



The Economic, Social and Environmental Costs
of the
Mountain Pine Beetle
in the
Grande Alberta Economic Region (GAER)

Stage One Report:
The BC Experience and Lessons for GAER

Presented to GAER by
Cambridge Strategies Inc.

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TABLE OF CONTENTS

<u>INTRODUCTION</u>	3
<u>KEY FINDINGS</u>	4
<u>MPB – AN OVERVIEW</u>	5
<u>THE BC EXPERIENCE</u>	7
<u>IMPACT ON THE TRIPLE-BOTTOM LINE:</u>	7
<i>The Environmental Impact:</i>	7
<i>The Economic Impact:</i>	8
<i>The Social Impact:</i>	9
<u>GOVERNMENT RESPONSE - BC MOUNTAIN PINE BEETLE MANAGEMENT:</u>	17
<u>LESSONS FOR GAER</u>	19
<u>RECOMMENDATIONS FOR NEXT STEPS</u>	19
<u>APPENDICES</u>	20
1) Documents and Resources Gathered and Analyzed:.....	20
2) Individuals Contacted:	22

INTRODUCTION

Grande Alberta Economic Region (GAER) asked Cambridge Strategies Inc. (CSI) to help develop a strategy to ensure its constituent communities can respond effectively to the arrival of the mountain pine beetle in Alberta.

This first stage report is meant to focus on how GAER communities can prepare, adapt and transform their economies with the reality of pine beetle infestation.

In keeping with the agreement with GAER, CSI conducted research into the effects of the Mountain Pine Beetle on economic, environmental and social well-being. This information will inform a subsequent, second stage of the research process.

As per the agreement, tasks performed and delivered for this initial phase were:

- a. Document research: a gathering and analysis of papers, studies and relevant data to analyze the potential and realistic economic, environmental and social impacts of the pine beetle.
- b. An assessment of the BC experience from data, publications, interviews and relationship-building and as well as a review of the BC process to understand the impacts, experiences, management methods and what has worked and what hasn't.
- c. A written report, to be submitted to GAER, which synthesizes the learning and knowledge gained during this stage of the project. This report will detail what the research has found, what lessons can be learned, what approaches are currently in place in other jurisdictions (specifically in British Columbia), how this information and knowledge can be applied to the Grande Alberta Economic Region, and proposals for next steps.

This initial report is to gather the basic information needed to determine some of the information the GAER needs before tackling the “next steps” foreseen in section ‘c’, above. The next steps will use the learning from this report, to develop a process whereby GAER engages its citizens and stakeholders in developing a strategy to ensure the sustainability of the region and its communities in the aftermath of the pine beetle.

At a meeting with the GAER board in Edson on Dec. 4, 2006, CSI was further instructed to perform an intelligence gathering and assessment exercise to determine what the Alberta government is doing about community sustainability and participation, get a sense from government experts and officials on the potential effects on fibre supply, and to give the GAER an indication of the severity and scope of the infestation. CSI met with key Alberta Sustainable Resource representatives to discuss these issues; our findings are listed in the following section, headed “Key Findings”, and help address four key questions posed by GAER board members at the Dec. 4 meeting:

- How real is the threat
- How much time does GAER have to deal with it
- What happened in BC
- What we can learn from the BC experience.

In the course of our research we met and spoke with scientists and senior officials from the Government of Alberta and the Government of Canada, contacted and gathered information from stakeholders and officials in British Columbia communities that had experience with the pine beetle, extensively reviewed media dealing with the pine beetle's impact, reviewed more than three dozen research papers and publications dealing with the pine beetle and its impact on communities, especially in B.C.; and emerged with answers to the four basic questions above. This report sets out some of our key findings, then follows with the background information we gathered from our research and our interviews.

KEY FINDINGS

- 1) British Columbia was forced to respond to an immediate crisis. But Alberta has three to five years to deal with the problem. Alberta's exposure is not as high as in B.C. where some interior communities had 80 per cent to 90 per cent Lodgepole pine forests, forestry was the only industry, and there were very few diversification opportunities. B.C. is still running a harvesting and salvage operation but is limited in what it can export. B.C. will have huge problems as to what to do with the population and sustainability of forested communities, once the MPB wood is all salvaged and harvested; that crisis is going to hit eight to 10 years from now. Alberta's economy has so much opportunity that it won't face a crisis of what to do with remote forest communities that have no other livelihood. Alberta has ample time to plan a sustainability model.
- 2) The Government of Alberta is still unsure about what the MPB outbreak means for the future of the forests and the GAER economies. It is still waiting on conclusive scientific data on the MPB and has indicated it is not going to spend a lot of money on any sort of direct action till there is hard evidence to support preventative action
- 3) It will take GoA five years after the original "attack" to really know what MPB devastation means (after the initial attack, the wood can be harvested for upwards of 3-5 years)
- 4) The GoA is open to, and actively welcomes, community-led sustainability plans. It is willing to consider funding these plans and has requested the federal government help support funding for communities that wish to develop their response to the pine beetle.

- 5) A detailed mandate is still being developed for the Public Advisory Committee established by the Government of Alberta to seek public input and response to the pine beetle problem. The PAC's broad mandate is to engage communities in developing a response. The public advisory committee is inclusive as the GOA wants to show that they are open and responsive to public feedback on the MPB
- 6) GAER has a three to five year window to plan an appropriate response.
- 7) The biggest challenge in Alberta will be finding the labour, and the private sector investment, necessary to deal with expanded opportunities arising from pine-beetle tree kill, in harvesting, sawmilling, and processing the fibre into value-added needs.
- 8) The provincial government is ready to assist communities in developing value-added fibre uses. The PAC is setting up a subcommittee to look at bio-energy as one potential use of surplus fibre.
- 9) The Government of Alberta is moving ahead vigorously on its Healthy Pine Forest Strategy. This strategy would have been needed anyway, even without the pine beetle. The intent of this is to harvest over-mature pine forests at an accelerated rate, to ensure forest health and yield sustainability in future decades.
- 10) As a result of the Healthy Pine Forest Strategy, the annual allowable cut in Forest Management Agreements (FMAs) will be changed. The Government of Alberta expects that as a result of this initiative, the annual fibre supply will double for at least the next decade. The provincial government expects the annual allowable cut will increase over the next 20 years as part of this strategy. From 2026 onwards in subsequent decades, the annual allowable cut and fibre yield will be sustained at levels between 10 per cent and 20 per cent below current levels.
- 11) Harvesting of pine-beetle kill will be over and above the fibre supply coming out of the Healthy Pine Forest Strategy.
- 12) The Government of Alberta has commissioned Price Waterhouse Coopers to perform a study of the milling capacity in Alberta, to deal with both the Healthy Pine Forest Strategy and the pine beetle kill.
- 13) The federal government has done a lot of work to model the spread of the pine beetle. They have extensively studied, mapped and analyzed the Foothills Model Forest and this data is available to communities to help understand how MPB is going to spread.

MPB – AN OVERVIEW

The current outbreak of Mountain Pine Beetle (MPB) is the largest insect epidemic in North American recorded history, affecting the provinces of British Columbia and

Alberta, and areas in the United States, as far south as Houston, Texas. The beetle (*dendrotonus ponderosae* Hopkins) is a native pest to the pine tree (specifically to the ponderosa, the western white, the limber and the lodgepole) and it plays a vital role in maintaining forest bio-diversity, attacking old and weak trees and facilitating new growth.¹ Under normal circumstances, the MPB attacks highly stressed trees within a larger pine forest ecosystem; factors such as host-resistance, natural enemy predation, weather and competition for food and space help keep the insect's population relatively low. However, under the right conditions, such as large areas of similarly-aged mature pine stands, fire suppression, a streak of unseasonably warm weather (both in the summer and the winter), or drought, then mass outbreaks can occur.² Such is the genesis of the current MPB epidemic.

The beetle is a small insect, approximately the size of a grain of rice. It lives almost its entire life (1 year) under the bark of a host tree.³ In mid-summer, adult beetles attack new host trees, boring through the bark to reach the sapwood underneath, where they mate and lay eggs. When the larvae hatch, they eat through the tree's phloem, creating further tunnels under the bark. Additionally, the beetles carry a blue-stain fungus which infects the host. This fungus has two functions; first, it prevents the tree from repelling the insect with resin (normally done by forcing the pitch out and drowning the beetle), and allows the beetle to continue attacking the tree. Secondly, the fungus blocks the absorption of water and nutrient flow within the tree itself. Taken together, the larval feeding and the fungi infection kill the host tree within a matter of weeks.⁴

The fungus also discolours sapwood, devaluing the commercial worth, although not the integrity, of the wood itself. However, if infested trees are harvested within two to three years of attack, they retain most of their economic value.⁵ Infected trees can be identified by their colour. Newly killed trees are bright red; 3-4 years after infection trees enter a 'grey stage' losing all colour and foliage.

The MPB can withstand cold temperatures for extended periods of time; they develop an anti-freeze which protects them from sub-zero weather. For cold temperatures to kill off large numbers of beetle, they must either come early or late in the season (before anti-freeze develops or when larvae are most vulnerable) and they must last for a number of days; with the insulation of bark and snow, it can be a long time before under-bark temperatures decline to lethal levels.⁶ The current outbreak is likely to continue until an early cold winter occurs. It must also be said that, while both extreme cold and forest

¹ Taylor, Steve W., Allan L. Carroll, Rene I. Alfaro and Les Satranyik, Forest, climate and Mountain Pine Beetle Outbreak Dynamics in Western Canada, Natural Resources Canada, Canadian Forest Service Pacific Forestry Centre

² Natural Resources Canada, An Introduction to the Mountain Pine Beetle in British Columbia, http://mpb.cfs.nrcan.gc.ca/biology/introduction_e.html

³ Taylor, Steve W., Allan L. Carroll, Rene I. Alfaro and Les Satranyik, Forest, climate and Mountain Pine Beetle Outbreak Dynamics in Western Canada, Natural Resources Canada, Canadian Forest Service Pacific Forestry Centre

⁴ Natural Resources Canada, An Introduction to the Mountain Pine Beetle in British Columbia, http://mpb.cfs.nrcan.gc.ca/biology/introduction_e.html

⁵ Ibid

⁶ Ibid

fires will slow the beetle's advance, they can recover quickly and resume their attacks on an otherwise healthy forest.

THE BC EXPERIENCE

Mountain Pine Beetle infestation has been increasing in British Columbia for more than a decade, but it has reached epidemic levels in just the last few years. This outbreak can be blamed on three different factors. First, through the promotion of fire prevention in forests, there is a profusion of mature lodgepole pine in BC. Secondly, climate change has produced a series of mild winters and hot, dry summers, allowing the beetle to survive and spread to higher elevations and more northern latitudes to feed off drought stressed trees.⁷ The third factor was a lack of effective control action during the outbreaks early stages.⁸

“The present epidemic is not a problem for ‘nature’. Large scale disturbances are a feature of Canadian forests and insects have periodically “recycled” large areas of Canada’s forests, ... [altering] forest composition, susceptibility to fire and fire severity, wildlife habitat, hydrology and the availability of forest values to human communities...The major issue raised by such outbreaks of insect ‘pests’ is not whether they are natural but whether or not humans accept them. A second issue is whether or not we can do anything to stop them or to mitigate their impacts if we do not accept their consequences...to adapt to and absorb the economic and social consequences of such events.”⁹

Impact on the Triple-Bottom Line:

The Environmental Impact: There are a number of cumulative environmental consequences to beetle infestation. As the trees die, these consequences will include changes to water tables and stream flows; soil erosion, increased run-off or flooding and threats to slope stability; declines in water quality and damages to fisheries. The potential for bigger and more forest fires will increase, as will impacts upon wildlife habitats and species-at-risk.¹⁰ The ability of forests to conduct carbon sequestering will decrease.

Additionally, as harvesting increases and large volumes of timber are removed from forests (to capitalize on the economic value of infected wood before it becomes too late), large clear-cut areas will emerge.¹¹ There will be a need for more logging roads

⁷ McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

⁸ Natural Resources Canada, An Introduction to the Mountain Pine Beetle in British Columbia, http://mpb.cfs.nrcan.gc.ca/biology/introduction_e.html

⁹ Kimmins, J.P, Brad Seely, etc, Possible Forest Futures, an MPB Initiative Working Paper 2005-11, Natural Resources Canada

¹⁰ Schrier, Dan, Business Indicators – Mountain Pine Beetle-Mania, BC Stats, Ministry of Labour and Citizens' Services, September 2006

¹¹ McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

in order to transport product and people and the potential of poaching and predation, due to this new level of access, will also increase.¹²

The Economic Impact: At the present time, the forest industry and communities which support it are booming as the sector conducts large-scale salvage operations. This upturn is expected to last for the next 10 to 15 years.¹³ The provincial government increased the Annual allowable Cut in beetle-infected areas by 7.8 million cubic meters per year, and has made regulatory changes to streamline the timber harvest.¹⁴ But there are negative, long-term economic implications of the infestation. As timber supply falls, as beetle-killed timber depletes or loses value, economies of regional communities will not be able to return to a business-as-usual mode.¹⁵ Communities will be forced to make the transition to new industry and forms of employment or they will, quite simply, die.

BC has 60 million hectares (ha) of forested land. Of this, 25 million ha are available for harvesting. It is estimated that 8.7 million ha of pine forest in the province is now infected, destroying millions of lodgepole pine, BC's most commercially harvested tree.¹⁶ Over 400 million cubic meters of merchantable timber has already been destroyed by the beetle, representing four times the potential annual allowable cut for the entire province.¹⁷ By 2013 it is likely 80 per cent of merchantable pine in the BC interior could be killed. Further, it is expected that harvest levels will decline by more than 50 per cent in some areas of BC, once the wood has either been harvested or has lost its economic value, and, without treatment, BC will experience a 30 per cent reduction in future stand volume.¹⁸

As forest sector activity increases, in the short-term, to handle the increase in timber, there will be spin-off benefits to other sectors such as the service industry and retail trades; however, “these spin-off impacts may be somewhat muted as individuals and industries brace for the expected future reduction in the timber supply or re-invest capital in order to transition to new forms of industry.”¹⁹ Additionally, several

¹² Mountain Pine Beetle – Setting the Story Straight, a factsheet from the Canadian Parks and Wilderness Society

¹³ Patriquin, Mike, Scott Heckbert, Christy Nickerson, Michelle Spence, Bill White, Regional Economic Implications of the Mountain Pine Beetle Infestation in the Northern Interior Forest Region of British Columbia, a Mountain Pine Beetle Initiative Working Paper 2005-3, Natural Resources Canada

¹⁴ MacKendrick, Norah and John Parkins, Social dimensions of Community Vulnerability to Mountain Pine Beetle, a Mountain Pine Beetle Initiative Working Paper 2005-26, Natural Resources Canada

¹⁵ Patriquin, Mike, Adam Wellstead, William White, Beetles, trees and people: Regional economic impact sensitivity and policy considerations related to the mountain pine beetle infestation in British Columbia, Canada, Forest Policy and Economics (2006), doi: 10.1016/j.forpol.2006.08.002

¹⁶ McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

¹⁷ Statistic from BC Ministry of Forests, 2005

¹⁸ Ono, Hideji, The Mountain Pine Beetle: Key Issues and Alberta Solutions, Alberta Sustainable Resource Development, for the Alberta Environment Conference, May 3, 2006

¹⁹ Patriquin, Mike, Scott Heckbert, Christy Nickerson, Michelle Spence, Bill White, Regional Economic Implications of the Mountain Pine Beetle Infestation in the Northern Interior Forest Region of British Columbia, a Mountain Pine Beetle Initiative Working Paper 2005-3, Natural Resources Canada

communities in the province stand to lose 25 per cent or more of their present income level due to the effects of the MPB on nearby forests.²⁰ The potential economic impacts could be the loss of 58, 000 jobs, 4 per cent of BC's GDP and 5 per cent of Canada's balance of trade.²¹

The Social Impact: The social repercussions of MPB infestation are difficult, at this point, to state conclusively; it is still relatively early in the process of the epidemic and, in most cases, necessary qualitative studies have not yet been done in depth. There are some broad-based statements which can be made however.

Essentially, the social impact of beetle infection varies, based upon a community's dependence on the forest sector and upon the severity of the infestation.²² A study conducted by the U.S. Department of Agriculture concluded that greater economic diversity, community autonomy, and leadership, combined with lower dependency on the forest industry, all contribute to greater community resilience.²³ Additionally, it's been found that a heightened perception of beetle-associated risks can lead a community to achieve a greater adaptive capacity – the more a community knows and understands, the more likely they will be to find a solution.²⁴

While few studies exist regarding the social implications of the beetle epidemic, a few assessments have been done and will be discussed here. In addition, Cambridge Strategies conducted a series of interviews with communities who have been hard-hit by infestation and who are developing and implementing sustainability strategies.

■ The Nadina Forest District²⁵:

The Nadina Forest District comprises two Timber Supply Areas (TSAs) in the B.C. Northern Interior Forest Region – the Morice TSA and the Lakes TSA – and comprises over 1.6 million ha of forest land. It is home to over 12 000 people and includes the communities of Burns Lake, Houston and Granisle. Economically, the area depends on forestry, agriculture, mining, tourism, and outdoor recreation.

Any changes within the forestry sector will have a large, indirect impact on service and retail industries in the region. It is expected that although regional economic activity will increase in the forest district over the next

²⁰ Schrier, Dan, Business Indicators – Mountain Pine Beetle-Mania, BC Stats, Ministry of Labour and Citizens' Services, September 2006

²¹ Ono, Hideji, The Mountain Pine Beetle: Key Issues and Alberta Solutions, Alberta Sustainable Resource Development, for the Alberta Environment Conference, May 3, 2006

²² McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

²³ MacKendrick, Norah and John Parkins, Social dimensions of Community Vulnerability to Mountain Pine Beetle, a Mountain Pine Beetle Initiative Working Paper 2005-26, Natural Resources Canada

²⁴ Ibid

²⁵ Patriquin, Mike, Scott Heckbert, Christy Nickerson, Michelle Spence, Bill White, Regional Economic Implications of the Mountain Pine Beetle Infestation in the Northern Interior Forest Region of British Columbia, a Mountain Pine Beetle Initiative Working Paper 2005-3, Natural Resources Canada

10-15 years, the boom will be short-lived and the district will experience a 4.6 per cent decrease in the Annual Allowable Cut (AAC), resulting in:

- a revenue loss of \$27.6 million per year
- a regional product reduction of 4.1 per cent per year
- a loss in royalties and indirect taxes of 5.1 per cent per year
- an annual decrease of \$8.3 million in total labour income
- a loss of 132 (2.5 per cent) employment positions

The region expects that an 8 per cent increase in tourism would partially offset the negative economic impacts of a reduction in the AAC. Similarly, an increase in agriculture exports could also benefit the local economy; however, neither would offset the negative net impact on monetary indicators.

- The Prince George Timber Supply Area (The McGregor Model Forest)²⁶: This region spans approximately 7.7 million hectares in the north-central interior of B.C. and encompasses the City of Prince George, Vanderhoof, Fort St. James, and Fraser Lake. There is also a significant First Nations population in the region. Forestry is the dominant resource sector for the region and a major economic driver. Outdoor recreation, tourism and agriculture are also economic drivers.

Regional economic activity will increase in the Prince George TSA over the next 10 to 15 years resulting from increases in the AAC. As in the Nadina District however, this relative boom may be short-lived; it is anticipated the TSA will see a drop of 15.8 per cent in the AAC and will result in a regional, per annum:

- Revenue drop of \$587.2 million
- Net regional product reduction of \$271.7 million
- Reduction of royalties and indirect taxes paid by \$84.7 million
- A decrease of \$98.8 million of total labour income
- A loss of 2 660 employment positions

Although a strategy to increase visitor activity will mitigate some or all of the negative forestry impacts in terms of job numbers, visitor sector employment is characterized by relatively lower wages and an increase of part time and seasonal work. It may be possible to further mitigate negative impacts by increasing other sectors, such as mining, and by developing new products and markets.

²⁶ Patriquin, Mike, Scott Heckbert, Christy Nickerson, Michelle Spence, Bill White, Regional Economic Implications of the Mountain Pine Beetle Infestation in the Northern Interior Forest Region of British Columbia, a Mountain Pine Beetle Initiative Working Paper 2005-3, Natural Resources Canada

■ The Communities of 100 Mile House, Burns Lake, Invermere and Mackenzie²⁷:

These four communities were assessed as to their vulnerability to the MPB outbreak. Chosen for geographic location, degree of exposure to the MPB, social-economic characteristics and variation of vulnerability, these towns were assessed according to their:

- a) physical capital – the level of dependency of its economy on timber harvesting
- b) social capital - an assessment of economic hardship, crime, health, education, youth-at-risk, etc.
- c) political capital - evaluating the level of community trust in local leaders and satisfaction with beetle management efforts
- d) economic capital - a measurement of economic diversity and employment dependency on the forestry sector

Researchers found:

- 100 Mile House has the highest level of physical risk, lower economic diversity and social well-being. It is a vulnerable community but does have alternatives to forest resources. There is a high level of risk perception in the community, as well as moderate trust in municipal and provincial governments. This suggests the community is in a good position to manage MPB impacts and outcomes
- Burns Lake displays patterns of vulnerability similar to those in 100 Mile House, but it also has high levels of susceptible pine and likely, therefore, is a more vulnerable community. However, there is also a high level of community awareness which may lead to more effective adaptation strategies.
- Invermere and Mackenzie both have low physical risk and low overall vulnerability. However, the perceived threat in both is very high. High economic vulnerability and moderate political capacity in Mackenzie increased this community's overall vulnerability. Overall, these communities are aware of the MPB impacts elsewhere and therefore have greater opportunity to plan before affected by the outbreak.

The authors of this study also determined that community based assessments of vulnerability provide links to action which will succeed at the community level. As an example, several communities within the hardest hit regions of BC have banded together to seek solutions to beetle related issues. Receiving support from both the provincial and federal governments, these Action Coalitions are working to find ways to respond to the threat and build resilient forest-based communities.

²⁷ Parkins, John and Norah MacKendrick, Assessing Community Vulnerability: A study of the Mountain Pine Beetle outbreak in British Columbia, Canada, forthcoming in *Global Environmental Change; Human and Policy Dimensions*, January 2007

■ The Omineca Beetle Action Coalition (OBAC):

The OBAC is one of these just-mentioned, regionally based action coalitions. The OBAC includes the communities of Smithers, Telkwa, Granisle, Houston, Burns Lake, Fraser Lake, Fort St. James, Vanderhoof, Prince George, Mackenzie, Valemount and McBride and the rural areas and communities represented by the two regional districts of Bulkley Nechko and Fraser Fort George.. The OBAC region includes a landbase of about 13 million hectares and over 130,000 people. The region expects that by 2013, over 80% of their pine stands will be killed by the Mountain Pine Beetle (some 360 million cubic meters). The Purpose of the OBAC is "to work to ensure sustainable development and resiliency for the Omineca Beetle Action Coalition region".

In September 2005 the OBAC received an \$800,000 grant from the Provincial Government to develop an economic diversification plan that supports long-term economic sustainability for region and reduces the economic impacts of the mountain pine beetle. In its first year, the OBAC worked with local governments and communities, public agencies and resource management and industry sector representatives to determine priority needs and opportunities, establish and planning framework and organize the initiative. In November 2006, the OBAC expanded the initiative to three additional communities and their rural neighbours to the OBAC.

In a discussion with Cambridge Strategies Inc. (CSI), OBAC representatives told us the coalition has been working to overcome community competition in order to build a strong regional relationship. They say the main challenges for the initiative are: keeping a regional focus so that the initiative can meet community needs but work at a regional scale; preparing for uncertainty; believing in and creating a bright future; leveraging strengths; and, making informed decisions. "Traditionally these communities have worked competitively against one another and they are recognizing the advantages and value of working together. By acting now, we expect to make the best of the short-term increase in forestry activity, while at the same time preparing for the future challenges. By acting collectively we can be more effective."

Through community dialogue sessions held in early summer 2006, the OBAC has determined the public's greatest concerns regarding the infestation and where they see opportunities that should be pursued. They told us people in the region appear to trust that provincial authorities are managing the bio-physical implications as best as they can; however, they are very concerned about the social-economic impacts upon their community.

As part of the effort to understand the situation, the OBAC partnered with the provincial Ministry of Forests and Range, the provincial forest industry association Council of Forest Industries and the Cariboo-Chilcotin Beetle Action Coalition to model some alternative scenarios for timber supply into the future in the wake of the beetle infestation. These scenarios provided alternate assumptions and several different scenarios. OBAC said “in order to understand the range of opportunities [open to us] in the diversification mix, we need to go beyond to feed into the understanding of the diverse uses and opportunities that remain.”

A host of diverse opportunities exist for the region, including the opportunities in tourism, mining and mineral exploration, agriculture and oil and gas development and some less conventional opportunities in alternative energy production, manufacturing, welcoming retirees and many others yet to be understood. OBAC says they have received a clear mandate to diversify from both the province and the public, but that the entire process “is experimental. The mandate is broad and people want to include economic diversification but also want to move beyond, to pay attention to long term resilience and sustainability.”

The OBAC has just begun an action planning process and the diversification plan will be built with sector and cross-sector solution strategies. These will identify, analyze and recommend specific opportunities and actions toward maintenance or expansion of economic opportunity; opportunities for social development/diversification; improving/maintaining natural environment and resources.

The Coalition told us, if they had to do it again they would not have announced formation of the coalition until the organizational setup and preparatory work had been completed; there were too many expectations out of the gate but too much preparatory work that first had to be done. “Be transparent, accountable, inclusive and responsible and be clear about process that must be gone through to build the coalition so that it can get successful results. There’s work to be done before an action plan can be put into place and there’s only one window of opportunity. After that, it’s too late.”

The OBAC says one of their major goals has been to get their public excited about their future, keeping them informed, helping them find their own initiative to move forward and get excited about the possibilities. They say this, above all else, must be an exercise in enabling communities find their own futures.

■ The City of Kelowna:

The City of Kelowna has not yet been hit hard by the beetle epidemic but it is experiencing economic impacts. CSI talked with Ian Wilson,

Kelowna's Urban Forest Supervisor. He told us the epidemic is being witnessed in the aesthetics of the city and that it will affect outdoor recreational spaces. He also expects it will have an impact on tourism to the area. "The landscape has been impacted and it's a big issue for the community. We've had public inquiries and meetings. People are very concerned and some properties are spending thousands of dollars to fix it. The community is lobbying all three levels of government to get help." There has also been a direct impact on landowners in the city. "We have 30 000 trees on private land. It will likely cost upwards of \$20 million to remove them and conduct a clean-up."

Wilson says his community sees this as a looming crisis. "Up until last year, we didn't know how it would hit us but now, we are headed down the same path as other communities have done and it doesn't look good. Our emphasis has switched from prevention to rehabilitation."

■ The District of Sparwood:

The District of Sparwood conducted a health walk-through survey of public forested lands in 2003. They found then that infection by the MPB was on the increase. In response, the Sparwood Council developed a Forest Health Committee and implemented a beetle management strategy for all forests under municipal control. This strategy involves:

- removal of infested trees within built up urban areas and preservation of the forest for as long as possible.
- Removal of infested and susceptible pine in some of the more rural or remote areas and use the revenue from those operations to maintain the forest for as long as possible within the urban landscape.
- Continuing to develop a Forest Management/Landscaping Plan to replace the existing forest within urban areas
- Public input on suggested treatment options.

CSI spoke with Danny Dwyer, the Director of Planning for Sparwood. Dwyer says it's still too early to tell the extent of the beetle's impact on the region or its economy. "[We don't know] what the final outcome will be. It has certainly resulted in employment for the foresters and the logging companies doing the control work and will change the face of the community and some parks and green spaces."

During initial stages of infestation and planning, the District held extensive public consultation and education programs. But Dwyer says the issue is now common knowledge and they contact residents and groups in specific areas only. Dwyer also said "if the outbreak continues and we lose areas that we are selectively logging each year, hind sight will dictate that we should have gone in during year-one and removed the

infested and susceptible pine, [using] the revenue to reforest/replant. This would have certainly upset the residents but may have been more fiscally sound.”

Dwyer was hesitant to offer specific advice for GAER communities, saying “every area is different and actions should be determined by the people in their own community and their provincial governments. Alberta communities must consider other opportunities and get the maximum value out of the timber before it is lost and use the revenue wisely to provide diversification.”

■ The Cariboo-Chilcotin Beetle Action Coalition (CCBAC):

Cambridge Strategies spoke with Donna Barnett, the Mayor of 100 Mile House and Chair of the CCBAC.

The CCBAC was established in 2005 as a response to MPB infestation in the region. Covering the communities of Williams Lake, 100 Mile House and Quesnel, and including the Shuswap First Nations and the Cariboo Regional District, the CCBAC describes itself as a “locally-established group of elected officials and land-use experts” working to develop a plan which will diversify the local economy and protect the future of the people of the Cariboo-Chilcotin. The Cariboo-Chilcotin contains about 20% of the total pine forest of B.C.’s interior, worth some \$48 Billion in opportunity value to the provincial economy. Barnett says economically, the MPB will have a horrendous impact on communities of the Cariboo-Chilcotin. “We could lose 3 to 4 mills in the region, maybe more, especially if the mills aren’t using modern technology. Forestry directly employs about 8 000 people in the region, and these are well paying jobs, so the region [and people] are forest dependant.”

The region is investigating economic alternatives for diversification in the tourism, energy and agricultural sectors. “We’re looking at bio-mass, the alternatives and how to diversify. We are looking at everything on our doorstep, including agricultural opportunities such as herbal crops. We’re also doing industrial hemp research.”

Barnett told CSI a key lesson for communities in the GAER is to ensure the forests are managed properly and that affected trees are extracted as quickly as possible. “It is essential to mitigate the current and potential damage. When things started to get bad, we weren’t allowed to cut in the parks and the beetle took off. We also had a lot of protected areas and by the time we were allowed in there, it was too late.” Barnett says the beetle couldn’t have been stopped “but we could have mitigated the effects. The lesson -- manage your forests. Ensure there are lots of trap trees. Take out and burn the trees that are infested. Do whatever you can to manage your forests and put together long-term plans in the meantime.”

Barnett says, having received a \$2.5 million grant from the province, the action coalition is now working on their action plan. “The business plan that’s coming is all about economic and social well-being. We have an economic working group and are doing strategies for all the different, active sectors in our region to see how each may be able to grow. We are also doing a timber supply analysis with industry... We are working to integrate the economic and the social. When we are done and take our plan to government, our presentation will be about communities and people first.”

The level of government support has been encouraging for the board of the CCBAC. “The provincial government has been very helpful – given us money and support. The federal government is listening but that’s about it. We expect it will come around. Jurisdiction plays a big part in this and our planning isn’t [complete] yet, so perhaps it’s just that they don’t have much yet to respond to. But...I do think they’ll come around.”

While the OBAC reported a key stumbling block for their coalition had been getting the communities to work as a whole and engaging Aboriginal communities, Barnett says this was never an issue for the CCBAC. “This has not been a problem for us...Our 15 Aboriginal communities are engaged. We did it through language. There are 3 different Aboriginal languages in our region so instead of going to the councils, we created 3 Aboriginal seats on our board, one seat per Aboriginal language. The bands that speak these languages then chose who would sit for them.” Barnett says it’s difficult to pinpoint why they had an easier time getting communities to work together, but thinks the difference may lie in intent. “We don’t have as many communities as they do and our process was different [from the outset]. When we started, we had three communities in one room. We each dedicated \$10 000; we got \$25 000 from Community Futures and another \$10 000 from the regional district. We did a business plan and then we went to government. We did it quietly, privately and professionally. Nobody knew what we were working on and we didn’t go to the press first.”

Additionally, Barnett says the work is being done by a passionate group of people. “It hasn’t always been easy and we have been fortunate. Everyone has been committed and passionate. Our board truly cares and feels strongly about it. This isn’t political for anyone. That makes a huge difference. These are our homes. It’s where we live.”

She says one of the biggest problems the CCBAC has had to overcome is a general resistance to being proactive, rather than reactive. She says people aren’t used to stepping outside their comfort zone and so their work has sometimes been a tough sell to both residents and politicians. “The attitude can sometimes be ‘the status quo has gotten us this far’ or ‘why worry about this now?’ In order to reach residents and the broad community, the CCBAC has held public consultation sessions, created a website, produces and newsletter and does regular interviews

with the local media. Barnett says the only negative input came from some “opposition MLAs and unions. But unions are inside now.”

Barnett says her biggest bit of advice for GAER is to ensure there is consistency on the board and to set (and stick to) definite timeframes and deadlines. “Have a clear beginning and end. By the end of [this] June, we will have a long-term mitigation and action plan to take to the provincial and federal governments for funding. I don’t know what funding we will ask for specifically; we had been thinking of a trust or a fair-share program but as yet we are undecided. Essentially this will be a plan toward direct or indirect funding for long-term community sustainability.

Her last bit of advice is to remember the beetle does not mark the end for your community; the key is to stay committed, and to work together. “There will be life after the pine beetle. We feel optimistic and positive. We embrace each other and are working on this [collaboratively] not for political reasons but because we care. The key is passion. By working together to develop new ideas you will end up stronger than ever.”

GOVERNMENT RESPONSE - BC MOUNTAIN PINE BEETLE MANAGEMENT:

When the outbreak was first identified, provincial government policy focused on aggressive control strategies to isolate beetle occurrences until they ran their course and a cold snap came to kill the beetle off. This strategy was ineffective and BC is now dealing with the ‘worst case’ scenario.²⁸ Government policy has consequently shifted from ‘simply’ trying to control the infestation to instead minimizing the loss of merchantable timber and creating community opportunity. This has involved both a shift in priorities and a shift in the regulatory regime; efforts are focused on maintaining revenues for communities, industry and government while supporting other social, economic and environmental values. Policy involves establishing optimal salvage harvesting levels and marketing or processing salvaged timber while conserving non-timber values, restoring forest resources and preparing communities for boom and bust, and aggressive containment of the outbreak in the south- and northeast sections of the province.²⁹ The main tool for these actions is the BC Mountain Pine Beetle Action Plan. First released in 2001, it has been updated twice, most recently in September of 2006.

The Mountain Pine Beetle Action Plan (MPBAP) is overseen by an advisory group which includes members from affected communities, First Nations, industries, academia, environmental groups, and the federal government. The 2006 updated version outlines a number of actions to create sustainable forests, communities and economies. This includes growing the value-added wood sector, developing non-timber forest product

²⁸ McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

²⁹ Ibid

opportunities with First Nations, improving transportation systems and creating a MPB research information network. The MPBAP's Seven Objectives are:

- 1) Economic Sustainability for Communities:
- 2) Worker and Public Safety (tree removal, road and bridge upgrades)
- 3) Recovering Value (increasing annual allowable cuts, developing new products and markets, researching biofuel opportunities)
- 4) Conserve Long-Term Forest Values (maintaining bio-diversity, adapting legislation)
- 5) Limit Further Damage (mapping, downing and burning infested trees)
- 6) Restoring Forest Resources (maintaining and renewing habitat, replanting, fertilization)
- 7) Coordinated Planning and Mitigation Measures (cross-ministry planning, cooperation and reporting)

As a part of the MPBAP, the Government of BC has delivered almost \$500 million in strategic investments, including the Northern Development Initiative Trust which helps communities looking to diversify local economies and supports proposals for new sector development opportunities (recreation, mining, tourism, etc.). Another \$161 million dollars has been provided to the Forests for Tomorrow program which focuses on creating future timber supplies and on restoring ecosystems.

Additionally, in 2005, BC appealed to the GOC for financial assistance to help manage MPB issues. In response, Canada offered a contribution of \$100 million, publicly stating that the two governments would work together on the issue, specifically on:

- a) protecting sensitive fish streams/rivers and species at risk
- b) delivering additional control measures to reduce the spread
- c) undertaking fuel management on land surrounding high-risk communities
- d) continued development of additional markets and products
- e) scientific and operational research to improve processes for existing products and developing existing and new markets
- f) undertaking long-term strategic planning for communities and First Nations to respond to changes

In the spring of 2006, the federal government committed another \$200 million to the fight against the beetle. As a part of this federal and provincial funding, community coalitions, such as the previously discussed OBAC, are building regional business plans that will help them diversify their economies and deal with the impacts of infestation.

Additionally, the federal government has created the MPB Initiative, administered by the Canadian Forest Service, to provide for research and development; to provide assistance and funding to First Nations and federal forested lands; and to provide assistance and compensation to private owners.³⁰

³⁰ McGarrity, Kim and George Hoberg, The Beetle Challenge: An Overview of the Mountain Pine Beetle Epidemic and its Implications, an issue brief from www.policy.forestry.ubc.ca, August, 2005

Alberta and BC have also signed a Memorandum of Understanding which pledges funding and support to limit infestation along the border. The Alberta government has also strengthened logging import restrictions of forest products with bark from BC and created the MPB Guide.

LESSONS FOR GAER

- 1) Communities in GAER have time to build relationships, assess the threat to their communities and plan accordingly; however, time is still of the essence.
- 2) Citizens within communities, and their institutions, must lead as to how the MPB will affect not just local economies but local social indicators as well.
- 3) GAER has opportunity to work with the provincial Political Action Committee and become a provincial leader in measuring community value-at-risk and developing sustainability plans
- 4) The beetle infestation cannot be stopped, only managed. You must plan around it. Be willing to think outside of the box.
- 5) GAER communities must develop public trust from their communities that bio-physical aspects are being well managed. You must also invite input on socio-economic alternatives.
- 6) You must ensure a strong coalition among communities, First Nations, industry, citizens and governments is developed in order to ensure everyone in the community is invested and dedicated to finding alternatives and solutions
- 7) Ensure everyone understand the project development process. Avoid the traps of the OBAC so expectations do not run ahead of deliverables.

RECOMMENDATIONS FOR NEXT STEPS

CSI recommends immediate implementation of the processes outlined in the Stage Two proposal, previously submitted to GAER. This work includes:

- 1) Community engagement and capacity building: Outreach with each of the GAER communities to build regional relationships and engage community stakeholders (including the public, industry, regional First Nations, government, academics, service organizations and others) in order to inform them about regional issues and concerns surrounding MPB infestation. This will also invite ownership of, and input on, alternatives for diversification, adaptation and sustainability.

- 2) Political Action Plan (PAP) development: This will include development of a business case which addresses the economic, environmental and social realities, issues, challenges, opportunities, alternatives and scenario options available toward restructuring the GAER economy. It will also involve facilitation of meetings with key government representatives in order to engage, involve and build relationships with government planners and decision makers, toward implementation of project goals and objectives.
- 3) Communications Plan development: This will target public, government, industry and media in a timely manner, to inform and garner support for diversification of regional and local economies.

APPENDICES

- 1) Documents and Resources Gathered and Analyzed:
 - A Synthesis of the Economic Efficiency of Beetle-Proofing Management Options; Patriquin, Mike; Nancy Leake, William White: Mountain Pine Beetle Initiative Working Paper 2005-17
 - Assessing approaches to climate-change-related policy formulation in British Columbia's forest sector: The case of the mountain pine beetle epidemic; Wellstead, Adam; Debra Davidson and Richard Stedman; BC Journal of Ecosystems and Management 7(3): 1-9;
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 - Assessing Community Vulnerability: A study of the mountain pine beetle outbreak in British Columbia, Canada; Parkins, John and Norah MacKendrick; forthcoming the Global Environmental Change: Human and Policy Dimensions; January 2007

- Assessment of the Western Bark Beetle Initiative: A collaborative effort between Forest Service Research and Development and Forest Health Protection; McMillin, Joel, September 2006
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- Forest, climate and mountain pine beetle outbreak dynamics in Western Canada; Taylor, Steve; Allan L. Carroll; Rene I. Alfaro and Les Safranyik; Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre
- Historic Influence of the Mountain Pine Beetle on stand Dynamics in Canada's Rocky Mountain Parks. 2006. Dykstra, P.R.; Braumandl, T. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Mountain Pine Beetle Initiative working Paper 1006-15
- Logging to control insects: the science and myths behind managing forest insect 'pests'; Black, Scott Hoffman; the Xerces Society for Invertebrate Conservation; Portland, Oregon
- Mitigating the Impacts of BC's Mountain Pine Beetle Epidemic: a forest industry submission to the BC Government; Council of Forest Industries, February 18, 2004

- Mountain Pine Beetle Action Plan 2006-2011: Sustainable Forests, Sustainable Communities; Government of British Columbia;
- Mountain Pine Beetle Initiative Interim Report 2005. 2005. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia
- Mountain pine beetle: a synthesis of biology, management and impacts on Lodgepole pine (CD Version) 2006. Safranyik, L.; Wilson, W.R. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre
- The Mountain Pine Beetle in British Columbia; Canadian Forest Service; Natural Resources Canada; <http://mpb.crs.nrcan.gc.ca>
- The Mountain Pine Beetle: Key Issues and Alberta Solutions; Hideji Ono, Alberta Sustainable Resource Development; presentation to the Alberta Environment Conference in Edmonton on May 3, 2006
- Mountain Pine Beetle Initiative: Interim Report 2005; The Canadian Forest Service; Natural Resources Canada
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2) Individuals Contacted:

- Cliff Henderson, Assistant Deputy Minister, Forest Protection Division, Alberta Sustainable Resource Development
- Teresa Stokes RPF, Mountain Pine Beetle Advisory Committee Coordinator, Alberta Sustainable Resource Development
- Dr. John Parkins, Senior Sociologist, Canadian Forest Service
- Mike Patriquin, Natural Resources Economist, Canadian Forest Service

- Bill White, Senior Economist, Canadian Forest Service
- Barry Mehr, Deputy Minister, Alberta Agriculture
- Bill Hunter, CEO, Northern Opportunities Facilitation Inc. (retired CEO, Alberta Pacific Forest Products).
- The City of Kelowna:
 - Ian Wilson, City of Kelowna Urban Forest Supervisor
 - Ron Mattiussi, City Manager
 - Mayor Sharon Shepherd
- Hideji Ono, Manager, Forest Health Section, Forest Management Branch, Alberta Sustainable Resource Development
- Jerry Bauer; Grand Prairie Mountain Pine Beetle Committee
- Bill Wilson, Research Director, Canadian Forest Service
- Danny Dwyer, Director of Planning and Information Services, Sparwood District Council Forest Health Committee
- Elizabeth Andersen, General Manager, Omineca Beetle Action Coalition
- Donna Barnett, Mayor of 100 Mile House and Chair of the Cariboo-Chilcotin Beetle Action Coalition
- Dan George, CEO of the First Nations Mountain Pine Beetle Initiative
- Staffan Lindregen, entomologist and the University of Northern British Columbia
- The City of Quesnel:
 - Mayor Nate Bello
 - Charles Hamilton, City Manager