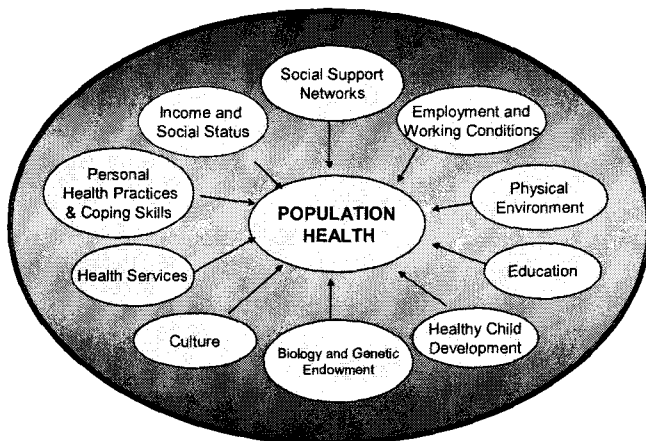
a combination of procedures, methods and tools by which a policy, program or project may be judged as to:

- its potential effects on the health of a population, and
- the distribution of those effects within the population.



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Determinants of Health



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Health Information & Indicators

	Physical Health	Socio-cultural Well-Being
Public	<ul style="list-style-type: none"> •Respiratory effects •Noise •Effects of accidents and malfunctions •Rates of communicable and sexually transmitted diseases •Cancer incidence •Effects on fertility development, including congenital anomalies 	<ul style="list-style-type: none"> ● Changes in the quality or way of life ● Changes in cultural and social patterns ● Rates of crime ● Rates of drug and substance abuse ● Changes in stress levels
Worker	<ul style="list-style-type: none"> ● Injuries, effects of accidents and malfunctions ● Days off work or disability days ● Long term activity limitations ● Respiratory effects ● Effects on skin (e.g., irritation, chloracne) ● Effects on fertility ● Cancer incidence 	<ul style="list-style-type: none"> ● Changes in the quality or way of life ● Necessity for relocation ● Stress-related conditions



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Health Indicators

HEALTH DETERMINANT	HEALTH INDICATORS
Physical Environment	Local Air quality; Drinking water quality; Traditional foods quality & quantity; Noise & odours; EMF; Vibrations.
Personal Health Practices and Coping Skills	Self-rated health; Smoking status; Leisure-time physical activity; Dietary practices; Crimes by type; substance abuse; spousal abuse;
Education	Educational attainment; Average number of years of education;
Social Support Networks	Life stress & depression; Single-parent families; Suicide Rates; Inventory, utilization and capacity of: educational, health, police & fire protection and recreation/leisure services



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Health Indicators

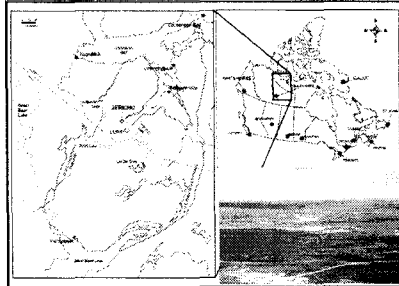
HEALTH DETERMINANT	HEALTH INDICATORS
Employment and Working Conditions	Unemployment rates; Youth unemployment rates; Average personal income; Low income rate; Income Inequality; Labour force by industry/occupation; Inventory of businesses and services;
Healthy Child Development	Low Birth rates; Infant mortality; Proportion of youths; Children in low-income families; Smoking initiation;
Health Services and Infrastructure	Community infrastructure; Housing; Water/Waste management;
Cultural Activity	Traditional land & resource use; traditional language use



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Case Study: Jericho Diamond Mine

- Located about 60 km south of the Arctic Circle, in Nunavut Territory.
- Estimated mine life = 8 yrs., initially as an open-pit and then as an underground mine.
- Production will average 375,000 carats per year, for a total of 2.6 million carats, beginning in 2006.
- 110-175 people are to be employed - mostly local, with half on the site at any time
- It will be a fly-in, fly-out operation, with workers on a 2 weeks on, 2 week off work rotation.



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Jericho Mine: The Project

- **The project includes:**
 - a processing plant,
 - a 1,200m airstrip,
 - all-weather road from Contwoyo Lake
 - accommodation buildings for the workers,
- ore will be mine 8 months in the year and processed year-round
- an ice road will transport materials and supplies to the site during winter months
- Estimated capital costs ~C\$45 million



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Jericho Diamond Mine: Land Use

- Falls within or near the traditional use areas of the Kitikmeot Inuit, the Dogrib First Nations and the Yellowknives Dene First Nations.
- Lies within the area of influence of the communities of Bathurst Inlet, Umingmaktok, and Kugluktuk.
- The land is of particular importance to communities owing to its essential role in supporting hunting, fishing, and trapping. In 1998, 68% of the residents of the Kitikmeot hunted and fished, and 13% trapped.



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Jericho Mine: Impact Assessment

- Major socio-economic impacts are expected to relate to jobs and business opportunities and the Proponent believes that these will be primarily positive throughout the life of the mine.
- According to the proponent, there will be negligible impacts on traditional land use or on land use patterns.
- An Inuit Impact and Benefits Agreement ("IIBA") was negotiated with the Kitikmeot Inuit Association.
- The IIBA will mitigate any negative socio-economic impacts from the Jericho Diamond Project and will accentuate the positive impacts. The agreement focuses on jobs, training, and business opportunities for local companies and community development.



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Jericho Mine: Health as a part of the Environmental Assessment

“The Board believes that resources such as diamonds can be extracted from the Territory, with the goal to promote regional economic prosperity, but even then, the health of humans is a part of the Board’s analysis and is vital as it will always be a key part of the promotion of ecosyemic integrity”.

- Nunavut Impact Review Board



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Jericho Mine: Air Quality Issues

- Potential sources of airborne contamination come from blasting dust, operations dust, dust from stockpiles, and exhaust.
- The impact assessment did not consider the possible harmful effects of NO_x (from explosives), SO_x, CO and PM_{2.5} upon the health of mine workers.
- Health Canada requested that direct and indirect health impacts of changes in air quality be taken into account in project management and that measures to protect workers from the harmful effects of NO_x, SO_x, CO and PM_{2.5} are included in the Occupational Health and Safety Plan.
- The Board required the proponent to implement an air-monitoring program that must be flexible and adaptable, should unanticipated problems arise. The results of any air quality monitoring are to be reported to the NIRB Monitoring Agent.



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Jericho Mine: Contaminants in Wildlife

- The mine site is situated along the migration route of caribou moving to and from their calving grounds.
- Caribou have very high cultural value in the traditional way of life of the Inuit.
- The Dene recommended that the Proponent ensure that contaminants in vegetation and wildlife, and in particular the caribou, are monitored. They pointed out the difficulty of monitoring contaminants in a transboundary resource such as caribou.
- The Board believed that monitoring was vital to the success of the EA process and due to its great concern over the impacts on wildlife, decided to self-monitor the project



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Jericho Mine: Social Issues

Significant concerns about social issues in the region were identified in a socio-economic baseline assessment of 7 communities in Nunavut and Yellowknife (NWT) including:

- Unemployment
- Shortage of housing
- Teenage pregnancy
- Sexually transmitted diseases
- Low life expectancy
- Abortion rate
- Number of single parent families
- Number of people at women's and other shelters
- Suicide & Alcohol and drug addiction
- Low education levels attained (40% had less than Grade 9)



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Jericho Mine: Mitigative Measures

- The proponent must work towards a minimum of 60% Nunavut employees within 5 years of the start of construction;
- Support increased education and training to achieve minimum Grade 10 standard for employment;
- Provide special job opportunities for women of the Kitikmeot region;
- Begin training programs before construction starts; Provide courses in self-esteem and money management;



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Jericho Mine: Mitigative Measures

- Provide an orientation program to train non-Inuit workers to be sensitive to the Inuit culture;
- Ensure that all on-site personnel are drug and alcohol free;
- Adhere to workplace and safety regulatory requirements;
- Provide mine site visits for employee's families, and
- Provide direct flights between the communities and the mine site.



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Jericho Mine: Follow-Up Programs

Create a Kitikmeot Socio-Economic Monitoring Committee which will:

- Supplement an Inuit Impact and Benefits Agreement;
- participate in building capacity at the project, community, regional, territorial and national levels to identify and adapt to changes in the social, cultural, political and economic environments;
- assess the positive and negative impacts of the Jericho Mine on the closest communities;
- provide opportunities for meaningful public participation and involvement in monitoring such that the monitoring effort is community-driven to the greatest possible extent;
- Produce *annual reports* of the impact of the mine on the closest communities, including the Inuit;
- Continue until completion of site restoration.....etc.



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Thank You



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