

## Reframing the Conversation: Understanding Socio-Economic Impact Assessments within the Cycles of Boom and Bust

### Strategies for Developing a Comprehensive Toolkit for Socio-Economic Impact Assessments as Part of Current Environmental Impact Studies in British Columbia, Canada.

Research Article

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#### Abstract

Socio-economic impact assessments (SEIA) are an essential step in identifying and evaluating the potential direct or indirect impacts of proposed economic developments, programs, and projects on communities. A SEIA provides a framework to address the changing demographics and the impacts on services and infrastructure, economic structures including employment and business opportunities, quality of life, the overall health and well-being of the population, and the cultural values of the community. Communities that host rapid industrial development often follow a predictable trajectory of rapid development, operational stability, and industry decline. This cycle known as the “boom and bust” cycle has significant implications on the sustainability of communities. With British Columbia on the cusp of significant industrial development, the Health Officers Council (HOC) of British Columbia in partnership with Northern Health, hosted a collaborative workshop to strategize about addressing the socio-economic impacts of proposed developments on communities. Through collaborative and open dialogue, collectively the group identified the key strategies in supporting to communities to maximize the benefits of development while mitigating the potentially negative socio-economic impacts.

**Keywords:** Socio-Economic Impact; Public Health; British Columbia; Boom and Bust

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#### Introduction

There is increasing evidence that a socio-economic impact assessment (SEIA) is an essential step to identify and evaluate potential socio-economic impacts (SEI) of proposed economic developments, programs, and projects on the circumstances of how citizens, and or new migrant workers live, how it affects their health, and their community as a whole [1,2,3,4,5,6,7,8] SEIA can be defined as a ‘tool’ that uses both quantitative and qualitative measures to evaluate the potential impacts of proposed economic development on a community’s social and economic well-being [8]. A comprehensive SEIA should consider an analysis of at least the following elements: local community demographics; cultural

values; the way of living; current and future housing needs; preparation needed for municipalities and public services to accommodate future infrastructure changes; changes in employment rates and how these will affect the local economy and competition for skilled and unskilled workers; impact of a changing population on “old timers and new comers” as well as those who will be living in industrial camps close to local communities; an analysis of tax impacts and retail business; expected changes of quality of life and impact on citizen’s short- and long-term health outcomes; effects on the local and broader environment with its local and migrant wild life and potential changes to a community’s aesthetic values[9,10].

Edwards (2000) proposed that citizen’s early participation in the SEIA process, is imperative to assist and guide governments, project developers, and community leaders to identify potential social equity issues, evaluate the adequacy of social services, and determine whether the project may adversely affect overall social well-being [8]. Moreover, citizen participation plays an essential role in identifying common community priorities and avenues for mitigation of adverse socio-economic impacts. In this way, communities are engaged with how to heighten opportunities and benefits for the environment, community sustainability, and socio-economic wellbeing [9].

Although there is overwhelming agreement of the importance of SEIAs to guide developers, governments, and community partners with proposed projects, there is no easy or standardized approach of how to perform a comprehensive and targeted SEIA. Focusing on both the positive and negative SEIs of any new economic development remains one of the best approaches to find “common ground” between key partners. Our experience showed

that this approach helps to overcome fear, competition, labeling, and victimizing and helps form the basis for a 'safe environment' where transparent and productive deliberation can unfold. This is the first step to find practical solutions with shared goals among partners to develop and implement new community projects. The second step is to ensure adequate support for these community partnerships, particularly during the "boom and bust" cycles of any significant economic project. The third step is to better understand what "boom and bust" cycles really mean and how this relates to socio-economic impacts on communities [10].

## Boom And Bust Cycles And SEIs

It is well recognized that communities bound to a resourcebased economy have a trajectory that often follows a similar pattern of development including phases of rapid construction, stabilization of operations, and industry decline [2,7,8,11,12,13]. This cycle, known as the "boom and bust" cycle, situates communities to experience periods of rapid growth leading to periods of stagnation and decline [14]. This boomtown narrative demonstrates how communities are faced with rapid population influx and a rate of growth that is unpredictable and sometimes unprecedented which can lead to an institutional breaking point where the local services, infrastructure, and community cohesion start to break down [14].

During periods of 'boom', communities have an opportunity to capitalize on commodity prices where they can achieve periods of significant economic growth and development [11]. These boom times are followed by a period of economic recession, termed as the 'bust' period, where production shrinks in response to dropping commodity prices or companies shift production priorities based on the depletion of resources or rising extraction costs [12]. The highly competitive economy of resource industries forces companies to respond to the bottom line. When this bottom line dictates, the communities supporting the industry destabilize, with job cutbacks and an outmigration of the population in search of alternative employment. Accompanying this, the provision of services decreases to match the shifting of demographics and the priorities of companies and governments. In the most severe of cases, communities are, in essence, forced to shut down [15].

We now have a better understanding of the dynamics of economic "boom and bust" cycles, thus it is possible to recognize the associated significance of socio-economic impacts during both the "boom and bust" phases as well as the long-term cost to society [7,8]. It is important to note that economic impacts on society extend beyond the traditional quick "wins" such as financial results, job creation, and political gains. It is designed to help companies understand their contribution to society and use this understanding to inform their operational and long-term investment decisions, supporting better conversations with stakeholders [18].

Community well-being is contingent on the constraints and opportunities created within the market economy contributing to complex economic and social cycles. Reviewing the literature, it is not surprising to note that the relationship between industrial "boom and bust" cycles and socio-economic impacts have been recognized as early as the 1800's by Henry George [16,19]. One of his main contributions was advocating that development does not have to come at the expense of social equity. In 1879, George "electrified the world by identifying one underlying cause for two great economic plagues: chronic poverty arising from insufficient demand for labor, and cycles of Boom and Bust" [19]. However,

it seems that lessons learned from the past have had no, or limited, impact when it comes to better preparing communities for significant industrial development. [19][20]. A recent publication by Veryser (2012) stated that "it didn't have to be this way" and "boom and bust" cycles have affected modern economic cycles in a way that is both "unnecessary and unnatural". This publication analyzes the state of modern economic conditions, which began 150 years ago, and offers new insights and views on how to prevent these "woes and future economic calamities" in the future [2].

This sentiment has been reiterated in a number of recent publications that emphasize a change of mind and forward thinking to ensure a sustainable future for all in a global economy [13][18][21]. A fundamental first step for business partners is to understand how business activities translate into socio-economic impacts. Business leaders are positioned to engage in a more constructive debate and advance policy change to form community partnerships for shared action between business, society, and environment stewards [18].

Although capitalism is about putting "capital to work" for better financial returns, it is now recognized that "capitalism requires a new operating system, and needs to be re-booted so that we expect and manage the returns on financial, natural, and social capital in a balanced way with a view to futureproofing our economies" [18]. In this way, business is a major driver of socio-economic impacts while at the same time, socio-economic impact are a major predictor of business success, especially in the long term. As a result, "companies are increasingly interested in measuring their socio-economic impact for a variety of reasons, ranging from reducing cost and risk to creating and capturing new opportunities" [18]. An example of this is found with Canada's New Engineers Society (2009) who have recognized the connection between engineering and evolving populations demographics, health, and the environment. As a result, the New Engineers Society has recommended the incorporation of biology and the study of social determinants of health in their curriculum [21].

## Health Officers Council

### Motivation

Over the past four decades, British Columbia (BC), Canada has experienced significant industrial development, particularly in the oil and gas industry, with 30,000 wells drilled, more than half of which were within the past decade [22]. Emerging technologies such as hydraulic fracking, enable unconventional natural gas to be extracted more effectively and efficiently from previously unreachable plays and underground resources. Only 25% of all gas wells drilled use conventional vertical drilling methods [23]. In the light of the everincreasing push to discover and extract new energy resources to sustain current and growing demands, it is expected that over the next few years, more than 10,000 new wells will be drilled and commissioned in northeastern BC. To really understand the impact of oil and gas developments in the region, one can refer to recent reports from the Canadian Association of Petroleum Producers. A recent report showed that:

- BC is Canada's second largest natural gas producer;
- Industry invested over \$1 billion in 2012/13 to the British Columbian government for resource development while industry invested over \$5 billion during 2012 for oil and gas exploration and development; and,

- Currently (2014) there is over 3.5 billion cubic feet of natural gas and over 21,000 barrels of crude oil produced per day [24].

In addition to the ongoing production and extraction of natural resources, the province of BC is on the cusp of significant industrial growth and development as emerging resource sector industries, such as Liquefied Natural Gas (LNG), take center stage in the provincial economic growth strategy. With \$7 billion dollars of investment having been made to acquire assets and build infrastructure for LNG development in 2013 alone, changes to the economic and social fabric of communities are inevitable [25]. Over and above these oil and gas developments, several coalmines have reopened in northeastern BC and a significant hydroelectric dam is proposed for development in the region. With this in mind, BC will be faced with significant challenges, requiring creative and innovating thinking to provide sustainable services in the regions host to the development [10]. It is also noted that during the last few months, one of these coal mines in one of the small communities in the NE was closed overnight. More than 600 employees lost their jobs with little or no severances paid. These families and the communities are in significant distress - once again, the closing of the mine without warning, demonstrated the effect of a sudden 'Bust' on vulnerable communities in the NE, of BC.

### Problem Statement

In BC legislation and policies ensure comprehensive environmental assessments (EIAs) for certain industrial developments [25]. Although a limited SEIA may form part of the EIA [26], there is an increasing need develop and implement a more comprehensive SEIA "toolkit" and a "process" to trigger SEIA's for all significant industrial developments, programs, policies and projects in BC [27][28][29]. In order for communities to realize the benefits of the development and mitigate any adverse socio-economic impacts on the population and community, an intentional and planned approach must be supported by a diversity of stakeholders within individual communities.

### Aim

In October, 2013, the Health Officers Council of BC (HOC) (n=30) in collaboration with public health leaders from Northern Health in BC, hosted a collaborative interdisciplinary community workshop titled "Socio-economic impacts of 'Boom and Bust' cycles on communities: Can these cycles be better managed in our current economy?" to start dialogue in the development of a comprehensive SEIA "toolkit" as well as public health strategies to create community partnerships and support healthy and sustainable economic development in communities [10]. It is well demonstrated that a "toolkit" of this nature is essential to provide policy makers and key partners a general background and an introduction to available methodologies and guidelines to perform a SEIA in order to identify potential impact(s) on resource development, on related businesses, and on community's *per se* [13].

### Methods[10]

Representatives (n=95) including health service providers and their organizations, government groups, academics, industries, First Nations and community interest groups from throughout the province convened for a one day workshop in Fort St John, BC with the medical health officers from the Health Officers Council of BC. As part of the workshop preparation, representatives

(n=44) participated in an eight (8) hour bus trip through north-eastern BC on October 8th, 2013. Local mayors from several rural communities participated as guests throughout the journey, using the opportunity to start conversations and learn from each other. The intention was to prepare participants to understand and experience the community and geographic vastness of the region that would in turn support the planning processes the next day. The participants on the bus trip not only experienced the physical impact of the geography in the region that is host to much of the development, but also became more familiar with the views and perspectives from the local communities and their provincial counterparts. This helped to build trust and transparency, which became an essential foundation for the planned workshop and for building future collaboration and support.

Following the bus trip, the participants (n=95) gathered for the workshop on October 9<sup>th</sup>, 2013, which focused on discussing the current phases of industry development in BC, the planning and assessment processes involved, and the potential socio-economic experiences of communities and the population. They were joined by the Chief Medical Health Officer from New Brunswick, Canada, and academics from local universities, who shared their expert opinions, experiences, and research results from community-based initiatives. To take advantage of the diversity of backgrounds and experiences of the participants, experienced facilitators applied unique techniques including the 'World Café' and 'Fish Bowl' strategies. This facilitated information-sharing and data collection among participants in the most effective way. Throughout the process note takers collected information and shared their findings on a regular basis with groups to check for content and accuracy.

### World Café

The World Café method is a simple, yet effective, format for hosting and eliciting dialogue among large groups of people. The World Café utilizes a series of small group sessions, with each group hosted by a facilitator, and with the support of guiding questions, to generate discussion on a particular predetermined issue. Each group participates in the discussion for ten minutes, before rotating to the next table and the next question for consideration. The groups rotate through all of the tables, returning to their original table where, with the help of the facilitator, they collectively summarize and pull out themes from all the data gathered at their table. The selection of the World Café question content areas was based on the workshop objective to situate the discussion on key socioeconomic factors. These included:

- Health Services & Population Health
- Cultural Resources
- Community Services & Infrastructure
- Equitable Business and Employment Opportunities
- Well-being & Quality of Life.

The data from the World café tables was transcribed, reviewed and analyzed for themes. The main themes that emerged during the World Café session included:

- The need to support a timely, transparent, and planned approach for communities to not only be prepared to mitigate potential adverse effect, but to use the opportunity to build a legacy for the community.

In this way public health was seen as leaders as they provide an

understanding of the determinants of health and situates the value of equity and an appreciation of local character as central to the discussion.

- The need to think differently about the cycles of 'boom and bust' with a goal of creating flexible and responsive structures so communities are supported to prepare and manage immediate needs while still planning for the future.

With an understanding of the scope of public health, community experiences are known to be broad. In light of this, there was a need to provide focus for the discussion in order to elicit engagement and provide adequate time for fruitful dialogue at each of the tables. This was accomplished by reducing the number of tables and questions. A consequence of this approach was the absence of a focus on Aboriginal communities and on the environment. These areas were particularly missed from the original plan.

### Fish Bowl

This method asks for five volunteers to sit in a circle and begin an open-ended discussion of the issues. An extra chair in the circle is left empty. As the discussion progresses the observers sitting around this "gold fish bowl" can observe and reflect. If an observer has a contribution to make to the discussion, they can take the empty seat and join the discussion. When this happens one of the original participants in the inner circle must leave and join the observer circle. The result is an engaging, dynamic, and deeply informed discussion that opens the doors to a wide variety of perspectives and insights. The topics and issues surfaced during this discussion were richly debated. The themes emerging fell in two broad areas:

- Roles (in particular Innovations and Change/Flexibility) and
- A strong call for action.

The data also revealed a sense of urgency and a sense of purpose: Health Officers Council is likely the best candidate for leading and supporting a credible and legitimate foray into developing and applying an effective SEIA in British Columbia.

## Results

The overall analysis of the main themes and outcomes of the workshop focused on how the impact of 'boom and bust' cycles of resource development can be better managed through improved collaboration and a timely and engaged planning process. Based on the analysis of the transcriptions from the collaborative discussion and with an understanding of the current context, a set of guiding strategies were established.

### A. Ten Strategies for a Community Based Approach to Address Socio-economic Impacts within the Cycles of 'Boom and Bust':

#### 1) Know what is out there:

Review current national and international literature and understand the best practices for the use of SEIA tools as part of the Environmental Assessment process or as a stand alone tool.

#### 2) Know how to get key partners on 'the bus':

Identify, invite, and engage key partners from a diversity of health services, government, the mayors of rural communities, academ-

ics, First Nations, industry and representatives from community interest groups to get on 'the bus'. To travel and experience the region of concern and to create spaces where key people can congregate and talk creates an opportunity to start conversations and learn from each other. When it comes to the community planning process, partners will be more familiar with each other's views and perspectives. Getting on 'the bus' helps to build trust and transparency, which are essential for future collaborations.

#### 3) Know what significant economic projects and SEIAs are planned for your community:

Determine what significant economic projects are currently ongoing and/or are projected for the region and communities and, what SEIA processes are in place to guide community partnerships and planning initiatives. Knowledge supplied sooner rather than later is the key issue here.

#### 4) Know how to learn from local citizens:

Provide an opportunity for partners, particularly the mayors and citizens of rural communities, to share their experiences and expertise on how to optimize the benefits and mitigate adverse socio-economic effects in order to better prepare communities for current and future 'boom and bust' economic cycles and ensure they are invited and treated as real partners with industry leaders in the planning.

#### 5) Know how to learn from expert partners:

Invite experts from various government groups, academics, and public health to share their views and experiences on what should be included in a SEIA tool.

#### 6) Know how to collect and share essential information wisely:

Taking time constraints into account, engage with experienced facilitators to apply creative strategies such the 'world café' and fish bowl' techniques, as a way to engage all participants to collect essential information in the most efficient and effective way. Use this information to inform partners and create dialogue.

#### 7) Know how to apply public health strategies to support community planning initiatives:

Engage with public health leadership, including the medical health officers, to strategize collectively about what could be the most supportive public health strategies for communities to maximize the benefits and limit adverse SEI effects of industrial development and growth towards sustainable and healthy populations, particularly in rural and remote communities.

#### 8) Know how to collect, report and disseminate community generated information to influence policy makers:

Write a community based report of the main findings, recommendations, and planning requirements that best unite a community based approach, that is supported by evidence based best practices, ensuring that community partners are available to guide the development and implementation of a comprehensive planning approach addressing socio-economic impacts.

#### 9) Know how to formalize and implement a comprehensive SEIA process:

Advocate for a formalized and legislated process to be incorporated provincially, which guides future community planning initiatives to better prepare communities for the potential socio-economic impacts from 'boom and bust' economic phases.

## 10) Know how to be brave:

Accept the philosophy that 'It doesn't have to always be this way' and 'boom and bust' cycles can be better managed by building community partnerships between government groups, local governments, industries, health care providers, academics and community interest groups.

## Recommendation

That the Health Officers Council of BC determine how to collectively move the dialogue forward as a means to influence legislation and policy to support the British Columbian government, developers, and communities to:

### A. Develop a SEIA tool which will include the following considerations:

1. An evaluation of community demographics, local cultural beliefs and way of living, current and future housing needs, how employment rates will change and how this will affect the local economy and competition for skilled and unskilled workers, public services needs for newcomers and those who be living in industrial camps close to local communities, tax and retail business analysis and how change will affect these, quality of life, how change may effect local citizens' health and environment and aesthetics;
2. Reflect a standardized approach with a triage process in place to determine low, medium and high intervention needs;
3. Include at least six steps as modeled after the Mackenzie Valley Environmental Impact Review Board including [1]:
  - **Step 1: Scoping:** A preliminary analysis that identifies and prioritizes SEIA considerations and required information. Early and effective scoping narrows the focus of SEIA onto issues of potential significance.
  - **Step 2: Profiling Baseline Conditions:** Focuses on gathering information about the socio-economic environment and context of the proposed development. This can include defining measurable indicators of valued socio-economic components.
  - **Step 3: Predicting Impacts:** Based on the analysis of information gathered from issues scoping, baseline profiling and past experiences to predict possible socioeconomic impacts. This analysis includes identifying trade-offs between the adverse and beneficial impacts of a proposed development.
  - **Step 4: Identifying mitigation:** Predicted adverse impacts require mitigation. Mitigation includes strategies, plans and programs to reduce, avoid, or manage impacts.
  - **Step 5: Evaluating Significance:** Involves determining whether a proposed development is likely to cause significant adverse impacts on valued socio-economic components. If appropriate mitigation measures cannot be identified, a proposed development may not be approved.
  - **Step 6: Applying Mitigation & Monitoring:** Good mitigation for socio-economic impacts requires good monitoring programs (also known as "follow up") to ensure the mitigation is working effectively, and, when necessary, the mitigation is adapted as required;
4. Focus on both the positive and negative socioeconomic effects of the proposed development. It is recognized that this approach is helpful to overcome fear, competition, labelling, and victimizing. Once common ground is found, only then will deliberation become productive and common goals can be agreed upon;

5. Recognize that community partnerships are essential and central to this community-based process. Citizens have the democratic right to share their views, experiences, and expertise to help guide how any development in their community may affect their circumstances, the way they live, their culture, and ultimately their health;
6. Ensure that communities can maximize the development for a sustainable future and healthy populations;
7. Recognize that a community forum or board be established with clear terms of reference, to oversee the roles and responsibilities of each partner as well as the SEIA process from beginning to end; and
8. That governments and communities are clear that all costs related to the SEIA are to be paid by the developer. These costs should include seed funding for the SEIA development, implementation, reporting and mitigation of potential SEIs.

### B. That the HOC review the first draft of the October 2013 workshop.

### C. That the HOC establish a small working group to oversee the completion of the final workshop report and final recommendations.

## Next Steps

Since the hosting of the collaborative workshop, additional resources have been added to Northern Health to assist with the impact assessment process. Provincially, discussion continues to move forward regarding the development of a process for impact assessments including the Environmental Assessment Office giving consideration to the development of socioeconomic criteria for proponents to use in application for major development projects. Within individual communities, including Fort St. John and the Peace River Regional District, partnerships are being engaged to address socio-economic impacts at the community level. The continued dialogue is an important step towards creating a legislative and policy framework to address the complex cycles of "boom and bust" and potential socio-economic impacts experienced over the long term.

The HOC will address the current context and the workshop recommendations at their next meeting scheduled for April 2014. Consensus that is reached from this meeting on the recommendations and next steps will be incorporated into the final HOC workshop report for distribution.

## Discussion

Over the past few years there has been a shift taking place in the way business, governments, and community leaders view material progress, recognizing that it is probably not a means to improve the condition of the lower class in the essentials of a healthy, happy human life. In fact, many agree that economic material progress does not always relieve poverty - it actually may create it and may even still further depress the condition of the lower socio-economic groups in society. Although this paradox has been known and described as early as the mid 1800's, little has changed. As an example, we can discuss the northeast region of BC, a region that is experiencing significant transformations in the economic and social landscape [1,2,16,18,20,21,27,28,29,30].

In BC oil and gas exploration and development is concentrated in the NE region of the province, particularly in the Montney Play

and Horn River Basin regions near Fort St John. It is estimated that there have been over 30,000 wells drilled in the past four decades with a projection of an addition 10,000 more to come. Because of the resource potential, there are significant increases in land acquisition by industry for unconventional gas extraction, which utilizes emerging methods such as hydraulic fracking, combining directional and horizontal drilling on multi-well pads. As a result of these emerging technologies, Fort St John is positioned to be one of the fastest growing community in BC and Canada. With this in mind, it is increasingly important to situate the community's needs, the accumulative impacts of the development, and the socio-economic outcomes as central to the planning and assessment process [10].

Fort St John has, as a community, faced significant challenges to provide basic services and adequate infrastructure. Based on Community Health Survey data from the region, the population demonstrates poor health status indicators including a standardized mortality rate (SMR) of 1.3, indicating those residing in the NE have a 30% chance of dying earlier than their peers in the rest of BC [30]. It is difficult to relate the poor health status of population to any specific cause as a result of multiple confounding factors and health effect modifiers. What the health status of the northeast indicates is that, as a region host to significant economic growth and industrial development, the community also experiences significant and negative socio-economic impacts [10]. Although this region contributes to over 20% of the province's economy, it is difficult to understand why comprehensive SEIAs were not developed and implemented to address some of the preventable negative socio-economic experiences that the community region currently faces.

The collaborative workshop provided an opportunity for public health physicians and other stakeholders working in growing communities throughout BC to share and consider the needs for communities that are host to the development. Many were left to wonder if there really is a difference between the "gold rush" experience and the "oil and gas rush" for development currently being experienced in BC. In the midst of this fast growing economy we are left to consider the words of Henry George,

*"The ideas that there is a necessary conflict between capital and labor, that machinery is an evil, that competition must be restrained and abolished, that wealth may be created by the issue of money, and that it is the duty of government to furnish capital or to furnish work, are rapidly making way among the great body of the people who keenly feel a hurt and are sharply conscious of a wrong.*

*That political economy, as at present taught, does not explain the persistence of poverty amid advancing wealth, must be due not to any inability of the science, but to some false step in its premises or overlooked factor in its estimates. I propose to beg no question, to shrink from no conclusion, but to follow truth wherever it may lead."* [19]

## References

- [1]. Mackenzie Valley Environmental Impact Review Board.(2007). *Socio-economic Impact Assessment Guidelines, 2<sup>nd</sup> Edition*.
- [2]. Veryser, H.C. (2013). *It didn't have to be this way. Why Boom and Bust is unnecessary – and how the Austrian School of Economics breaks the cycle*. Wilmington, Delaware:Intercollegiate Studies Institute.
- [3]. Williams, R.J., Rehm, J., & Stevens, R.M.G. (2011). *The Social and Economic Impacts of Gambling*. Final Report prepared for the Canadian Consortium for Gambling Research.
- [4]. Smith, G. J., & Wynne, H. J. (2000). *A review of the gambling literature in the economic and policy domains*. Alberta Gaming Research Institute

- [5]. Institute of Alcohol Studies. (2012). *The Economic cost of alcohol consumption to the UK*.
- [6]. Laurie N. (2008). *The cost of poverty: An analyses of the economic cost of poverty in Ontario*. Ontario Association of Food Banks. Toronto, ON.
- [7]. Brand S. & Price R. (2000). *The economic and social costs of crime*. Economics and Resource Analysis Research, Development and Statistics Directorate. Queen Ann's Gate, London.
- [8]. Edwards, M.M. (2000). *Community Guide to Development Impact Analysis*. UW-Madison Program on Agricultural Technology Studies.
- [9]. National Research Council of the National Academies.(2001). *Improving Health in United States: The role of health impact assessment*. <http://www.ncbi.nlm.nih.gov/books/NBK83546/pdf/TOC.pdf>
- [10]. Badenhorst C.J., Mulroy P, Thibault G, Healy T. "Socio-economic impacts of 'Boom and Bust' cycles on communities: Can these cycles be better managed in our current economy?". Northern Health Authority and Health Officers Council of British Columbia collaborative workshop. October 9, 2013.
- [11]. Merrifield, J. (1984). *Impact Mitigation in Western Energy Boomtowns*. *Growth and Change*, 15(2):23-28.
- [12]. O'leary S, Boettner, T (2011) *Booms and busts: The impact of West Virginia's energy economy*. West Virginia Center on Budget & Policy.1 -24
- [13]. Australian Government Bureau of Rural Sciences.(2005). *Socio-Economic Impact Assessment Toolkit*: Department of the Environment and Heritage, Canberra, ACT. *A guide to assessing the socio-economic impacts of Marine Protected Areas in Australia*.
- [14]. Gilmore J.S (1976) *Boomtowns may hinder energy resource development*. *Science*, 191(4227): 535-540.
- [15]. Lucas, R.A. (2008). *Minetown, milltown, railtown: Life in Canadian communities of single industry*. Don Mills, Ont.Oxford University Press.
- [16]. George H. (1897). *Progress and Poverty*. E.P. Dutton & Company. Boston, Massachusetts.
- [17]. Halseth G, Strausfogel D, Parsons S, & Wishart, A (2004) *Regional economic shifts in BC: Speculation from recent demographic evidence*. *Canadian Journal of Regional Science*, 27: 317-352.
- [18]. World Business Council for Economic Development.(2013). *Measuring socio-economic impacts: A guide for Business*. <http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15357&NoSearchContextKey=true>
- [19]. Gaffney M.M. (2014). *Henry George 100 Years Later – The Great Reconciler*. <http://schalkenbach.org/rsf-2/henry-george/henry-george-100-years-later/>
- [20]. Michaels E.H (1970) *Henry George's Insights: Still True 100 Years Later*. Henry George News.
- [21]. Engineers Canada. (2009). *Leading a Canadian Future The New Engineer in Society: A declaration by Canada's engineering profession*. Issued at the National Engineering Summit, May 21, Montreal, Quebec.
- [22]. British Columbia Oil and Gas Commission. (2014). *Number of wells drilled in BC monthly*. <https://iris.bcogc.ca>
- [23]. Adams C (2013) *The status of drilling and production in BC's Shale Gas Plays*. Presented at the Northeast BC Natural Gas Summit, Vancouver, BC.
- [24]. Canadian Association of Petroleum Producers (2014) *British Columbia*.
- [25]. Province of British Columbia (2011) *Canada Starts Here: The BC Jobs Plan*.
- [26]. British Columbia Ministry of Agriculture and Lands (2007) *Guidelines for Socio-Economic and Environmental Assessment (SEEA): Land Use Planning and Resource Management Planning*.
- [27]. Badenhorst C.J (2012, August) Resolution adopted by the Canadian Medical Association. [http://www.cma.ca/multimedia/CMA/Content/Images/Inside\\_cma/Annual\\_Meeting/2012/resolutions/2012GC-Resolutions\\_en.pdf](http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Annual_Meeting/2012/resolutions/2012GC-Resolutions_en.pdf)
- [28]. Badenhorst, C. (2013, August) Resolution adopted by the Canadian Medical Association. <http://www.cma.ca/2013-resolutions-adopted>
- [29]. Badenhorst, C.J. (2014, January 21). Presentation made to the Site C Clean Energy Project Joint Review Panel.
- [30]. Statistics Canada (2013) *Canadian Community Health Survey – Annual Component (CCHS)*. <http://www.statcan.gc.ca/eng/survey/household/3226>