Southern Interior Beetle Action Coalition

Mountain Pine Beetle Assessment and Mitigation Plan

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Important Notice

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The Consulting Team would like to thank Gord Borgstrom, Director, Mountain Pine Beetle Epidemic Response Division, Community Economic Development; Dalyce Brandt, SIBAC Coordinator; Reiner Augustin, SIBAC Manager; and Mickey Werstuik, SIBAC First Nations Manager for their assistance in preparing the report and providing guidance and oversight to the SIBAC planning phase.

In addition, the Southern Interior Beetle Action Coalition (SIBAC) would like to thank David Laird, past chair, for his leadership and hard work in assisting in the establishment of SIBAC and for providing guidance during the strategy formulation phase.
Abbreviations

AAC ................................................................. Annual Allowable Cut
ALR .............................................................. Agricultural Land Reserve
BCCC .......................................................... British Columbia Competition Council
CCBAC ....................................................... Cariboo-Chilcotin Beetle Action Coalition
CFDC-CIFN .... Community Futures Development Corp. of Central Interior First Nations
COTA .......................................................... Council of Tourism Associations
ESD .......................................................... Environmental Stewardship Division
ha ................................................................. hectares
KKDC ........................................................ Ktunaxa/Kinbasket Development Corporation
km ............................................................... kilometres
LTC ........................................................... Lillooet Tribal Council
MPB ........................................................... Mountain Pine Beetle
MOFR ........................................................ Ministry of Forests and Range
MTSA ........................................................ Ministry of Tourism, Sport and the Arts
MU ............................................................... Management Units
NTA ........................................................... Nicola Tribal Association
OBAC ........................................................ Omineca Beetle Action Coalition
ONA ........................................................... Okanagan Nation Alliance
PY ................................................................. Person-year
RMZ ........................................................... Resource Management Zone
SIBAC ........................................................ Southern Interior Beetle Action Coalition
SICMPBWG ........ Southern Interior Communities Mountain Pine Beetle Working Group
SNCTC ....................................................... Shuswap Nation Tribal Council
THLB ........................................................... Timber Harvesting Land Base
TSA ............................................................. Timber Supply Area
TFL ............................................................. Tree Farm Licence

NOTE TO READER: SIBAC is a member-based organization representing local governments and First Nations in British Columbia’s Southern Interior. Most of the discussion and recommendations in this report are meant to include both First Nation and non-First Nation residents and communities in the Southern Interior unless otherwise specified. Therefore, the following phrasing has been intentionally used in this report:

- “communities” or “rural governments” – is meant to imply both First Nations and non-First Nations;
- “local governments” – means municipalities or regional districts;
- “First Nations” – means First Nation bands, tribal councils or organizations.
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1. 

1.1 Background on the Southern Interior Beetle Action Coalition

1.1.1 Formation of the Southern Interior Beetle Action Coalition

In 2006, there was a growing concern among Southern Interior communities and First Nations about the impacts of the Mountain Pine Beetle (MPB) epidemic. Several groups simultaneously approached the Ministry of Forests and Range (MOFR) with the common goal of addressing MPB issues that were anticipated in their communities and forests. Similar to the two existing Mountain Pine Beetle Coalitions in the province, the Cariboo-Chilcotin Beetle Action Coalition (CCBAC) and the Omineca Beetle Action Coalition (OBAC), the groups were interested in forming a Southern Interior Mountain Pine Beetle Community “Coalition”.

In the spring of 2006, the Mayor of Merritt hosted a meeting with a small group of mayors, Regional District directors and First Nation organizations that had collectively expressed an interest in forming a MPB coalition. After a series of discussions it was agreed that all Regional Districts and Tribal Councils in the Southern Interior would be invited to participate in forming a working group that would work towards creating a Beetle Action Coalition for the Southern Interior.

Seed funding was sought by the group to complete preliminary research, analysis and community consultation so that an informed proposal could be prepared and submitted to the Provincial Government for the creation and funding of a formal Southern Interior Beetle Action Coalition (SIBAC). A financial contribution of $5,000 was requested from each Regional District. The $45,000 contribution from the nine Regional Districts levered $50,000 from the Provincial and Federal Governments. These funds were used to finance the operation of the Southern Interior Communities Mountain Pine Beetle Working Group (SICMPBWG) and to hire a consulting team.

The major findings of the consultant’s initial scan revealed six significant areas of MBP concerns and probable impacts, including:

- Decline of the Forestry Economic Base;
- Impact on Watersheds – Domestic and Agricultural;
- Impact on other Economic Base Sectors – Tourism and Agriculture;
- Decline in Recreation Experience;
- First Nations Ecosystem Stewardship Planning & Management Issues; and,
- Public Safety in Isolated, Rural & Reserve Communities.

Using the findings from the Preliminary Assessment Report, SICMPBWG proceeded with a proposal to Government in June 2007 to form an official Beetle Action Coalition. The organization transitioned to the Southern Interior Beetle Action Coalition (SIBAC) and the formation of the SIBAC Committee.
On July 25, 2007, SIBAC received approval and an initial $800,000 from the Provincial and Federal Governments to help it complete a report which would assess the impact of the mountain pine beetle in the region and make recommendations on MPB mitigation measures. In January 2009, SIBAC submitted a Progress Report to the Provincial Government discussing SIBAC’s work to date and requesting an additional $800,000 in funding to complete the planning and preparation of this report. That funding was provided in March 2009.

1.1.2 SIBAC Membership and Areas of Interest

The Southern Interior Beetle Action Coalition (SIBAC) is an incorporated society serving the Southern Interior of British Columbia that has broad representation across local, regional and First Nation governments. The founding purpose of SIBAC was to provide a local perspective on the MPB epidemic and its impacts and to prepare a regional MPB mitigation plan with recommendations for the Provincial and Federal Governments. The report will also be used to communicate the issues and recommendations to a variety of local partners including First Nation and local governments.

A representative of each participating organization formally sits on the SIBAC Committee. SIBAC membership includes the following organizations:

- Central Okanagan Regional District
- CFDC of Central Interior First Nations (CFDC-CIFN)
- Lillooet Tribal Council
- North Okanagan Regional District
- Okanagan-Similkameen Regional District
- Regional District of East Kootenay
- Shuswap Nation Tribal Council
- Ktunaxa Nation Council
- Columbia Shuswap Regional District
- Kootenay Boundary Regional District
- Nicola Tribal Association
- Okanagan Nation Alliance
- Regional District of Central Kootenay
- Squamish Lillooet Regional District
- Thompson Nicola Regional District
- Nlaka’pamux Nation Tribal Council

The Southern Interior is a large and diverse region with a variety of economic challenges and opportunities. Rural communities in the region typically have higher forest dependencies and are more likely to be impacted by the MPB than urban centres, which tend to be more diversified and will be more resilient to a downturn in their forest economy.
To demonstrate the diverse effects of the MPB across the region, the majority of the research completed by SIBAC was undertaken using the Timber Supply Areas (TSAs) as the sub-unit of analysis. The 11 TSAs in SIBAC’s region are:

- Arrow
- Cranbrook
- Invermere
- Revelstoke
- Merritt
- Lillooet
- Boundary
- Kootenay Lake
- Golden
- Okanagan
- Kamloops

Figure 1-1 highlights the 11 TSAs which make up the Southern Interior Beetle Action Coalition region.

**Figure 1-1  Southern Interior Beetle Action Coalition Region**
1.2 Description of SIBAC’s Planning Process

1.2.1 Guiding Principles

To prepare a report that accurately reflects the predicted impacts of the MPB infestation, SIBAC has had to consider several issues, including:

- Not duplicating the work of other organizations, and attempting to find ways to enhance, complement or add value;
- Building partnerships with community stakeholders and First Nations in defining the impacts;
- Engaging the general public in identifying MPB impact and mitigation measures;
- Providing educational MPB information materials for distribution to communities;
- Identifying common local and regional MPB issues;
- Acknowledging the uniqueness of the MPB impact on the First Nations communities;
- Understanding the overall economy in the Southern Interior so that potential MPB impacts could be understood within that larger context;
- Where possible, supporting projects that offered potential solutions to MPB impacts and economic stabilization while SIBAC’s research and planning work was underway; and,
- Considering possible roles, functions and projects that SIBAC could perform post-completion of the MPB Mitigation Report that would add value to the region.

1.2.2 Major SIBAC Research and Planning Components

To identify and analyse probable MPB impacts on the Southern Interior, SIBAC commissioned several studies, held community consultation sessions and supported several external MPB-related projects. The major research and planning components are discussed below. SIBAC has used the information generated by these components in preparing this report. The remaining sections of this report summarize the major findings and conclusions of these various background reports and processes.¹

**Forest Sector Trend Analysis**

This study documents the current status of the Southern Interior forest industry sector, major historical trends (last 20 years) in the sector, major challenges facing the Southern Interior forest sector (including Mountain Pine Beetle) and the most probable changes in the Southern Interior forest sector in the next decade.

**MPB Socio-Economic Assessment**

This study focused on identifying the major socio-economic trends in Southern Interior communities and predicting the most probable socio-economic impacts that the MPB epidemic will have on Southern Interior communities.

¹ Copies of the individual supporting reports are available on SIBAC’s website at [www.sibacs.com](http://www.sibacs.com).
Individual TSA Level Reports and Analysis

To provide greater detail and analysis at the individual Timber Supply Area (TSA) level, SIBAC instructed their consultants to also prepare individual TSA reports that investigated timber and socio-economic issues at the TSA level. As a result, for each of the individual Southern Interior TSAs, three additional reports are available:

- A Timber Supply Fact Sheet Report for each TSA that looked in detail at the historical and anticipated timber supply within each TSA;
- A TSA Socio-economic Profile Report focusing on the historical, social and economic changes for each TSA within the SIBAC region and;
- A TSA Socio-economic Trend Assessment Report that focuses on the forestry, economic and wealth creation transitions occurring historically and into the future within each TSA.

SIBAC Member First Nations MPB Assessment

The traditional territories of SIBAC First Nations do not correspond to TSA and Regional District administrative boundaries in the Southern Interior. Therefore, the two analysis studies commissioned by SIBAC (Forest Trend Analysis and Socio-Economic Assessment) will not necessarily adequately address all of the issues important to First Nations in the Southern Interior.

The SIBAC Board also recognizes the unique relationship that First Nations have with respect to the land base and resources in their traditional territories, and that MPB impacts can be different for First Nation communities. Therefore, SIBAC provided funding to each SIBAC member First Nation Tribal Council to prepare a report that identified the specific concerns and recommendations of each First Nation Tribal Council with respect to MPB. SIBAC also provided funding to the Community Futures Development Corporation of the Central Interior First Nations to create a similar report for non-aligned Bands in the Southern Interior.

These reports collectively have provided the information for the First Nations-specific sections and recommendations in this report. Executive summaries of each of these reports are included in Appendix A of this report. The full reports of each Tribal Council are available on the SIBAC website.

Community Consultation

Over a period of four months, from April 2008 to August 2008, SIBAC staff conducted community, industry and stakeholder consultations in 20 Southern Interior communities. This consultation included:

- One-on-one interviews with local political leaders, First Nations, business leaders and stakeholders;
- Conference calls with Forest Industry business leaders; and,
- Community Forums in 13 Southern Interior communities with over 200 participants from a variety of sectors.

Copies of these individual TSA reports are available on the SIBAC website at www.sibacs.com
The information gathered through the community consultation process identified both concerns and recommendations that have been considered in the development of this report.

**MPB Environmental Scan Report**

Through SIBAC’s research and community consultation process, it became clear that concerns regarding the environmental impacts of the MPB epidemic were a priority for the public in the Southern Interior region. To develop a better understanding of environmental impacts, SIBAC contracted with the Ministry of Environment to complete an MPB environmental overview report for the Southern Interior.

**SIBAC-Supported Pilot Projects**

SIBAC funded six pilot projects designed to provide approaches and/or possible solutions to MPB-related issues which may provide direction on community transition or foster innovation that may lead to new economic opportunities. These pilot projects included:

- Princeton – Bio-energy and Residual Fibre Use;
- Scenario Planning and Leadership Workshop;
- Fuel Management – MPB-Impacted First Nations;
- Mountain Pine Beetle and Water Management Workshop;
- Secwepemc Cultural Use in MPB Stands Project; and,
- TRU Tourism Project.

Brief summaries of each of these pilot projects are provided in Section 11 of this report.
2. Socio-Economic Trend Analysis

2.1 Socio-Economic Trends and Impacts

2.1.1 Population Trends

The SIBAC and BC population and the population change between 1986 and 2006 are highlighted in Table 2-1. As illustrated, the population has grown by 33.8% in the SIBAC region while the province has grown at a slightly faster pace of 42.7%. Over this period, the SIBAC region has seen its share of total provincial population decline from 16.3% to 15.3%.

<table>
<thead>
<tr>
<th>Year</th>
<th>SIBAC Region Population</th>
<th>% Change</th>
<th>BC Population</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>469,705</td>
<td>-</td>
<td>2,883,365</td>
<td>-</td>
</tr>
<tr>
<td>1991</td>
<td>518,490</td>
<td>10.4%</td>
<td>3,282,000</td>
<td>13.8%</td>
</tr>
<tr>
<td>1996</td>
<td>594,445</td>
<td>14.6%</td>
<td>3,724,500</td>
<td>13.5%</td>
</tr>
<tr>
<td>2001</td>
<td>606,970</td>
<td>2.1%</td>
<td>3,907,740</td>
<td>4.9%</td>
</tr>
<tr>
<td>2006</td>
<td>628,660</td>
<td>3.6%</td>
<td>4,113,485</td>
<td>5.3%</td>
</tr>
<tr>
<td>Growth (1986 to 2006)</td>
<td>33.8%</td>
<td>42.7%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


However, while the SIBAC region has enjoyed strong positive population growth over the past 20-year period, this growth has not occurred uniformly across the region. As illustrated in Table 2-2, the population growth has been concentrated in the Okanagan TSA where a full 78% of the growth in population has taken place. Collectively, the Kamloops TSA and the Okanagan TSA have accounted for 148,435 or 93% of the 158,955 population increase in the SIBAC region.

3 The SIBAC region consists of the 11 TSAs in the Southern Interior, including: Arrow, Boundary, Cranbrook, Golden, Invermere, Kamloops, Kootenay Lake, Lillooet, Merritt, Okanagan, and Revelstoke.
Table 2-2  TSA Population Growth and Share of Regional Growth, 1986 to 2006

<table>
<thead>
<tr>
<th>TSA</th>
<th>Population Growth, 1986 - 2006</th>
<th>Share of Regional Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow</td>
<td>295</td>
<td>+0.2%</td>
</tr>
<tr>
<td>Boundary</td>
<td>1,880</td>
<td>+1.2%</td>
</tr>
<tr>
<td>Cranbrook</td>
<td>-430</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Golden</td>
<td>440</td>
<td>+0.3%</td>
</tr>
<tr>
<td>Invermere</td>
<td>2,340</td>
<td>+1.5%</td>
</tr>
<tr>
<td>Kamloops</td>
<td>23,625</td>
<td>+14.9%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>4,665</td>
<td>+2.9%</td>
</tr>
<tr>
<td>Lilooet</td>
<td>1,095</td>
<td>+0.7%</td>
</tr>
<tr>
<td>Merritt</td>
<td>1,310</td>
<td>+0.8%</td>
</tr>
<tr>
<td>Okanagan</td>
<td>124,810</td>
<td>+78.5%</td>
</tr>
<tr>
<td>Revelstoke</td>
<td>-1,075</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Total</td>
<td>158,955</td>
<td>100.0%</td>
</tr>
</tbody>
</table>


Figure 2-1 highlights the municipal population change by community in the SIBAC region between 1986 and 2006. While most communities have added some population through boundary expansion or increase in population, the growth rate has varied considerably. Again, communities in the Okanagan TSA led municipal population growth, with the top eight growth rates coming from communities in the Okanagan. Conversely, the municipalities that have lost population since 1986 are all smaller communities with traditionally strong links to resource sectors.

It should be noted that several communities do not appear in Figure 2-1 as they were not incorporated in 1986. Among the communities that were not incorporated in 1986 are West Kelowna, Clearwater, Barriere, Canal Flats, and Radium Hot Springs.
Figure 2-1 Municipal Population Percentage Change, 1986 to 2006

2.1.2 Labour Force Trends

As shown in Table 2-3, the labour force in the SIBAC region grew from just over 224,000 in 1986 to almost 327,000 by 2006. This increase of almost 46% was only marginally less than provincial labour force growth of 48% during the same 20-year period. Six industries saw an absolute decline in their experienced labour force totals, while the other 16 industries all advanced. The biggest gainers were health, construction, retail and business services, while mining, logging, and forestry and agriculture experienced the biggest declines.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unclassified</td>
<td>7,190</td>
<td>8,560</td>
<td>2,9%</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>11,920</td>
<td>13,370</td>
<td>4,5%</td>
<td></td>
</tr>
<tr>
<td>Fish/Hunt/Trapping</td>
<td>155</td>
<td>240</td>
<td>0,1%</td>
<td></td>
</tr>
<tr>
<td>Logging &amp; Forestry</td>
<td>9,135</td>
<td>9,595</td>
<td>3,2%</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>8,390</td>
<td>6,210</td>
<td>2,1%</td>
<td></td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>180</td>
<td>140</td>
<td>0,0%</td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>5,895</td>
<td>6,470</td>
<td>2,2%</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>16,350</td>
<td>26,600</td>
<td>8,9%</td>
<td></td>
</tr>
<tr>
<td>Wood products</td>
<td>11,185</td>
<td>11,450</td>
<td>3,8%</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>1,390</td>
<td>2,390</td>
<td>0,8%</td>
<td></td>
</tr>
<tr>
<td>Printing</td>
<td>1,515</td>
<td>2,700</td>
<td>0,9%</td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>275</td>
<td>660</td>
<td>0,2%</td>
<td></td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>12,185</td>
<td>13,920</td>
<td>4,6%</td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>7,055</td>
<td>10,355</td>
<td>3,5%</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>30,065</td>
<td>40,170</td>
<td>13,4%</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>9,020</td>
<td>10,170</td>
<td>3,4%</td>
<td></td>
</tr>
<tr>
<td>Finance &amp; Real Estate</td>
<td>9,260</td>
<td>11,450</td>
<td>3,8%</td>
<td></td>
</tr>
<tr>
<td>Business Services</td>
<td>6,135</td>
<td>12,170</td>
<td>4,1%</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>11,080</td>
<td>13,505</td>
<td>4,5%</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>12,480</td>
<td>18,800</td>
<td>6,3%</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>17,460</td>
<td>28,920</td>
<td>9,7%</td>
<td></td>
</tr>
<tr>
<td>Accommodation</td>
<td>20,490</td>
<td>27,835</td>
<td>9,3%</td>
<td></td>
</tr>
<tr>
<td>Other Services</td>
<td>15,230</td>
<td>23,810</td>
<td>8,0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>224,040</td>
<td>299,490</td>
<td>100,0%</td>
<td></td>
</tr>
</tbody>
</table>

The long-term change in labour force structure can be seen in Figure 2-2, which compares the proportion of goods-producing and service-producing jobs for 1986 and 2006. In 1986, two-thirds of all jobs in the SIBAC region were in service industries and the other one-third where in goods-producing industries. By 2006, these proportions were getting closer to a three-quarters/one-quarter split, a clear indication that the regional economy is shedding goods-producing jobs and replacing them with service jobs. The biggest relative transition
is in the logging, forestry and wood manufacturing industries, which as a group declined from 11% of the labour force in 1986 to 7% by 2006.

**Figure 2-2  Change in Labour Force Proportion for SIBAC Region, 1986 and 2006**

Source: Statistics Canada.
Table 2-4 shows location quotients (LQ) over the last five census periods ending in 2006, for 13 industries comprising the regional economic base. The public sector is excluded. Location quotients are a way of estimating industrial specialization as measured by job concentration compared to a reference area, in our case the province of BC. An LQ value of greater than “1” indicates that the SIBAC region has, compared to the province, a higher job concentration in the particular industry. This is said to be indicative of a comparative advantage in the specific sector. On the other hand, a value of less than “1” indicates the opposite – low job concentration signifies the presence of comparative disadvantages.

In 2006, mining, wood products manufacturing, logging and forestry, and agriculture were industries with the highest LQ in the region, while pulp and paper, printing and utilities were lowest. For agriculture and mining, however, the LQ declined between 1986 and 2006 as jobs became less concentrated. On the other hand, the LQ consistently increased for both logging and forestry, and wood products manufacturing, throughout the five census periods.

As shown in Table 2-4, the absolute number of forestry-related jobs in the region actually declined between 1986 and 2006. However, the LQs indicate that it was proportionately less than the province’s loss of forestry jobs.

Table 2-4  Location Quotients for SIBAC Region, 1986 to 2006

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>↓</td>
<td>2.00</td>
<td>1.89</td>
<td>1.95</td>
<td>1.83</td>
<td>1.78</td>
</tr>
<tr>
<td>Logging and Forestry</td>
<td>↑</td>
<td>1.48</td>
<td>1.59</td>
<td>1.59</td>
<td>1.76</td>
<td>1.79</td>
</tr>
<tr>
<td>Mining</td>
<td>↓</td>
<td>3.19</td>
<td>3.22</td>
<td>2.70</td>
<td>2.93</td>
<td>2.32</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>↑</td>
<td>0.62</td>
<td>0.64</td>
<td>1.04</td>
<td>1.04</td>
<td>1.25</td>
</tr>
<tr>
<td>Utilities</td>
<td>↓</td>
<td>0.90</td>
<td>0.87</td>
<td>0.85</td>
<td>0.86</td>
<td>0.84</td>
</tr>
<tr>
<td>Construction</td>
<td>↑</td>
<td>1.11</td>
<td>1.09</td>
<td>1.15</td>
<td>1.24</td>
<td>1.33</td>
</tr>
<tr>
<td>Wood products</td>
<td>↑</td>
<td>1.51</td>
<td>1.60</td>
<td>1.55</td>
<td>1.57</td>
<td>1.79</td>
</tr>
<tr>
<td>Paper</td>
<td>↑</td>
<td>0.49</td>
<td>0.59</td>
<td>0.78</td>
<td>0.69</td>
<td>0.81</td>
</tr>
<tr>
<td>Printing</td>
<td>↓</td>
<td>0.67</td>
<td>0.75</td>
<td>0.90</td>
<td>0.84</td>
<td>0.63</td>
</tr>
<tr>
<td>Furniture</td>
<td>↑</td>
<td>0.49</td>
<td>0.70</td>
<td>1.00</td>
<td>1.09</td>
<td>1.07</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>↑</td>
<td>0.87</td>
<td>0.83</td>
<td>0.86</td>
<td>0.91</td>
<td>0.92</td>
</tr>
<tr>
<td>Transportation</td>
<td>↑</td>
<td>0.78</td>
<td>0.83</td>
<td>0.80</td>
<td>0.82</td>
<td>0.88</td>
</tr>
<tr>
<td>Accommodation</td>
<td>↓</td>
<td>1.14</td>
<td>1.17</td>
<td>1.13</td>
<td>1.15</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Source: Statistics Canada.
Note: A value of “1” indicates that the region has the same proportion of its labour force in the sector as the province. A value of less than “1” signifies a lower proportion, while more than “1” a greater proportion. The benchmark is British Columbia.
In order to understand the nature of employment growth or decline in the region, it is useful to compare that change to the broader economy. Shift/share analysis is a technique for disaggregating this change into three components, again using the province as a reference area:

- The region’s share of provincial growth (provincial effect);
- The change in industry mix (industry effect); and,
- The shift of activities to the region (local effect).

As noted in Table 2-5, the provincial effects represent the overall provincial employment change between 1986 and 2006. Since provincial employment grew during this period, all industries reflect the same relative growth in employment. The second column on industry effect shows what the change in Study Area employment would have been if it had matched provincial employment change for the same industry. Effects are negative for all industries that lost employment at the provincial level during this time. Only accommodation, oil and gas, construction and furniture manufacturing posted positive job growth.

Finally, the local effect for each industry represents the residual change in regional employment for each industry. The large negative local effect in agriculture, mining and accommodation is an indication that employment performance lagged both provincial and industry benchmarks (i.e. less growth or more loss in employment). On the other hand, the large positive local effect for construction, wood products, logging and forestry and transportation exceeded provincial and industry benchmarks.

**Table 2-5  Employment Shift-Share in the SIBAC Region, 1986 to 2006**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>11 920</td>
<td>5 691</td>
<td>-4 842</td>
<td>-1 528</td>
<td>-680</td>
<td>11 240</td>
</tr>
<tr>
<td>Logging and Forestry</td>
<td>9 135</td>
<td>4 361</td>
<td>-7 032</td>
<td>1 251</td>
<td>-1 420</td>
<td>7 715</td>
</tr>
<tr>
<td>Mining</td>
<td>8 390</td>
<td>4 005</td>
<td>-4 157</td>
<td>-2 314</td>
<td>-2 465</td>
<td>5 925</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>180</td>
<td>86</td>
<td>6</td>
<td>268</td>
<td>360</td>
<td>540</td>
</tr>
<tr>
<td>Utilities</td>
<td>5 895</td>
<td>2 814</td>
<td>-1 330</td>
<td>-499</td>
<td>985</td>
<td>6 880</td>
</tr>
<tr>
<td>Construction</td>
<td>16 350</td>
<td>7 805</td>
<td>-3 563</td>
<td>5 206</td>
<td>16 575</td>
<td>32 925</td>
</tr>
<tr>
<td>Wood products</td>
<td>11 185</td>
<td>5 340</td>
<td>-7 723</td>
<td>1 478</td>
<td>-905</td>
<td>10 280</td>
</tr>
<tr>
<td>Paper</td>
<td>1 390</td>
<td>664</td>
<td>-1 003</td>
<td>664</td>
<td>325</td>
<td>1 715</td>
</tr>
<tr>
<td>Printing</td>
<td>1 515</td>
<td>723</td>
<td>-1 366</td>
<td>-67</td>
<td>-710</td>
<td>805</td>
</tr>
<tr>
<td>Furniture</td>
<td>275</td>
<td>131</td>
<td>399</td>
<td>939</td>
<td>1 470</td>
<td>1 745</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>12 185</td>
<td>5 817</td>
<td>-2 593</td>
<td>586</td>
<td>3 810</td>
<td>15 995</td>
</tr>
<tr>
<td>Transportation</td>
<td>9 020</td>
<td>4 306</td>
<td>-1 800</td>
<td>1 269</td>
<td>3 775</td>
<td>12 795</td>
</tr>
<tr>
<td>Accommodation</td>
<td>20 490</td>
<td>9 782</td>
<td>821</td>
<td>-2 448</td>
<td>8 155</td>
<td>28 645</td>
</tr>
</tbody>
</table>

Source: Statistics Canada.
A graphic representation of job concentration (i.e. location quotients in Table 2-4) plotted against the locally induced change in jobs (i.e. the local effect in Table 2-5) between 1986 and 2006 can be seen in Figure 2-3.

Employment concentration and change for the study period are characterized by their placement within the four quadrants of the chart. The size of each bubble represents the total change in the labour force, with empty bubbles representing job loss and shaded bubbles job gain.

What the chart demonstrates is that those key industries in which the region demonstrates a high concentration of jobs (i.e. high LQs) all lost jobs during the 1986 to 2006 period. This includes logging, wood manufacturing, agriculture and mining. Only construction experienced significant job growth and at the same time demonstrated clear local strengths. Furniture manufacturing and oil and gas also show positive performance, but in the case of oil and gas, job growth has been relatively minor and thus far has been confined to the East Kootenay area. “Rising” industries include transportation and other manufacturing – they have made important job contributions over the last 20 years but still lag the province in terms of their proportion of the regional employment base.

**Figure 2-3 SIBAC Region Labour Force Concentration and Change, 1986-2006**

**Source:** Statistics Canada.

**Note:** Size of bubble represents total change in jobs—shaded bubbles represent job gain, empty bubbles job loss.
2.2 Disposable Income

The after-tax income is collected by BC Stats and is used here to represent the disposable income available in the SIBAC region. Between 1991 and 2006, disposable income in the SIBAC region increased from $6,270.1 million to $13,522.1 million, growth of 116%. Over the same period, the BC consumer price index has risen by 31% (BC Stats. 2009).

The forest sector has managed to grow its share of disposable income in the SIBAC region over the period rising from $583.7 million in 1991 to $1,060.5 million in 2006 – an increase of 82% over the period. While this is a sizable growth, it is a much smaller increase than observed for the total disposable income in the SIBAC region.

Other components of regional income experienced much stronger growth than forestry over the 1991 to 2006 period with public administration rising by 151% to $2,896.7 million in 2006 and remaining basic sectors increased by 204% to $4,005.7 million. Only transfer and non-employment income grew at a rate similar to forestry increasing 79% to $5,758 million in 2006.

The change in disposable income in the SIBAC region between 1991 and 2006 is highlighted in Figure 2-4.

Figure 2-4 SIBAC Region After Tax Income Estimates 1991 to 2006, $ Millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Forestry</th>
<th>Remaining Basic Employ.</th>
<th>Tran &amp; ONEI/Non-Basic</th>
<th>Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>$6,270.1 M</td>
<td>$7,913.7 M</td>
<td>$10,400.8</td>
<td>$13,522.1</td>
</tr>
<tr>
<td>1996</td>
<td>$7,913.7 M</td>
<td>$4,005.7 M</td>
<td>$2,896.7 M</td>
<td>$1,060.5 M</td>
</tr>
<tr>
<td>2001</td>
<td>$5,758.0 M</td>
<td>$4,005.7 M</td>
<td>$2,896.7 M</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>$5,758.0 M</td>
<td>$4,005.7 M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Remaining Basic Sectors includes mining, agriculture, tourism and construction and other basic sectors (including film, high technology and others).

While growth in disposable income at the SIBAC region has been very strong, much of this growth is driven by the influence of the Okanagan TSA, the TSA with the largest population and which made up 55% of all disposable income in the SIBAC region in 2006.
Table 2-7 highlights the change in disposable income by TSA and illustrates the variation in growth between TSAs over the 1991 to 2006 period.

**Table 2-6  After-Tax Income in SIBAC Region By TSA, 1991 - 2006**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow TSA</td>
<td>$661.1</td>
<td>$619.6</td>
<td>$788.6</td>
<td>$892.3</td>
<td>+35.0%</td>
</tr>
<tr>
<td>Boundary TSA</td>
<td>$128.4</td>
<td>$156.7</td>
<td>$197.2</td>
<td>$227.5</td>
<td>+77.2%</td>
</tr>
<tr>
<td>Cranbrook TSA</td>
<td>$601.8</td>
<td>$700.7</td>
<td>$893.2</td>
<td>$1,033.5</td>
<td>+71.7%</td>
</tr>
<tr>
<td>Golden TSA</td>
<td>$88.5</td>
<td>$95.1</td>
<td>$127.4</td>
<td>$146.8</td>
<td>+65.8%</td>
</tr>
<tr>
<td>Invermere TSA</td>
<td>$89.5</td>
<td>$129.9</td>
<td>$161.5</td>
<td>$244.7</td>
<td>+173.4%</td>
</tr>
<tr>
<td>Kamloops TSA</td>
<td>$1,142.9</td>
<td>$1,512.2</td>
<td>$1,846.1</td>
<td>$2,367.2</td>
<td>+107.1%</td>
</tr>
<tr>
<td>Kootenay Lake TSA</td>
<td>$328.9</td>
<td>$434.3</td>
<td>$525.1</td>
<td>$625.2</td>
<td>+90.1%</td>
</tr>
<tr>
<td>Lillooet TSA</td>
<td>$49.7</td>
<td>$73.6</td>
<td>$112.7</td>
<td>$96.4</td>
<td>+94.1%</td>
</tr>
<tr>
<td>Merritt TSA</td>
<td>$162.0</td>
<td>$211.0</td>
<td>$282.0</td>
<td>$351.8</td>
<td>+117.0%</td>
</tr>
<tr>
<td>Okanagan TSA</td>
<td>$2,884.3</td>
<td>$3,853.1</td>
<td>$5,322.5</td>
<td>$7,568.8</td>
<td>+162.4%</td>
</tr>
<tr>
<td>Revelstoke TSA</td>
<td>$133.0</td>
<td>$127.5</td>
<td>$144.6</td>
<td>$166.7</td>
<td>+25.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$6,270.1</td>
<td>$7,913.7</td>
<td>$10,400.9</td>
<td>$13,720.9</td>
<td>+113.3%</td>
</tr>
</tbody>
</table>

Note: The values have not been adjusted for inflation.

As illustrated above, Invermere and the Okanagan had the strongest increase in disposable incomes while Revelstoke and Arrow had the smallest change in disposable incomes over the period. The three TSAs with the largest share of disposable income, Okanagan TSA, Kamloops TSA, and Cranbrook TSA represented close to 80% of total disposable income in the SIBAC region.

2.3  Forest Vulnerabilities

Many areas in the SIBAC region are particularly dependent on the forest sector as a driver of the local economy. The magnitude of the Forest Vulnerability Index (FVI) indicates the vulnerability of a particular area to a potential downturn in the forest sector – a community is vulnerable if its forest sector dependency is high and its economic diversity is low. However, it must be remembered that in the context of the MPB impacts in the Southern Interior, that the percentage of pine within the timber harvesting land base (THLB) for a TSA is also an important consideration. (The percentage of pine in the THLB is discussed further in Section 2.5.1 below.)

The FVI rankings and percentage of pine in the THLB for each TSA are illustrated in Table 2-7. The FVI has also been developed for the smaller area levels and these are
highlighted in the individual TSA socio-economic reports located at the SIBAC website (www.sibac.ca). Given the size and economic diversity in the two most populated TSAs, the Kamloops and Okanagan TSAs have been further subdivided into their pre-2003 Forest District boundaries. This subdivision creates 14 TSA level entries in the table below.

Table 2-7  SIBAC Forest Vulnerability and Percentage Pine Comparison by TSA, 2006

<table>
<thead>
<tr>
<th>TSA</th>
<th>FVI</th>
<th>Ranking</th>
<th>% Pine in THLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boundary TSA</td>
<td>38</td>
<td>1 of 14</td>
<td>46%</td>
</tr>
<tr>
<td>Golden TSA</td>
<td>35</td>
<td>2 of 14</td>
<td>17%</td>
</tr>
<tr>
<td>Lillooet TSA</td>
<td>32</td>
<td>3 of 14</td>
<td>38%</td>
</tr>
<tr>
<td>Kamloops TSA (Clearwater FD)</td>
<td>32</td>
<td>3 of 14</td>
<td>27%</td>
</tr>
<tr>
<td>Merritt TSA</td>
<td>30</td>
<td>5 of 14</td>
<td>70%</td>
</tr>
<tr>
<td>Revelstoke TSA</td>
<td>21</td>
<td>6 of 14</td>
<td>1%</td>
</tr>
<tr>
<td>Arrow TSA</td>
<td>16</td>
<td>7 of 14</td>
<td>18%</td>
</tr>
<tr>
<td>Invermere TSA</td>
<td>14</td>
<td>8 of 14</td>
<td>41%</td>
</tr>
<tr>
<td>Okanagan TSA (Salmon Arm FD)</td>
<td>14</td>
<td>9 of 14</td>
<td>31%</td>
</tr>
<tr>
<td>Cranbrook TSA</td>
<td>12</td>
<td>10 of 14</td>
<td>48%</td>
</tr>
<tr>
<td>Kamloops TSA (Kamloops FD)</td>
<td>11</td>
<td>11 of 14</td>
<td>27%</td>
</tr>
<tr>
<td>Okanagan TSA (Vemon FD)</td>
<td>10</td>
<td>12 of 14</td>
<td>31%</td>
</tr>
<tr>
<td>Kootenay Lake TSA</td>
<td>10</td>
<td>13 of 14</td>
<td>23%</td>
</tr>
<tr>
<td>Okanagan TSA (Penticton FD)</td>
<td>5</td>
<td>14 of 14</td>
<td>31%</td>
</tr>
</tbody>
</table>

Source: BC Stats and Ministry of Forests.

As illustrated above, the Boundary TSA has a higher forest dependency and is less diversified than the other SIBAC TSAs resulting in it having the highest forest vulnerability index (FVI). This is followed by the Golden and Lillooet TSAs and the Clearwater Forest District from the Kamloops TSA. Conversely, the Penticton Forest District of the Okanagan TSA has the lowest FVI and is considered the least forest dependent and has the greatest economic diversity in the SIBAC region. The Penticton Forest District includes the larger SIBAC communities of City of Kelowna, District of West Kelowna, and City of Penticton.

2.4 Community Level Forest Dependency

While forest vulnerability index above provides highlights of the TSAs more at risk in with a downturn in their local forest economy, within each TSA there can be considerable variation on forest dependency. For example, in the Kamloops TSA the TSA is home to Clearwater, the community with the highest forest dependency in the Southern Interior;
however, it is also home to Kamloops and Logan Lake which are among the least forestry
dependent communities. Figure 2-5 graphically compares the local forest dependencies for
each community and local area and compares them to the other communities in the
Southern Interior.
Figure 2-5  Forest Dependency by Community (After Tax Income), 2006

2.5 Forest Sector Trends and Impacts

2.5.1 Forest Profile and AAC

The portion of the forested land base in the SIBAC region that is economic and available for industrial timber harvesting is called the timber harvesting land base (THLB) and contains multiple tree species. Since the MPB attacks only pine species, the pine leading stands in the THLB are at greatest risk. Figure 2-6 shows the area of THLB and the amount that is in pine leading stands. It gives an indication of how significant the MPB is for the respective TSA as well as its significance in the SIBAC context.

![Figure 2-6 Area of THLB in Pine leading stands by TSA (Hectares)](source)

Sources:
2. Most recent AAC determination for each TSA for THLB (See Appendix E).

The Merritt TSA has the largest amount of pine leading stands, making up about 70% of its THLB. The Okanagan and Kamloops TSAs have a lower proportion of pine leading stands, but the land areas are much larger such that a relatively large area is susceptible to MPB in these two TSAs. For the 11 TSAs making up the SIBAC region, about 37% of the THLB is in pine leading stands.

Timber is predominately harvested from Crown-owned land in BC, with some contribution from private lands. The MOFR has delineated large areas of the forest land base and manages them on a sustained yield basis. These management units are termed timber supply areas (TSA) or tree farm licences (TFL). Setting the desired harvest rate, termed the Annual Allowable Cut (AAC), is a key element in the respective forest management units.

The AAC is a target harvest volume to be approximated on-average over a period of time. The actual harvest is the responsibility of private interests holding various types of forest tenures issued by MOFR. The tenure holders, which may include independent loggers,
companies that operate mills, communities, and First Nation, are expected to harvest their respective licence volume unless constrained by markets or other considerations.

As shown in Figure 2-7, the AAC was roughly constant from 1995 to 2003, and harvest was at or above the AAC in most years. In 2003, AACs for certain TSAs were increased to address MPB and other issues, and markets were available to support the increased harvest volume. AACs have, in aggregate, increased since 2003, but difficult market conditions since 2006 have constrained harvest.

**Figure 2-7 Total SIBAC Region AAC and Harvest Volumes**

![Graph showing AAC and harvest volumes from 1995 to 2006.]

Note: Based on the 11 TSAs in the SIBAC region.

A large share of the AAC and harvest is concentrated in the Kamloops, Merritt and Okanagan TSAs. Specifically, in 2006 these three TSAs account for 10,541,900 cubic metres of the SIBAC Region’s AAC and 10,562,900 cubic metres of the harvest in that year. This represented almost 70% of SIBAC’s total AAC and harvest in 2006.

Figure 2-8 highlights the pine portion of the harvest and the AAC for selected years. The figure shows some increased effort to target pine stands since 2003. Emphasizing pine harvest is a management choice that addresses the effects of the MPB attack. It salvages wood that might otherwise become uneconomic and it conserves non-pine stands for future harvest when the pine stands are regenerating.
2.5.2 Future Forest Implications of MPB on Forest Profile and AAC

Due to differences in the distribution and the nature of pine forests across the province, the MPB epidemic will spread across the province over time. Figure 2-9 shows the cumulative percentage of pine killed in the province to 2007 and projected to 2014. As illustrated, while much of the pine had already been killed in the central interior by 2007, the effects in the Southern Interior were continuing to build. Indeed the majority of the MPB kill in Southern Interior forests is projected to occur between 2007 and 2014. This will result in the Southern Interior experiencing a delayed impact on forestry activities when compared to the rest of the interior forest sector.
Figure 2-9  Cumulative Projected Percentage of Pine Killed

Source: Ministry of Forests & Range Research Branch.
2.5.3 Economic Contribution

Harvesting the forests in the SIBAC region creates considerable employment and government revenues. In 2006, the total harvest volume in the SIBAC region was 18.5 million cubic metres, with the TSAs accounting for 15 million cubic metres (the remainder was mostly from TFLs).

Table 2-8 estimates the Forest Sector’s economic contribution to SIBAC region and BC in 2006. In 2006, there were approximately 6,300 person years of employment in the logging and silviculture activities. In addition, there is processing – with processing including the primary mills, such as sawmills and panel mills. Some logs harvested in SIBAC area leave the region for processing, which is indicated by the roughly 700 person years of processing employment in the “rest of BC”. There is also considerable trading of logs among SIBAC TSAs. The recorded transfer of logs in 2006 was used to identify the TSAs in which milling occurred.

Besides those directly employed in the sector, jobs are also generated in firms supply goods and services to the forest companies. Consumer spending by forest industry employees/contractors also creates employment in retail industries. The magnitude of the employment created by these economic linkages, which exist within SIBAC and the rest of BC, is reported in the “induced/indirect” column.

Total employment in SIBAC associated with TSAs harvest is more than 24,500 person-years. But this only measures about 60% of employment supported. The SIBAC TSAs also generated about 15,800 person years of employment in the rest of BC. This is composed of employment in mills and a range of businesses supporting operations or employees.

**Table 2-8 Employment and Stumpage Revenue at the 2006 Harvest Level**

<table>
<thead>
<tr>
<th></th>
<th>Harvesting &amp; Silviculture</th>
<th>Total Processing</th>
<th>Indirect/Induced</th>
<th>Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SIBAC</td>
<td>6,279</td>
<td>9,257</td>
<td>8,972</td>
<td>24,507</td>
</tr>
<tr>
<td>Rest of BC</td>
<td>-</td>
<td>729</td>
<td>15,064</td>
<td>15,794</td>
</tr>
<tr>
<td>Total BC</td>
<td>6,279</td>
<td>9,986</td>
<td>24,037</td>
<td>40,301</td>
</tr>
<tr>
<td>Total Stumpage</td>
<td></td>
<td></td>
<td></td>
<td>$205,694,000</td>
</tr>
</tbody>
</table>

*Note: Based on 15 million m³ harvested from the 11 TSAs in the SIBAC Region in 2006.*

Stumpage revenue – estimated as the sum of the TSAs’ stumpage rates (averaged over 2005-08 period) and the TSAs’ total harvest volume in 2006 – is estimated at

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4 The estimates for the individual TSAs are highlighted in the TSA-level Socio-economic Trend Assessment reports prepared for SIBAC and available at [http://www.sibac.ca](http://www.sibac.ca).

5 Person year corresponds to a full year of employment. Where persons are working part time, or seasonally, the number of persons in the labour force is greater than the person years of employment.
approximately $205 million. The value is representative of average stumpage revenue, rather than a particular year. It provides a benchmark for considering the effects of MPB. Given that more than half of the forest industry’s direct employment is in milling, Table 2-9 summarizes the number of mills operating in each TSA for three recent years. Over the period, the number of operations declined, reflecting some consolidation, with the remaining mills adding capacity. Total employment was relatively static. Total capacity as measured by log input volume in 2007 was estimated to be 19.2 million cubic metres (Forest Ecosystems Solutions, et al).

### Table 2-9 Trends in Mill Numbers and Manufacturing Employment in SIBAC Region

<table>
<thead>
<tr>
<th>TSA</th>
<th>2001</th>
<th>2004</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># mills</td>
<td>Employment</td>
<td># mills</td>
</tr>
<tr>
<td>Arrow and Boundary</td>
<td>22</td>
<td>1,860</td>
<td>15</td>
</tr>
<tr>
<td>Cranbrook &amp; Invermere</td>
<td>22</td>
<td>1,160</td>
<td>18</td>
</tr>
<tr>
<td>Golden &amp; Revelstoke</td>
<td>12</td>
<td>510</td>
<td>7</td>
</tr>
<tr>
<td>Kamloops</td>
<td>23</td>
<td>1,600</td>
<td>21</td>
</tr>
<tr>
<td>Kootenay Lake</td>
<td>6</td>
<td>370</td>
<td>5</td>
</tr>
<tr>
<td>Lillooet and Merritt</td>
<td>11</td>
<td>685</td>
<td>14</td>
</tr>
<tr>
<td>Okanagan</td>
<td>49</td>
<td>2,945</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total SIBAC</strong></td>
<td><strong>145</strong></td>
<td><strong>9,130</strong></td>
<td><strong>122</strong></td>
</tr>
</tbody>
</table>

Note: Includes log home builders.

### 2.5.4 Economic Transition in the Forest Industry

Another important consideration for communities depending on forestry employment is the increase in efficiency that the forest industry has achieved in the harvesting and processing of the wood supply over time. Figure 2-10 highlights the provincial forest sector employment and the volume of wood harvested over the period from 1975 to 2008. As illustrated, between 1995 and 2005 the amount of timber harvested in the province generally remained flat while the amount employment required to process the harvest steadily trended downward. It is important to recognize that this downward trend in employment was already underway in the forest sector prior to the MPB epidemic and is anticipated to continue for the foreseeable future.
2.5.5 Post-MPB Timber Supply Projections

The Ministry of Forests and Range Chief Forester is responsible for modelling and setting the timber harvest levels on provincial Crown lands. Modelling and predicting future timber supply is a complex task since future timber supply is affected by a large number of variables (Crown forest lands removed for other purposes; constraints on the timber volume that can be removed to protect other values like habitat protection; etc.), some of which can’t be foreseen or predicted (for example loss of timber to wildfires). As a result, the Chief Forester typically reviews and sets the Annual Allowable Cut (AAC) for each Timber Supply Area of the province every five years. In these Timber Supply Review exercises the Chief Forester uses the best information available at that time to set the AAC for the next five years. In doing so the Chief Forester also examines and predicts the potential mid-term (20 to 100 years) and longer term (100 years plus) timber supply for the TSA.

In September 2007, the Chief Forester issued a report that examined the probable impacts of the MPB epidemic on mid-term timber supply in the province. In the report the Chief Forester estimated the potential timber supply impacts of two potential scenarios – one where the focus is on harvesting MPB impacted pine, and the other where the timber harvest is not focused on pine. Based on forest industry actions over the past several years,
the Ministry of Forests & Range believes that Scenario 1 (shown below) is much more likely than Scenario 2.
What is clear from the Chief Forester’s report and the work completed by Forest Ecosystem Solutions for SIBAC, is that the probable MPB impacts on timber supply vary considerably by TSA across the Southern Interior. Due to their higher percentages of pine the Lillooet, Merritt, Kamloops and Cranbrook TSAs will experience the greatest pressures on mid-term timber supply due to the MPB epidemic. Table 2-10 below provides a summary of the range of possible post-MPB mid-term timber supply based on the work completed by Forest Ecosystem Solutions and the Chief Forester’s MPB Update Report.
### Table 2-10 Medium Term Timber Supply Projections

<table>
<thead>
<tr>
<th></th>
<th>Pre-MPB Epidemic Estimated Mid-term Timber Supply (m³)</th>
<th>Post MPB Epidemic Estimated Range of Mid-term Timber Supply (m³)</th>
<th>Predicted timing of start of MPB Timber Supply Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow</td>
<td>493,000</td>
<td>394,400 to 448,630</td>
<td>20 to 70 years</td>
</tr>
<tr>
<td>Boundary</td>
<td>749,000</td>
<td>524,300 to 591,710</td>
<td>20 to 100 years</td>
</tr>
<tr>
<td>Cranbrook</td>
<td>559,000</td>
<td>335,400 to 385,710</td>
<td>40 to 90 years</td>
</tr>
<tr>
<td>Golden</td>
<td>440,000</td>
<td>308,000 to 347,600</td>
<td>30 to 90 years</td>
</tr>
<tr>
<td>Invermere</td>
<td>542,570</td>
<td>325,542 to 374,600</td>
<td>40 to 100 years</td>
</tr>
<tr>
<td>Kamloops</td>
<td>2,361,900</td>
<td>1,417,140 to 1,629,711</td>
<td>20 to 70 years</td>
</tr>
<tr>
<td>Kootenay Lake</td>
<td>605,000</td>
<td>484,000 to 550,550</td>
<td>50 to 100 years</td>
</tr>
<tr>
<td>Lillooet</td>
<td>572,900</td>
<td>401,030 to 452,591</td>
<td>20 to 100 years</td>
</tr>
<tr>
<td>Merritt</td>
<td>1,695,500</td>
<td>1,017,300 to 1,169,895</td>
<td>20 to 60 years</td>
</tr>
<tr>
<td>Okanagan</td>
<td>2,550,000</td>
<td>2,040,000 to 2,320,500</td>
<td>60 to 100 years</td>
</tr>
<tr>
<td>Revelstoke</td>
<td>165,000</td>
<td>165,000</td>
<td>n/a</td>
</tr>
</tbody>
</table>


However, caution must be used as these ranges may well change in the future as events not yet known can affect these projections. It is also important to note that the predicted decreases in mid-term timber supply are not solely attributable to the effect of the MPB epidemic. In some TSAs a drop in mid-term timber supply was always predicted due to the impacts of other timber constraint variables.

Similarly, the timing of potential MPB impacts on the timber supply are also a wide timeframe range to reflect the uncertainties of influencing factors such as actual future harvest volumes and the length of time MPB impacted timber remains valuable as a sawlog or some other economic use. It is also important to note that these mid-term timber supply decreases are temporary. As new forests are planted and regenerated, the timber supply volume will recover and increase again in the future.

Moving forward, as the Chief Forester completes new timber supply reviews, the impacts of the MPB epidemic within each TSA will be revisited and updated. The individual SIBAC TSA Fact Sheets prepared for SIBAC by Forest Ecosystem Solutions provide the most up-to-date information currently available for each TSA (available at www.sibacs.com).

#### 2.5.6 Economic Implications of Timber Supply Scenarios

The employment and stumpage implications of the range of post-MPB timbers supply in approximately 20 years time is summarized in Figure 2-12 and Table 2-11. The figure shows the trends in direct forest industry employment since 1986, with the base year set at 2006 for the index (i.e. 100%). The trend in employment has been negative since 1996.
The method used to estimate future employment levels is similar to that recommended by MOFR for timber supply review (MOFR, 2003). Basically, the method adopts a constant employment/harvest ratio based on contemporary industry conditions, and forecasts the future change in employment based solely on changes in timber supply. Other factors that play an important role in determining future employment levels, such as changing technology in harvesting and processing, and industrial organization, are assumed to remain constant. This likely means the estimates become increasingly less accurate the longer the forecast period. The estimates should be considered indications of the magnitude of the employment effect.

Figure 2-10 shows that even without a MPB epidemic, scheduled reductions in timber supply would have resulted in lower forest industry employment, continuing a trend evident in the data since 1996. The MPB epidemic is expected to exacerbate the decline in timber supply in the medium to longer term. The figure shows the corresponding range in employment on the assumption labour activity declines in proportion to anticipated decline in timber supply.

Table 2-11 reports potential job loss as a result of timber supply declines predicted and shown in Figure 2-10. The values represent reductions, or loss, from the 2006 employment values reported in Table 2-8. The post-MPB timber supply and employment projections for each individual TSA in the Southern Interior can be found in the individual TSA Trend Assessment reports available on the SIBAC website.
Table 2-11 Potential Loss of Employment and Stumpage Revenue, SIBAC and BC

<table>
<thead>
<tr>
<th>Employment (person years)</th>
<th>low</th>
<th>high</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Direct Job Loss SIBAC</td>
<td>3,840</td>
<td>to 4,395</td>
</tr>
<tr>
<td>Total Indirect/Induced Job Loss SIBAC</td>
<td>2,165</td>
<td>to 2,475</td>
</tr>
<tr>
<td><strong>Total Loss SIBAC Region</strong></td>
<td>6,005</td>
<td>to 6,870</td>
</tr>
<tr>
<td>Total Job Loss Rest of BC</td>
<td>4,740</td>
<td>to 5,360</td>
</tr>
<tr>
<td><strong>Total Job Loss BC</strong></td>
<td>10,745</td>
<td>to 12,230</td>
</tr>
<tr>
<td>Stumpage($ thousands)</td>
<td>$59,576</td>
<td>to $67,363</td>
</tr>
</tbody>
</table>

2.5 Socio-Economic Analysis Conclusions

SIBAC’s socio-economic analysis research has confirmed several significant and important socio-economic trends. The SIBAC region’s population and economic growth and diversification rates vary considerably across the Southern Interior. In general, population growth has been driven by the Okanagan and Kamloops TSAs.

The region’s labour force continues to shift towards the service producing sector with health services, business services, education services, and finance and real estate now all having larger percentage shares of the local labour force than they did in 1986. In the goods producing sector, only construction has grown noticeably since 1986, with oil and gas emerging as a new sector with a very small labour force in 2006. Disposable (after-tax) income has risen in all TSAs, with income increasing strongly in the Okanagan, Invermere, Merritt, and Kamloops TSAs.

In the forest sector, consolidation and technological change have driven the closure of many mills and the reduction of logging employment in the Southern Interior. According to Statistics Canada data, it is likely forest sector employment peaked around 1996 and has been declining ever since. Based on forecasts of future timber supplies in the Southern Interior as a result of the MPB epidemic, it is likely the Southern Interior will experience an acceleration in the loss of jobs in the traditional forest sector.

While the Southern Interior has diversified noticeably over the last twenty years, many smaller Southern Interior communities still remain heavily dependent on the forest sector for employment, community wealth and municipal taxes. For these communities in the TSAs with large components of pine, the MPB epidemic will pose significant socio-economic transitions and additional economic challenges.
3. **ENVIRONMENTAL ISSUES AND RECOMMENDATIONS**

3.1 **Overview and Context**

BC’s forests are continually changing due to both natural events and human activity. The mountain pine beetle (MPB) is a natural part of the forest ecosystems in British Columbia. An endemic insect to BC’s forests, the beetle contributes to the natural revitalization and change of forest structure over time by typically attacking over-mature or diseased lodgepole pine. Over the past 50 years, BC has experienced several MPB infestation ‘events’ or ‘outbreaks’ in sub-regions of the province (for example in the East Kootenays and the Chilcotin plateau). These outbreaks typically only lasted for a short period of time before subsiding.

The current MPB epidemic is unprecedented for a variety of reasons. First, due to fire suppression activities, there are currently much larger areas and volumes of mature lodgepole pine across BC’s forests than have historically occurred. Second, as a result of climate change, BC’s recent winter temperatures are more moderate than historical winters. Both fire and cold winter temperatures have in the past helped to control the populations of the MPB. With the removal of these population controls and an increase in the available habitat (mature pine), MPB populations have exploded to the current epidemic level.

3.2 **Environmental Issues**

During the process of completing this report, SIBAC member organizations, stakeholder groups and the general public all expressed concerns over the potential environmental impacts of the MPB epidemic. The major environmental concerns that were consistently raised by the general public in the community forums included:

- The potential for increased flooding, with the concern that dead pine forests will lead to quicker and higher spring runoffs.
- The potential for lower groundwater recharging rates than historically observed.
- The potential for negative impacts on water quality.
- The implications for existing drinking water infrastructure and flood control infrastructures maintained by local and First Nation governments.
- The potential impacts on wildlife and fish as a result of changes to local aquatic and forested ecosystems.
- The impacts of increased levels of MPB salvage and clear-cut harvesting on all ecosystems and wildlife, and the incremental increase above the MPB impact this industrial activity may have.
- Concerns over accelerated and increased forest road construction to provide access for accelerated salvage harvesting.
- Concerns over increased wildfire risk and the potential damage to forests that might be anticipated as a result of intense fires associated with high fuel loads.
• The aesthetic and visual quality impacts of both the MPB epidemic itself (i.e. large tracks of dead pine trees) and of increased MPB salvage harvesting.
• The implications for provincial parks, forest recreation sites and trails and the implications for tourism and recreational use and satisfaction.

3.3 Environmental Recommendations

The environmental issues and concerns noted in the previous section highlight the complex and interrelated nature of both the MPB epidemic itself and our responses to it. Managing to achieve one objective (for example maximizing the commercial value of dead pine) can create tensions in attempting to achieve other objectives (for example minimizing visual impacts of salvage harvesting). SIBAC recognizes that the provincial and federal governments have already undertaken numerous activities to both identify and mitigate potential MPB environmental impacts. SIBAC also recognizes there is a need and build upon the most current scientific knowledge available.

Due to the interrelated nature of the MPB issue, many MPB issues and concerns will need to be approached in a strategic and integrative manner. Therefore, SIBAC’s recommendations will often also suggest a strategic response or solution. To reduce duplication, SIBAC has placed recommendations under what it believes is the most appropriate report heading. Therefore, some of SIBAC’s recommendations that address environmental concerns and issues are included further along in this report (for example wildfire hazard management recommendations in Section 6.0).

To address MPB environmental concerns and issues, the SIBAC Committee makes the following recommendations:

- **SIBAC RECOMMENDATION 1** - That the Province work with communities and First Nations to assess and mitigate watersheds at high risk for water quality problems due to the MPB epidemic.

  It is recommended that the Ministry of Environment work with the UBCM, Interior Health, local governments and First Nations to identify consumptive watersheds at high risk for water quality problems, erosion, or flooding as a result of the MPB epidemic. There is a need to assess numerous watersheds that are used for consumptive purposes. Once high-risk watersheds are identified, the Province and Federal Government will need to provide funding for the completion of mitigation plans for major MPB at-risk community watershed areas.

- **SIBAC RECOMMENDATION 2** - The Province should complete a MPB management and salvage strategy for each TSA in the Southern Interior.

  Given the complex nature and importance of the MPB issues noted above, SIBAC believes that a strategic and integrated management response is essential. SIBAC believes that an MPB management and salvage strategy for each of the 11 TSAs in the Southern Interior will be a key mitigation tool. The strategies will require stakeholder and public input and need to be developed through multi-agency collaboration to ensure
that plans are implemented effectively and capture all key values. At a minimum, SIBAC believes that these strategies should identify MPB- and TSA-specific management issues and strategies that address biodiversity, critical habitat maintenance, wildlife, fauna, hydrology, visual impact management, wildfire hazard reduction, access management, silviculture, timber supply and salvage development objectives.

**SIBAC RECOMMENDATION 3 - That the Provincial and Federal Governments should examine potential flooding risks in Communities.**

There is a fear that the MPB epidemic could change the timing and volume of water during the freshet period, and increase the generation of debris torrents over historical levels; leading to increased flooding risks in some communities. In communities in which these flooding risks exist new investments may need to be made to prevent flooding.

**SIBAC RECOMMENDATION 4 - That the Ministry of Environment regularly update Communities on major actions the Ministry is undertaking in response to the MPB epidemic.**

The Ministry of Environment should produce and circulate an annual update to communities and First Nations on the major actions the Ministry is undertaking in response to the MPB epidemic. SIBAC recognizes that the specific units of the Ministry of Environment are undertaking various initiatives in response to the MPB epidemic. However, SIBAC does not believe that the public is well informed regarding these activities. Since the environmental impacts of the MPB epidemic are a significant public concern in the Southern Interior, SIBAC suggests that enhanced communication from the Ministry of Environment is required.
4 FOREST SECTOR ISSUES AND RECOMMENDATIONS

4.1 Overview and Context

The SIBAC Committee has heard of numerous issues associated with the forest sector. These issues stretch across several topic areas but are commonly concerned with access to fibre; further expansion of value-added; and the economic implications of the MPB epidemic.

Of particular importance to the SIBAC Committee is the loss of employment and economic wealth to rural communities and First Nations. As outlined in Section 2, forest sector impacts are anticipated to result in between 3,840 and 4,395 direct forest sector jobs being lost and an additional 2,165 to 2,475 spinoff jobs in communities throughout the SIBAC region. While not all of this may be attributed to the Mountain Pine Beetle, it is apparent the transition in the local and regional forest sector will be significant and long-lasting.

At the same time as these negative impacts begin to take root in the Southern Interior the SIBAC Committee has also heard about several opportunities and recommendations that may assist in diversifying local and regional economies and also may mitigate some of the anticipated negative implications on individual communities. The following issues and recommendations primarily stem from the economic and social transitions that are anticipated.

4.2 Forest Sector Issues

During the preparation of this report, SIBAC member organizations, stakeholder groups and the general public expressed numerous forestry related concerns. The forestry concerns that were most consistently raised included:

- The stumpage system does not adequately consider costs of harvesting and can discourage innovation.
- Entrepreneurs often have difficulty acquiring tenures to timber and log residue and as a result, entrepreneurs lack the security required to leverage required capital for investment.
- Scaling requirements for small volumes on private lands and residual fibre are disincentives.
- The requirement that waste assessment be undertaken on all harvest sites delays access to residual fibre subsequent to initial sawlog harvest, and this impacts the viability of residual fibre harvest.
- Removal of appurtenances (the requirement for local wood processing) has impacted rural communities.
• Understanding the relationship of land use and tenure issues with respect to MPB salvage and timber supply.

• The need for improved understanding and definition of emerging opportunities for the utilization of biomass – specifically, the determining of thresholds associated with volume over time, cost of acquisition and processing, potential end product applications and financing.

• Need for silviculture investments targeting rehabilitation of MPB-affected stands and second-growth stands in order to address potential mid-term timber supply issues.

• Understanding the impact associated with harvesting and non-harvesting of MPB-affected timber on reforestation and future timber supplies.

• Need for land base investments targeting rehabilitation of non-timber values (i.e. watersheds, wildlife) and species diversity in reforestation including use of deciduous.

• Private lands are losing pine trees and are not necessarily being reforested, resulting in a change to the local ecosystems.

• Concern with access to a reliable source of fibre (‘right log to the right mill’ concept) and markets (Softwood Lumber Agreement).

• Identification of and assistance in finding products and market opportunities for MPB-affected fibre.

• The impact that the ACC uplifts in northern BC and the associated MPB-related reduced stumpage rates for the North are having on the stumpage rates in southern BC and the associated Southern Interior forest sector.

4.3 Forest Sector Recommendations

As part of the overall research into the impacts of the MPB in the Southern Interior, SIBAC commissioned Forest Ecosystems Ltd. to produce a forest sector trend analysis study (Forest Ecosystem Solution, 2009). In addition, through numerous public meetings SIBAC received general public input into forest sector issues. To address forest sector issues, SIBAC makes the following recommendations:

• **SIBAC RECOMMENDATION 5 - That the Province should continue to seek methods that maximize value from the timber supply through innovation, partnering and access to fibre.**

  It is recommended that the Province continue to investigate any and all opportunities for use of dead and dying pine within the SIBAC TSAs, including undertaking inventory assessments, fibre cost analyses and economic potential assessment and the development of a proposed means of access or tenure. Also, support access to fibre for new business entries and promote collaboration amongst licensees and those looking to access fibre. The Province also needs to examine the impact of the MPB timber pricing
on the stumpage “waterbed” to ensure the Southern Interior forest sector is not negatively impacted.

**SIBAC RECOMMENDATION 6 - That the Province should ensure land-based investments (silviculture) continue and cover the entire land base.**

Opportunities for mitigation are currently being implemented throughout the province through the Forests For Tomorrow (FFT) program. The program emphasizes surveying, site preparation, and planting. These treatments are guided by strategic level program planning, seed supply planning, silviculture strategies and timber supply analyses. The province needs to ensure that areas not covered by industry obligations are fully addressed at the TSA level throughout the SIBAC region.

**SIBAC RECOMMENDATION 7 - That the Province should undertake changes to forest policy which support Community and First Nation priorities for economic development.**

SIBAC believes that the Province needs to work with communities and First Nations in pursuing regional goals that would foster economic growth. There are several forest policy changes which would assist communities and First Nations in pursuing regional goals that would foster economic growth, including:

- Encourage the streamlining of regulatory requirements specific to scaling, waste and residue measurements in an effort to encourage access to residual fibre opportunities.
- Promote the pricing of residual fibre that is effective in encouraging fibre utilization.
- Ensure allocation of more fibre to Community Forest tenures and First Nation tenures.
- Review stumpage rates that are applied for community safety or alternative fibre use.
- Incorporate community and First Nation values such as traditional burning, cultural values, and ecological values.

**SIBAC RECOMMENDATION 8 - That the Province and Federal governments support transition and training of forest workers and related displaced workers so that they are able remain in their current communities.**

There is assistance for displaced forest workers that has been put in place by the provincial and federal governments. These workers represent an important component of the local labour force of smaller rural communities and First Nations. The provincial and federal governments need to commit to retraining which supports workers who choose to stay in their communities. In addition, training needs to focus on young

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workers and the spinoff workforce in rural communities that will be impacted. Training should focus on training that will emphasize new rural opportunities.

SIBAC RECOMMENDATION 9 - That the SIBAC Committee will support Provincial Government initiatives to generate new activities and address MPB issues.

The provincial government has recently begun implementation of a strategy that highlights “Quick-Wins” in numerous Forest Districts in the province. These projects should lead to new business activity and foster innovation in forestry activities. SIBAC will participate in this initiative where it can provide support and value.
5.1 Overview and Context

The economies of rural communities and First Nations are expected to see impacts beyond those anticipated in forestry alone. In particular, issues and concerns have been raised in association with ranching, tourism and recreation, and their interaction with the forested land base. While the impacts for ranching and tourism are more difficult to anticipate than for the forest sector, they will nevertheless undergo a transition as a result of MPB. The impacts on these three basic sectors (forestry, ranching, and tourism) will also result in implications for the service sector.

The SIBAC Committee heard a range of issues across these key components of the local economy, and many approaches were suggested to address the transition.

5.2 Economic Sector Issues

5.2.1 Tourism and Recreation Issues

The Council of Tourism Associations (COTA) is facilitating the development of a “BC Tourism Industry Mountain Pine Beetle Strategy” to help diversify and strengthen BC communities and regions impacted by the MPB epidemic. In early 2009, COTA issued terms of reference for a tourism strategy for BC’s Southern Interior to complement tourism strategies already completed in the Cariboo-Chilcotin and Omineca regions. The following issues are based on information provided by COTA and the tourism sector.

The MPB is expected to affect the tourism industry in the following ways:

- In the short to midterm, the changes occurring in the natural environment as a result of the MPB epidemic will adversely affect some of the key inputs that go into many tourism experiences. Negative impacts on tourism, through the deterioration of viewscapes, alteration of biodiversity and habitat, and the degradation of recreational experiences are likely to affect outdoor adventure and nature-based tourism operators, but they will also impact the operations of almost all tourism-related businesses in affected communities.

- MPB salvage logging is impacting tourism values, especially where salvaging and harvesting activities are not sensitive to tourism and recreation interests. These impacts can be due to inappropriate access management in high-calibre recreation areas (both excessive and insufficient access), significant erosion of high-calibre tourism experiences and viewscapes in the front-, mid- and back-country, and other impacts from forestry operations during the high season for tourism and recreation.

The anticipated results are likely to include fewer visitors, less spending and greater strain on communities and tourism operators to maintain the viability of their industry in what is
already a very challenging operating environment. Fortunately, the exposure to the epidemic in the SIBEC region is less widespread than in the Cariboo-Chilcotin and Omineca regions and is likely more manageable through mitigation and strategic efforts at building a more diversified tourism base.

In addition, the MPB has brought forward and magnified other tourism issues not directly tied to the epidemic but which have become more important as the industry attempts to maintain its position and competitiveness. These issues include:

- A desire to see an increased role for the Tourism sector in Crown land and resource use, management and decision-making;
- A desire to see an increased role for the Tourism sector in Crown land access management planning and decision-making, including the critical interface between trail systems, forestry and industrial development roads, and staging areas for tourism/recreation activities;
- Increased public infrastructure that serves visitors as well as residents;
- Increased industry and product diversification that will enhance visitor appeal, volumes and spending;
- Increased market development that completes the above;
- Increased levels of Labour market development in the tourism sector, particularly in communities and regions where tourism labour demand exceeds local supply; and,
- Increased participation of First Nations in tourism development planning on the Crown land base and within communities.

5.2.2 Agriculture and Ranching

Through key informant interviews and community consultations, the SIBAC Committee heard numerous MPB-related impacts on the agriculture and ranching sector, including:

- Loss of Crown Land Range AUMs due to drought conditions.
- The variation in the application of the Forest and Range Practices Act (FRPA) requirements among Forest Districts. An example cited is the requirement in some districts to limit fenceline clearing to no greater than five metres in width. Given the hazards associated with dead timber, flexibility should be introduced into the MFR Compliance and Enforcement regime to address these hazards.
- The MPB has caused a loss of natural barriers. A barrier replacement program and associated funding were made available but have come to an end with no firm commitment for continuation. This is particularly concerning for the Southern Interior, where the MPB infestation is progressing.
- There is concern around the increased hazards and costs from dead trees in close proximity to range areas. These dead/hazard trees should be removed along existing fencelines, cattle trails and access roads.
• Range management needs to address impacts associated with barrier loss/replacement, range improvement, development of range-use plans, cattle distribution, and managing carrying capacity.

• Removal of trees changes landscapes both negatively and positively: positively by potentially providing grazing opportunities, negatively by potentially introducing and/or providing opportunities for encroachment of noxious weeds.

• Water availability in the face of forest cover changes due to MPB and climate change are seen as key issues. Concerns include water resource and hydrologic balance impacts (including de-synchronization of traditional flow), earlier and extended freshets, higher run-offs, and late-season drought conditions.

• Impact of the MPB on non-timber products (food and medicinal plants) is a major concern. Areas are negatively impacted as a consequence of harvesting, range use, access and noxious weeds.

• Soil erosion, a consequence of disturbances and/or increased run-off, may accelerate noxious weed encroachment.

• Impact by cattle on riparian zones as a result of loss of natural and man-made barriers is a concern.

• Increased wildfire intensity and frequency is a concern to vineyards. Intense smoke from fires can damage the quality of the grapes and render them useless for winemaking. During the 2003 wildfire season many vineyards lost their crops to smoke damage.

• Increased range areas may encourage increased numbers of ungulates in specific areas, which may result in higher crop loss for orchard and crop farmers.

5.3 Economic Sector Recommendations

5.3.1 Tourism and Recreation Recommendations

The SIBAC Committee has identified tourism as a key activity on the land base and the following recommendations are made to support sustainable tourism activities so the industry remains a vibrant component of future economic activities in the Southern Interior:

- **SIBAC RECOMMENDATION 10 – That the Provincial and Federal Governments work with Communities and First Nations to develop tourism infrastructure in Southern Interior Communities.**

New infrastructure is seen as critical to encouraging, stimulating and complementing private sector efforts to diversify tourism. Improvements to multimodal transportation access (e.g. highways and airports), visitor services and gateway visitor centres, and expanded aboriginal tourism products are all seen as important. In addition, existing assets like provincial campsites in the SIBAC region also need to be kept safe from danger trees and other hazards created by MPB.
5.3.2 Agriculture and Ranching Recommendations

SIBAC believes that both senior levels of government have a responsibility to assist in supporting the agriculture and range sector through the transition on the Crown land base by:

- **SIBAC RECOMMENDATION 11** - That the Provincial and Federal Governments continue to fund the barrier replacement program and range improvements.

  Fencing is needed to control livestock and protect sensitive sites (i.e., riparian zones). It is important to both the industry and to the environment that fencing be further developed for the ranching industry.

- **SIBAC RECOMMENDATION 12** - That the Provincial and Federal Governments should undertake hazard/dead tree removal along critical corridors.

  Standing dead MPB trees pose a risk of blowing down and impeding livestock movement and distribution. Livestock distribution is a key factor in proper range management and may be hindered by trails that are blocked by trees which have blown down. In addition, road access can often be impeded by blown down trees, and ranch workers in MPB stands now face increased hazards from falling dead trees. Preventive removal of hazard trees along fencelines, access roads, and trails should be considered. Also relating to the tree removal issue, consideration should be given to changes in the stumpage appraisal system to more accurately account for tree/snag removal costs, as well as to ensuring consistent cost recognition for range improvements in major licensee stumpage appraisals.

- **SIBAC RECOMMENDATION 13** - That the Provincial and Federal Governments should work to address limited water supplies for livestock.

  The potential for limited water supplies for livestock and irrigation purposes is a growing concern among the ranching industry. There needs to be consideration for the development of alternate or additional water sources for livestock to mitigate the drier conditions and achieve proper herd distribution in developed pastures/range units. In addition, many watering areas need to be cleared of debris in order to reestablish their use and eliminate the risks to livestock. This approach will also support environmental objectives by mitigating impacts in riparian areas.

- **SIBAC RECOMMENDATION 14** - That the Province should undertake comprehensive and Integrated range management planning.

  The implementation of Forest Stewardship Plans appears to have reduced engagement between the forest industry and the ranching sector. As the MPB impacts progress and other land-use challenges appear for the ranching sector, greater consideration and collaboration is required to ensure that viable business plans are put in place and that various land users don’t unnecessarily impair other activities. In addition, further
consideration needs to be given in all plans to ensure that ecological considerations are incorporated as a core value of all forest and range licences.
6 COMMUNITY SAFETY ISSUES & RECOMMENDATIONS

6.1 Overview and Context

As noted previously, many SIBAC member organizations and members of the public have identified increased wildfire and interface fire hazards as a major MPB concern.

The relationship between the MPB epidemic wildfire behaviour and risk is complex and influenced by spatial and temporal factors. Generally speaking, it is thought that wildfire risk probably increases after year three or four of MPB attack, levels off for a period of time, increases again once the dead pine trees start falling to the forest floor, and remains higher until that wood significantly decomposes. Factors other than MPB (weather, water conditions, wind) obviously also significantly influence fire risk both in and out of MPB-impacted stands – and often will contribute much more to annual fire risks than the MPB epidemic itself.

6.2 Community Safety Issues

MPB-related community safety issues and concerns frequently noted in discussions at the SIBAC Board, community meetings and other forums include:

- Increased community risk from wildfires;
- Concern that many communities seem to lack the political will and/or capacity to address fire-hazard issues and to implement fire-hazard reduction initiatives;
- Lack of local and municipal ‘champions’ for Community Wildfire Protection Plans;
- Concern over the impacts of the MPB epidemic on hydrological cycles, drinking water and local government infrastructure, as discussed in Section 3 of this report.

6.3 Community Safety Recommendations

Due to the importance of this issue, during its planning process SIBAC funded two initiatives to (i) demonstrate the importance of co-ordinated fire-hazard management planning and reduction work and (ii) provide additional public information on successful fire-hazard reduction treatments by local governments and First Nations in the Southern Interior.

SIBAC recognizes and applauds the Provincial and Federal Government for providing resources to local governments and First Nations for wildfire management and hazard reduction activities. However, despite the existence of these resources, SIBAC is concerned
that several areas and communities in the Southern Interior remain at significant risk from wildfire Therefore SIBAC makes the following recommendations:

- **SIBAC RECOMMENDATION 15 – That the Province work with Communities and First Nations to create “wildfire reduction unit crews”**.

  These crews would work at the sub-regional level and specialize in reducing the fuel loads around multiple municipal and First Nations communities by undertaking prescription burning and tree removal. SIBAC believes that many smaller communities, unincorporated areas and First Nations have difficulty in organizing the processes and approvals necessary to implement fire-hazard reduction work. The creation of these crews would help address this capacity issue by ensuring more cost-effective delivery, efficient and co-ordinated approval process, and longer-term employment for unit workers. The First Nations Emergency Society is already supporting the development of these crews and the Columbia Lake Band’s recent pilot project has further highlighted the value of such crews. Additional collaboration between First Nations and surrounding rural communities would expand efficiencies and the sustainability of wildfire reduction initiatives.

- **SIBAC RECOMMENDATION 16 – That the Ministry of Forests & Range implement policy and/or regulation changes that would facilitate increased wildfire hazard treatments in the Southern Interior.**

  SIBAC believes that policy and regulation changes are needed to facilitate increased First Nations and rural communities’ wildfire hazard reduction treatments including reduced stumpage, and encouraging alternative reforestation requirements. Federal policy and stumpage also needs to be reviewed to encourage and streamline wildfire hazard reduction work on First Nation reserve lands.

- **SIBAC RECOMMENDATION 17 – That the Province, Municipalities, Regional Districts and First Nations commit to working more collaboratively on wildfire hazard reduction.**

  SIBAC believes that there is a need for more local leadership in encouraging more regional and community collaboration in wildfire hazard reduction planning and treatment.
7 Government Revenue Issues & Recommendations

7.1 Overview and Context

As rural communities go through current and future economic transitions they will increasingly find their municipal tax base under pressure. For many municipalities the industrial tax base associated with the forest sector has long been the cornerstone of the municipal tax base. As the forest sector reduces the number of mills they operate – and seeks to lower industrial tax rates for the remaining mills – many communities will experience substantial reductions to their tax base. In addition, mill closures are also accompanied by the loss of other commercial and industrial businesses, further impacting the municipal tax base. For rapidly growing communities, there is the potential to help offset revenue reductions from the industrial component of the tax base by increasing the revenue gained from other municipal tax categories. However, this opportunity is much more limited for smaller rural communities that are experiencing slow or negative rates of population and economic growth.

Historically, for First Nation communities, the issue has been the lack of participation in the revenue generated from economic activity on the Crown lands within their traditional territories – much of which has come from the forest sector activity. In recent years, First Nations have made positive strides in being involved in the revenue that has been, and is being, generated from economic activity on Crown lands. However, these recently achieved gains are now threatened as potential government revenue from the forest sector is impacted by reduced mid-term forest harvest levels as a result of the MPB epidemic.

For both First Nations and municipalities, the revenues that have traditionally been generated by the forest sector will very likely decline and present significant challenges for future service delivery.

7.2 Government Revenue Issues

As highlighted above, Southern Interior communities and First Nations have several concerns regarding the implications of MPB-related and other forest sector changes on rural governments’ future revenue streams, including:

- Concerns about sawmill closures and the resultant impacts on rural governments’ industrial tax revenues.
- Concerns about the potential for forest sector job loss and the resultant loss of local income, spending and taxation from those jobs in rural communities.
- Concerns about the spinoff impacts of forest sector job losses on small businesses in rural communities.
- Concerns about the ability of rural governments to replace the loss of industrial taxes from other sources.
• Concerns of First Nations about the impact of the MPB epidemic on current and future forest sector revenues from their traditional territories and land value.

7.3 Government Revenue Recommendations

The SIBAC Board believes that rural government revenue from the forest sector is likely to decline both as a result of the MPB epidemic and other factors. This could result in rural governments placing an increasing burden on the remaining business community, which could impair the competitiveness of the remaining industries and further stress future efforts to grow and diversify rural communities. SIBAC acknowledges that other government advisory panels – including the BC Progress Board and the Task Force on Community Opportunities – have also examined the issue of rural communities and resource and taxation revenues. Therefore the SIBAC Committee recommends:

- **SIBAC RECOMMENDATION 18** - That the Provincial Government develop new methods of regional resource revenue sharing with local governments and First Nations.

  As a result of a fundamental shift in the BC economy, communities and First Nations need to establish sustainable sources of local government income. This funding needs to move away from the inherent challenges of relying on industrial and commercial taxation. At the same time the provincial government needs to review how resource revenues collected from the regions are shared with local governments and First Nations governments and how these can be used to grow and diversify local economies moving forward. This recommendation is consistent with recommendations made by other organizations such as the BC Progress Board and the Task Force on Community Opportunities. It also follows on the Province’s own action with the establishment of the Fair Share Agreement in Northeastern BC and funds such as the Columbia Basin Trust. At the same time local governments need to review how they raise funding from industry and what the implications of a declining tax base may mean for community services.

- **SIBAC RECOMMENDATION 19** - That the Provincial and Federal Governments explore government incentives to foster business investment in rural communities.

  The Provincial government should investigate policy and regulatory tools that can be used to create a more attractive business climate in rural communities and on the Crown land base.
8 RURAL DEVELOPMENT ISSUES & RECOMMENDATIONS

8.1 Overview and Context

Throughout SIBAC’s planning process, board discussions and public consultations, the topic of rural development in BC has been raised constantly.

The research and work of other organizations (e.g. BC Progress Board, BC Competition Council, etc.) has consistently noted the significant variation of economic growth rates between, and the overall economic health of, various regions of BC. These organizations and other processes have recommended that the Provincial government place additional emphasis on rural and regional development in BC to address these variations. More recently, a federal Senate Committee on Rural Issues has recommended the creation of a new federal department and programs specifically for rural development.

SIBAC’s own research has also confirmed the fact that population, economic growth, economic diversification and labour force growth varies greatly across the Southern Interior. SIBAC’s research and analysis into the potential economic impacts of the MPB epidemic – and of the ability of Southern Interior communities to absorb and successfully deal with these impacts – have highlighted the difficulty of attempting to separate MPB-related impacts from the underlying rural economic trends affecting Southern Interior communities.

8.2 Rural Development Issues

In SIBAC’s community consultation sessions, the most common topic raised by participants was the current state and future of rural communities in the Southern Interior. The most commonly raised issues by the general public included:

- A sense of an increasingly growing gap between communities which are doing well and those which are struggling.
- A high level of frustration and a sense that various government policies and actions have led to increasing consolidation and centralization of services, to the detriment of smaller rural communities.
- Concern that continued global competition and forest sector consolidation will result in further mill closures in the Southern Interior, creating significant challenges for impacted communities.
- Concern that for a variety of reasons the cost of living is increasingly significantly in many Southern Interior rural areas.
- A feeling that both levels of government focus most of their economic development efforts and funding on larger communities and regional centres – with little support available for smaller rural communities and unincorporated areas.
• A recognition that many smaller rural communities and First Nations have limited capacity to apply for grants, deliver programs and manage change in their communities.

• A very strong desire to see both senior levels of government provide new and significant levels of funding and program assistance to rural BC communities so they can become more sustainable.

8.3 Rural Development Recommendations

Many Southern Interior rural communities are still heavily dependent on the forest economy, with many communities deriving significant employment, income and municipal taxes from forestry activities. As noted in Section 2 of this report, the BC forest sector has been experiencing consolidation for the past two decades, with a resulting decrease in total employment. Moving forward, the MPB epidemic will only compound this issue. Therefore, to remain vibrant, many Southern Interior rural communities will need to sustain their economic growth and achieve diversification.

SIBAC believes that both the provincial and federal governments have an interest in maintaining economically viable and sustainable rural communities in BC. Indeed SIBAC notes that BC is one of the few provincial jurisdictions in Canada that does not have a dedicated provincial rural strategy and/or rural or regional economic development program. SIBAC does not believe that MPB economic mitigation efforts can be completely effective in the absence of new and dedicated broader rural and regional economic diversification efforts. Therefore, in response to the issues noted above, SIBAC makes the following recommendations:

› **SIBAC RECOMMENDATION 20 – That the Provincial Government create a Rural Strategy for BC.**

Several other Canadian jurisdictions, including Alberta, have provincial Rural Strategies. SIBAC believes that the existence of such strategies is important for demonstrating provincial government commitment to rural issues and that a rural strategy would include the participation of communities and First Nations in the Southern Interior. In addition, the strategy should identify specific economic sectors that hold promise for rural communities and First Nations in the Southern Interior, and should be accompanied with specific actions to achieve rural economic development.

› **SIBAC RECOMMENDATION 21 – That the Provincial and Federal Governments dedicate funding for rural economic development in BC.**

This funding would focus specifically on the engagement and participation of smaller communities, rural areas and First Nations to actively participate in economic development. SIBAC believes that new rural economic development funding and programs must be designed to assist smaller and economically challenged rural communities and unincorporated areas. In addition, the provincial and federal governments need to make funding readily available, unlike current programming that comes with considerable external priorities and focuses funding in small allotments at minor components of the total economic development initiative.
SIBAC RECOMMENDATION 22 - That the Provincial Government create and support a new economic development program/initiative which encourages and facilitates regional collaboration on economic development in the Southern Interior.

The intent of this program/initiative would be to encourage, facilitate and support regional economic development collaboration in sub-regions of the province. Best practices in rural economic revitalization in other jurisdictions have clearly indicated that rural communities and areas must collaborate at the regional level to be successful. Success in other jurisdictions has also shown that regional-scale economic development is important to develop processes that integrate the economic development initiatives of various levels of government and between larger and smaller communities in a region. Experience from other jurisdictions also indicates that the facilitation and assistance of external expertise is often critical to achieving rural regional development success.

SIBAC RECOMMENDATION 23 - That the Provincial Government work with Rural Communities to protect community services and assets.

Rural communities are facing a period of distress in which key community services will likely play an important role in community transition and long-term community sustainability. The provincial government needs to work with communities on sustaining key existing assets such as schools, hospitals, recreational facilities and regional offices so that communities may work towards revitalizing their local economies without the additional implications of incremental degradation of the quality of the communities’ amenities.
9 FIRST NATIONS ISSUES AND RECOMMENDATIONS

9.1 Overview and Context

SIBAC recognizes that the MPB epidemic will have culturally unique impacts on the First Nation communities in the Southern Interior over and above those issues already noted in this report. SIBAC is also aware that the provincial government is working directly with First Nations at the provincial level to examine MPB issues and impacts.

SIBAC recognizes that the traditional territories of the First Nations members of SIBAC are different than the Timber Supply Area and local government boundaries that have formed much of the basis of SIBAC’s analytical work. To identify specific Tribal Council MPB impacts, concerns and proposed mitigation strategies, SIBAC provided funding so that each member Tribal Council of SIBAC could prepare an individual MPB report for their Tribal Council. In addition, the Community Futures Development Corporation of the Central Interior First Nations was provided funding to prepare a similar report for those First Nations Bands not currently members of a Tribal Council. The participating Tribal Councils included: Shuswap Nation Tribal Council, Nicola Tribal Association, Lillooet Tribal Council, Okanagan Nation Alliance, Nlaka’pamux Nation Tribal Council, and Ktunaxa-Kinbasket Tribal Council.

Each Tribal Council was requested to identify, describe, and prioritize the concerns and predicted impacts from the MPB epidemic in terms of:

- Economic Impacts
- Cultural Impacts
- Social Impacts
- Environmental Impacts
- Other Impacts

Also each Tribal Council was asked to make recommendations regarding:

- Prioritized actions to help mitigation with:
  - Economic Impacts
  - Culture Impacts
  - Social Impacts
  - Environmental Impacts

- Legislative and Policy Recommendations
- Other Recommendations

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7 Copies of these individual Tribal Council MPB Reports are available on the SIBAC website at www.sibacs.com
9.2  Summary of Common Issues Identified by First Nations

On January 19 and 20, 2009, the Tribal Councils and CFDC Interior First Nations representatives participating on the SIBAC committee held a workshop to discuss areas of common MPB interest. The issues and views raised included:

Economic:
1. Loss of traditional economic activities.
2. First Nations ability/opportunity to participate in forest sector re: tenure length and operating areas.
3. Impact on forestry revenues.

Education, Employment and Training Issues:
1. Adequate training/certification to permit First Nations to participate in forestry activities, including planning and referral processes.
2. Need for education of First Nations communities regarding potential threat/impacts of MPB.
3. Employment opportunities for youth.

Tenure:
1. While uplifts have increased harvesting levels, present economics and over-supply have depressed prices.
2. Delay in acquiring long-term tenures and implementation of First Nations stewardship values.
3. Continued amalgamation of tenures and impact on market loggers.
4. Free Use Permit revisions seen as an infringement on First Nations rights and title.

Partnerships:
1. Need for co-operation among communities, primarily for addressing fire risks.
2. Creation of employment opportunities in forestry with licensees (i.e. Ktunaxa/Tembec).
3. Partnerships are too slow in developing, and there is too much bureaucracy in accessing tenure and permits.

Culture/Heritage:
1. Cultural and spiritual values such as hunting, fishing and gathering may be impacted.
2. Concern that legends, stories, skills, practices, and opportunities for teaching will be impacted.
3. Impact on 'way of life'.
4. Ecosystem changes potentially threaten ability to sustain traditional cultural and heritage values – i.e. ceremonial, traditional healing sites and trade trails.
5. Impact on traditional food sources, health, diet and unique medicines.

Community Safety:
1. Fuel build-up in and around communities.
2. Fire risk and probability, and potential impact on heritage and cultural values.
3. Emergency preparedness planning is needed.
4. Impact of climate change.
5. Funding limitations to address fuel hazards outside of the 100-metre radius from community cores.

Environment and Land:
1. Impact on water (quality, quantity, timing of flow).
2. Impact on non-timber values including understory (related to Culture/Heritage).
3. Loss of wildlife habitat including migration patterns and habitat connectivity due to fragmentation caused by roads and fencing.

Legislation/Policy:
1. Strengthen requirement for First Nations' active participation in land-use planning and implementation of operational plans (and monitoring).
2. Recognition of the traditional knowledge of First Nations in land and resource management.
3. Stumpage and point of appraisal need to be revised to truly reflect MPB affected stands.

Other:
1. Concern that land values will diminish, impacting future negotiations.
2. While partnerships are encouraged, there are issues with differing capacities, connectivity of programs, and jurisdictions. One size doesn’t fit all.
3. Access to funding sources is too complicated and there are too many sources.
4. Western society’s belief in limitless growth.
5. Concern how SIBAC information will be used and the recognition that information is “without prejudice” as it relates to specific FN policies and positions.

9.3 First Nations Recommendations

As noted previously, each SIBAC member Tribal Council prepared an individual MPB report with MPB recommendations specific for their Nation. Executive summaries of these reports are attached as appendices to this report.

SIBAC understands that First Nations will continue to work on the MPB issue at many levels – federally, provincially and locally. SIBAC also recognizes that member organizations of SIBAC will continue to address specific MPB issues through a variety of other organizational means (e.g. First Nations Forestry Council, Tribal Councils, individual Bands, Union of BC Municipalities, Regional Districts, individual communities, etc.).

As noted in the individual recommendations, all of the previous recommendations in this report apply to all communities in the Southern Interior including First Nations communities.

In addition to the above recommendations, the January 19 and 20th workshop participants offered the following recommendations:
Economic Recommendations:
1. Expand value-added wood manufacturing by providing support (funding) for business planning and start-up using a business incubator approach developing a cluster of fibre-reliant businesses.
2. Provide funding to expand the development of non-timber resources for economic benefits with First Nations’ tenuring and certification standards.
3. Wood Products Support Program – role for the First Nations Forestry Council (FNFC) BC Wood re: Value Added Project within the SIBAC area.
4. Biomass – support SIBAC Pilot approach to the identification of thresholds to develop differing bioenergy opportunities, i.e. fuel, pellets, carbonization etc., that can be applied throughout the MPB-impacted areas in the Southern Interior

Education, Employment and Training Recommendations:
1. Comprehensive inventory of First Nation-specific training and funding needs, to further understanding of MPB impacts and opportunities.
2. Funding for training for Community Wildfire Protection Planning and treatments associated with the implementation of those plans, i.e. Danger Tree Assessors, Falling & Bucking Certification, Silviculture Surveying Certification, etc.
3. Funding for training First Nations managers for capacity development.
4. Need for Labour Market Development Agreements specific to First Nations, delivered by First Nation organizations, i.e. CFDC of CIFN, Local Tribal Councils.
   a. Funding for aboriginal training
   b. Identification/inventory of skill and training costs
5. The Association of BC Professional Foresters extending the “grandfathering” of registered professional technicians (RFT) designation.
6. Opportunities – Central Interior Trades & Apprenticeship Program, Forest Opportunities Program.

Tenure Recommendations:
1. Certainty/Flexibility of First Nation tenures – role Forest & Range Agreements/Opportunities. Non-replaceable Forest Licences into renewable forms of tenure, i.e. Replaceable Forest Licences, Community Forest Licences.
2. Provincial Government should reinstitute ‘5% take back’ legislation associated with forest licence transfers between major licensees, to provide for further smaller tenure opportunities.
   a. viable sizes of Community Forests (area, volume)
   b. release First Nations of the Pilot provisions, i.e., five-year probationary period, economic objectives (profitability)
4. Potential for stewardship tenures.
   a. What do they potentially look like?
   b. Focus on other forest resource values, i.e. non-timber resources, silviculture tenures.

6. Track Bill 28 volume attributable to First Nations and the potential undercut volumes associated with that volume.

Partnerships:
1. Joint ventures/co-operation with neighbouring communities and industry to develop and implement plans (i.e. Community Wildfire Protection Plans, Stewardship Plans).
2. Joint ventures/co-operation with neighbouring communities and industry to develop economic development opportunities.
3. Develop a tool kit for financing and capitalizing existing opportunities.
4. Identification of existing opportunities.
5. Assistance with moving existing business plans forward.

Culture/Heritage:
1. Holistic approach to Land Use Planning implementing Traditional Ecological Knowledge into land-use decisions.
2. Inventory of existing Traditional Use information.
3. Two stage process:
   • Inventory of existing and new inventories of Traditional Use Studies and Traditional Ecological Knowledge.
   • Management and maintenance of the Traditional Use assets.
4. Cross-Cultural Training/Workshop:
   • First Nations history in the Southern Interior
   • Historical and contemporary relationship between First Nations community, land and resources.
5. Traditional Use Study Workshop:
   • Establish standards for gathering information for consistent application.
   • Landscape/ecosystem level focus – must go further than operational planning
   • Emphasize the importance of stewardship.
   • Need to identify traditional use, contemporary use and future use for First Nations community needs and health (Cultural health and Traditional diet/health)

Community Safety:
1. Catalogue where communities are in Community Wildfire Protection Planning process, and identify the impediments to moving those plans forward.
2. First Nations Forestry Council hold a future Fuel Management Workshop:
   • Estimated $135 million to implement existing plans.
   • Fuel Management Certification Program (tool kit) established by the SWAT Team (Natural Resources Canada, First Nations Emergency Services, Indian and Northern Affairs Canada, First Nations Forestry Council)
   • Identification of funding sources and the requirements:
i. Natural Resources Canada
ii. First Nations Emergency Services
iii. Indian and Northern Affairs Canada
iv. Union of BC Municipalities

3. Establish ongoing funding for maintaining Community Wildfire Protection Plans.
4. Establish zone standards for Community Wildfire Protection Zone:
   a. Stocking standards
   b. Stumpage
   c. Access management
d. Invasive species

6. Water:
   a. Quality and quantity – health impacts
   b. More flood type events and the impacts on communities safety and infrastructure
c. Negative impacts on fisheries habitat

Legislation/Policy:
1. Provincial Government should reinstitute ‘5% take back’ legislation associated with forest licence transfers between major licensees, to provide for further smaller tenure opportunities.
2. Stumpage/Revenue related issues, i.e. Point of Appraisal.
3. Legal requirement of the Crown to include First Nations in the development of legislation and policy.
   a. Potential Pilot Project – use of the Cascade Forest District as a pilot area incorporating First Nations Land Use into higher-level plans (Northern Stalime Land Use Plan, Nicola Similkameen Innovative Forestry Society inventory work etc.), much like the Central Coast Land Use Plan & Haida Gwaii Land Use Plan
5. Access issues – ATV regulation and enforcement.

Other:
2. Decentralization of government agencies.
3. Continuous public education on the status of Mountain Pine Beetle and the impacts on the environment and economy.
10. **Communities Most At-Risk of MPB Economic Impacts**

10.1 **Overview**

As noted in the introduction, SIBAC was created to analyse the probable impacts of the MPB epidemic on the Southern Interior and to make recommendations to all levels of government on suggested mitigation measures.

10.2 **MPB At-Risk Communities**

To identify the municipalities and local areas that are at greatest risk of negative socio-economic impacts from the MPB epidemic, SIBAC believes that several influencing factors must be considered, including:

1. The percentage of pine in the TSA.
2. The estimated drop in the short and mid-term timber supply.\(^8\)
3. The economic dependence of the community on the forest industry (e.g. forest income dependency, forest sector employment dependency, municipal tax dependency on the forest sector).
4. The likelihood of the community to ‘adjust’ to negative forest sector impacts based on:
   - the size of the community being impacted;
   - the rate of economic growth in the local area; and,
   - the economic diversity of the community.

First Nations have indicated that they believe that all First Nations in the Southern Interior region will be impacted by the MPB epidemic. Therefore, SIBAC has not attempted to rank the level of economic risk to individual First Nations communities.

Table 10-1 highlights specific data on each of the incorporated areas in the Southern Interior. However, not all the statistical information shown (for example BC Stats Forest Income Dependency) is available for all Southern Interior communities, as some communities are too small or have not been incorporated for a long period. Therefore, in particular instances the judgement of the consulting team has been used to determine community risk. The community areas anticipated to be at highest risk of future negative impact from MPB all share:

- Forest income dependencies over 18%;
- Forest Vulnerability Index over 20; and,
- Estimated pine in the TSA over 25%.

As well, the areas at greatest risk are typically smaller communities with population growth that has lagged behind the SIBAC region’s population growth in recent years.

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\(^8\) Short-term refers to the period from one to 20 years from 2009, while mid-term refers to the period from 20 to 90 years.
### Table 10-1: TSA and Community Impact Assessment Indicators

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</table>

(1) From Ministry of Forest and Range, 2009.


(3) Forest Income Dependency and Forest Vulnerability data from Local Area Dependencies 2006 Report from BC Stats and special data request from BC Stats Forest Income Dependency and Vulnerability is based on communities and surrounding electoral areas (See Individual TSA Socio-economic trend assessment at [http://www.sibac.ca](http://www.sibac.ca)).
## Table 10-1: TSA and Community Impact Assessment Indicators (continued)

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<td><strong>Invermere TSA</strong></td>
<td></td>
<td></td>
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<tr>
<td>Radium Hot Spring</td>
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<tr>
<td>Canal Flats</td>
<td>785</td>
<td>n/a</td>
<td>13% (note 1)</td>
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<tr>
<td>Invermere</td>
<td>3,540</td>
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<td>13%</td>
<td>13</td>
<td>1%</td>
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<tr>
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<td>Chase</td>
<td>2,470</td>
<td>+23.8%</td>
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<td>Clearwater</td>
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<td>34%</td>
<td>62</td>
<td>9%</td>
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<td>Barriere</td>
<td>1,725</td>
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<td>41</td>
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<td>Cache Creek</td>
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<tr>
<td>Ashcroft</td>
<td>1,740</td>
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<td>9%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Kamloops</td>
<td>86,235</td>
<td>+34.9%</td>
<td>9%</td>
<td>11</td>
<td>10%</td>
<td>9%</td>
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<tr>
<td>Logan Lake</td>
<td>2,200</td>
<td>+6.5%</td>
<td>9%</td>
<td>11</td>
<td>41%</td>
<td>2%</td>
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<tr>
<td><strong>Kootenay Lake TSA</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Kaslo</td>
<td>1,170</td>
<td>+32.4%</td>
<td>17%</td>
<td>23</td>
<td>0%</td>
<td>18%</td>
<td></td>
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<tr>
<td>Silverton</td>
<td>200</td>
<td>-17.0%</td>
<td>17%</td>
<td>23</td>
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<td>17%</td>
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</tr>
<tr>
<td>Creston</td>
<td>5,140</td>
<td>+21.6%</td>
<td>8%</td>
<td>11</td>
<td>5%</td>
<td>9%</td>
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</tr>
<tr>
<td>Nelson</td>
<td>9,750</td>
<td>+13.2%</td>
<td>5%</td>
<td>7</td>
<td>0%</td>
<td>3%</td>
<td></td>
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<td>Fruitvale</td>
<td>2,050</td>
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<td>4%</td>
<td>4</td>
<td>0%</td>
<td>3%</td>
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</table>

Note 1: Canal Flats, with its small population, has had its data incorporated into the larger surrounding area; however, based on professional judgment it is believed that the community is vulnerable to high risk in the event of a future forest sector impact.
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<td>Merritt TSA</td>
<td>Merritt</td>
<td>7,605</td>
<td>+18.6%</td>
<td>23%</td>
<td>30</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Princeton</td>
<td>2,615</td>
<td>-13.1%</td>
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<tr>
<td>Cranbrook TSA</td>
<td>Cranbrook</td>
<td>18,950</td>
<td>+15.1%</td>
<td>12%</td>
<td>16</td>
<td>2%</td>
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<tr>
<td></td>
<td>Kimberley</td>
<td>6,510</td>
<td>-6.2%</td>
<td>13%</td>
<td>16</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Elkford</td>
<td>2,550</td>
<td>-22.6%</td>
<td>6%</td>
<td>12</td>
<td>77%</td>
</tr>
<tr>
<td></td>
<td>Fernie</td>
<td>4,550</td>
<td>-15.1%</td>
<td>6%</td>
<td>12</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>Sparwood</td>
<td>3,765</td>
<td>-19.7%</td>
<td>6%</td>
<td>12</td>
<td>59%</td>
</tr>
<tr>
<td>Golden TSA</td>
<td>Golden</td>
<td>3,960</td>
<td>+6.7%</td>
<td>26%</td>
<td>35</td>
<td>6%</td>
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<tr>
<td>Lillooet TSA</td>
<td>Lillooet</td>
<td>2,370</td>
<td>+30.1%</td>
<td>21%</td>
<td>31</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Lytton</td>
<td>230</td>
<td>-39.8%</td>
<td>9%(1)</td>
<td>10</td>
<td>11%</td>
</tr>
</tbody>
</table>

(1) Lytton has a higher forest dependency than indicated; however, given its very small population it has been incorporated with data for Cache Creek and Ashcroft that have a very different economic profile. Therefore, based on professional judgement it is considered as a higher risk community.
### Table 10-1: TSA and Community Impact Assessment Indicators (continued)

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<tr>
<td>Okanagan TSA</td>
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<td></td>
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<tr>
<td>Armstrong</td>
<td>4,480</td>
<td>+60.6%</td>
<td>11%</td>
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<tr>
<td>Lumby</td>
<td>1,755</td>
<td>+43.6%</td>
<td>22%</td>
<td>27</td>
<td>17%</td>
<td>14%</td>
</tr>
<tr>
<td>Sicamous</td>
<td>3,055</td>
<td>n/a</td>
<td>15%</td>
<td>19</td>
<td>2%</td>
<td>10%</td>
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<tr>
<td>Coldstream</td>
<td>10,095</td>
<td>+42.2%</td>
<td>8%</td>
<td>13</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Enderby</td>
<td>2,890</td>
<td>+62.1%</td>
<td>12%</td>
<td>10</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Spallumcheen</td>
<td>5,015</td>
<td>+12.8%</td>
<td>11%</td>
<td>12</td>
<td>30%</td>
<td>5%</td>
</tr>
<tr>
<td>Salmon Arm</td>
<td>16,995</td>
<td>+45.8%</td>
<td>11%</td>
<td>13</td>
<td>7%</td>
<td>7%</td>
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<tr>
<td>Vernon</td>
<td>38,445</td>
<td>+83.4%</td>
<td>8%</td>
<td>10</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Oliver</td>
<td>4,585</td>
<td>+126.1%</td>
<td>4%</td>
<td>5</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Osoyoos</td>
<td>5,045</td>
<td>+65.6%</td>
<td>4%</td>
<td>5</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Penticton</td>
<td>2,615</td>
<td>+35.1%</td>
<td>5%</td>
<td>6</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Summerland</td>
<td>11,110</td>
<td>+39.0%</td>
<td>5%</td>
<td>6</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Kelowna</td>
<td>118,505</td>
<td>+87.0%</td>
<td>4%</td>
<td>4</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Lake Country</td>
<td>11,050</td>
<td>n/a</td>
<td>4%</td>
<td>4</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Peachland</td>
<td>5,230</td>
<td>+70.0%</td>
<td>5%</td>
<td>5</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Keremeos</td>
<td>1,240</td>
<td>+43.5%</td>
<td>4%</td>
<td>5</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>West Kelowna</td>
<td>27,160</td>
<td>n/a</td>
<td>4%</td>
<td>4</td>
<td>4%</td>
<td>n/a</td>
</tr>
<tr>
<td>Revelstoke TSA</td>
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</tr>
<tr>
<td>Revelstoke</td>
<td>7,260</td>
<td>-15.2%</td>
<td>18%</td>
<td>21</td>
<td>10%</td>
<td>12%</td>
</tr>
</tbody>
</table>

- **Okanagan TSA**: Estimated % Pine in TSA 26%
- Range of Timber decline anticipated in TSA is between 9 to 20%
- **Revelstoke TSA**: Estimated % Pine in TSA = 4%
- Range of Timber Decline anticipated in TSA is 0%
The intent in identifying the most-at-risk communities is not to suggest that necessarily all or only these communities will be negatively impacted by the MPB epidemic. Rather, it is meant to identify which communities perhaps need to be most concerned about the MPB epidemic and, along with First Nation communities, should be receiving priority for any future MPB-related specific support. The following communities, along with their surrounding local areas, share the common characteristics of a significant amount of pine in their TSA, projections of significant potential mid-term timber supply drop, and have the highest forest income dependency, forest employment and forest vulnerability rankings of Southern Interior communities:

- Grand Forks
- Canal Flats
- Clearwater
- Barriere
- Lytton
- Princeton
- Radium Hot Springs
- Greenwood
- Midway
- Chase
- Lillooet
- Merritt
- Lumby

In addition, it is recognized that other communities in TSAs that have significant amounts of pine (e.g., Kimberley, Invermere and others) may well require assistance to address other MPB related issues such as impacts on municipal watersheds or tourism infrastructure.

10.3 MPB Communities At-Risk Recommendations

Recognizing that the above communities may be at higher risk of negative socio-economic impacts as a result of the MPB epidemic, SIBAC makes the following recommendations.

- **SIBAC RECOMMENDATION 24 - That the Provincial Government provide implementation resources to MPB At-Risk Communities and Tribal Councils.**

  SIBAC believes that it is imperative that the Provincial & Federal Governments provide additional resources to the most-at-risk MPB communities and Southern Interior Tribal Councils so they can proactively begin to prepare for MPB impacts and implement appropriate MPB mitigation and transition actions.
11 SIBAC PILOT PROJECTS

11.1 Overview and Context

From the initiation of SIBAC, the Board of Directors wanted to ensure that SIBAC was an action and problem-solving oriented organization. Therefore the Board determined that it wanted to fund a limited number of ‘SIBAC pilot projects’, while conducting the background research necessary to prepare this Report.

As a result, the SIBAC Board funded a small number of projects that attempted to address a priority MPB issue or provide more information on successful tools related to MPB and rural economic development issues. By disseminating the final products and results of these pilot projects, SIBAC believes other organizations and communities in the Southern Interior will benefit from the pilot projects.

The pilot projects undertaken included:

- Princeton Bio-energy and Residual Fibre Use;
- Regional Economic Development Scenario Planning and Leadership Workshop;
- Fuel Management – MPB Impacted First Nations;
- Mountain Pine Beetle and Water Management Workshop;
- Secwepemc Cultural Use in MPB Stands Project; and,
- Thompson Rivers University Community Tourism Development Project.

Each pilot project will be summarized in a written report that will be made available on the SIBAC website.

11.1.1 Princeton - Bio-energy and Residual Fibre Use

This project examined the potential volume and use of MPB fibre waste in the region surrounding Princeton BC. The project was a partnership of the Town of Princeton and area forest sector businesses and established a business case for forest bio-energy and other bio-product commercial and semi-commercial facilities in Princeton. Through the project, linkages and partnerships were developed that will facilitate investment both in existing facilities - using the business cases generated by the project - and hopefully will facilitate the development of new businesses that will investigate use the supply of the identified biomass resources.

The project provided detailed information on the availability and costing of fibre supply, and the identification of technologies that could integrate with existing industrial operations to reinforce the competitiveness and employment benefits of those operations. The project also identified other stand-alone biomass energy and other bio-products technologies opportunities, where new operations would not conflict with existing operations.
The results derived from this pilot project are far-reaching and long-term for future opportunities for the Town of Princeton.

11.1.2 Scenario Planning and Leadership Workshop

SIBAC – in partnership with the Real Estate Foundation of British Columbia, Ministry of Community and Rural Development, Kootenay Boundary Regional District, and Kootenay Rockies Regional Economic Alliance – hosted three scenario planning and leadership workshops throughout the Southern Interior during May of 2009. Facilitators David Beurle of Innovative Leadership Australia and Gary Stewart of Rural Development Initiatives, Oregon were engaged to conduct the workshops in Kamloops, Christina Lake and Cranbrook.

The workshops provided a venue for SIBAC Board Members, project partners, elected officials and community stakeholders to participate in a regional economic development scenario planning exercise that demonstrated the benefits of long-term planning and working collectively regionally to maximize the growth and health of individual small rural communities.

Participants also learned how leadership development in rural communities helped the State of Oregon recover from the devastation to their forest industry in the late 1980s, by building local community leadership capacity. The workshops also offered participants a chance to network and explore partnership opportunities among communities.

11.1.3 Fuel Management - MPB-Impacted First Nations

SIBAC provided funding to the Nupqu Development Corporation (NDC) for the delivery of a Fuel Management Pilot Project in the Invermere TSA. This project documented a case study that outlined the actions necessary to implement a comprehensive Fuel Management Plan that includes:

- an identified need for a long-term fuel management maintenance regime;
- examples of how to co-ordinate with municipalities, regional districts, private land owners, Crown land tenure holders, and First Nation community partners to effect complementary landscape-level treatments that increase the effectiveness of fuel reduction treatments and the value derived from dollars spent;
- an opportunity to share this information through a public demonstration (with a number of experts in attendance) of various fuel management treatment options, and the posting of the case study on the SIBAC website (also available in DVD format for distribution).

The Nupqu Development Corporation (NDC) completed the planning and implementation of detailed fuel management prescriptions on the Akisqnuk First Nation and the St. Mary’s Indian Band reserves. In addition to the Strategic Forest Fuel Management Plans prepared for treatment of specified areas, Community Wildfire Protection Plans for fuel reduction treatments around community core areas were
developed for both communities. This pilot project has allowed for integration of strategic planning resulting in more efficient and effective wildfire protection that addresses forested areas beyond 100 metres from dwellings.

### 11.1.4 Mountain Pine Beetle and Water Management Workshop

In response to a growing concern about the potential impacts on water resources in this region due to the MPB infestation, SIBAC co-funded and participated in the delivery of an MPB and Water Management Workshop held in Kelowna June 2, 2009. There were 79 participants in the workshop.

The primary target audience for the workshop was water purveyors who may have to deal with the potential downstream effects of MPB in terms of water supply and treatment systems. Given the large number of community water systems in the BC Interior that could incur increased treatment costs if water quality is degraded, there is a critical need for water purveyors, as well as land managers, to understand the range of potential impacts that can occur due to the MPB infestation. The workshop was designed specifically to address the potential impacts to the supply of safe drinking water.

The objectives of this workshop were to link science and knowledge with practitioners - the people engaged on a day-to-day basis in managing water delivery systems. The workshop presented results of ongoing and recently completed research projects on the hydrologic and geomorphic effects of mountain pine beetle and MPB salvage logging.

### 11.1.5 Secwepemc Cultural Use in MPB Stands Project

SIBAC provided funding to the Shuswap Nation Tribal Council (SNTC) for the completion of a report that will provide valuable inventory information to the 10 member communities of SNTC. The project will enhance the cultural information necessary in the administrative/operational decision-making process used by the Secwepemc communities to determine strategic objectives for effective management of the MPB within their territory. The tasks necessary to complete the pilot include:

- Developing a Cultural Heritage definition and framework which will apply across the Secwepemc Nation.
- Strategically identifying a defined area (i.e. watershed or site) that will be impacted by the Mountain Pine Beetle.
- Inventory the cultural resources within that area through existing information, and interviewing traditional knowledge holders.
- Ground truth in the cultural resources identified as per survey and knowledge holders.

The Secwepemc Cultural Use in MPB Stands Project will be completed by October 2009.
11.2.6 TRU Tourism Project

SIBAC recognizes that many of the smaller rural communities in the Southern Interior have expressed an interest in tourism development as part of their economic development aspirations and to encourage economic diversification in light of the expected impacts of the MPB epidemic. SIBAC also recognizes that smaller rural communities often have a difficult time raising the funding required to hire professional consultants to help them with their community tourism planning. This pilot project was designed as a partnership project between the TRU School of Tourism, SIBAC and Western Economic Diversification Canada to address this need while at the same time encouraging university research extension and tourism student employment. This project is providing rural tourism development expertise and student manpower to three Southern Interior communities at either no or very minimal cost to them.

Elements of the project include:

- The assembling, analysing, producing and disseminating of information materials and tools on rural community tourism product development.
- Working directly with at least three interior communities to identify their tourism assets and opportunities; and to actively develop new tourism products in the communities.
- Providing university and other consulting assistance to the three communities for their tourism product development ideas and by placing tourism students directly into these communities to work on developing these community tourism initiatives.
- Hosting of a regional conference on best practices in tourism product development in rural and remote communities.

The TRU Tourism Project will be completed by June 2010.
**12  FUTURE ROLE AND PRINCIPLES OF SIBAC**

### 12.1 Context

As noted in the introduction of this report, the Southern Interior Beetle Action Coalition (SIBAC) was formed in 2006 and subsequently received government endorsement and funding to prepare this report. With the completion of this report, the primary mandate and focus of SIBAC over the past two years has been achieved.

The SIBAC Board of Directors believes however that the creation and operation of SIBAC has provided many other benefits, including:

- the establishment of a Southern Interior-wide regional forum for examining the potential impacts of the MPB epidemic;
- the creation of a Southern Interior-wide regional forum of local government and First Nations leaders to discuss MPB as well as other social and economic development issues, and to encourage collaborative action;
- the utilization and recognition of a Southern Interior regional forum of First Nations and local government leaders who collectively have a stronger voice and influence with the Federal and Provincial Governments;
- the creation of an organization that has demonstrated that it can be effective in communicating MPB issues and potential solutions to local governments and First Nations; and
- the establishment of an organization that has demonstrated success in identifying, building, supporting and implementing on-the-ground projects which can contribute to the mitigation of MPB impacts on the Southern Interior.

As noted in the introduction to this report, SIBAC decided at the beginning of its planning process that it wanted to contribute more than simply another report describing the potential negative impacts of the MPB epidemic. SIBAC wanted to demonstrate concrete action and demonstrate that local communities can be part of the solution to the challenges created by the MPB epidemic. Thus, over the past two years SIBAC has financially contributed and partnered on a significant number of MPB-related projects, just a few of which are highlighted in this report.

SIBAC believes that projects like these are critical to helping Southern Interior communities:

- understand the potential impacts of MPB;
- develop potential mitigation measures; and,
- develop strategies to seize positive opportunities from the MPB epidemic.
12.2 SIBAC Moving Forward

The impacts and implications of the MPB epidemic are long-term in nature and SIBAC believes there is much more work to be done to help Southern Interior communities adjust to the changes that will be brought about by the MPB epidemic. On June 8, 2009, the SIBAC Board met to discuss its future role. The remainder of this section is based on the output of that workshop.

The SIBAC Board of Directors recognizes that the organization has provided value and can continue to add significant value in helping local and senior governments deal with the MPB epidemic. As a result, the SIBAC Board believes that the SIBAC organization needs to continue under the organizational framework outlined in Figure 12-1. The defining features include:

- A Board of elected officials/appointed alternates with managerial support and a continued partnership with the Provincial MPB Response Team;
- Continued MPB advocacy and research activities;
- Continued MPB monitoring activities, including clearly articulating the outcomes and outputs realized by specific initiatives undertaken by MPB projects and accomplishment of long-term strategic objectives of SIBAC;
- Continued focus on MPB issues and mitigation, recognizing this will involve more than forestry and includes the economic transition of many rural communities in the SIBAC region;
- Strategic engagement with government leaders and agencies in promoting MPB mitigation strategies and regional and rural economic development; and,
- Leadership in the development and implementation of activities that contribute to developing solutions to MPB impacts.

The Board of Directors believes that local governments and First Nations need to maintain a strong and collective voice that can collaborate with and assist provincial and federal governments and agencies in MPB mitigation activities. Both senior levels of government have acknowledged that the MPB epidemic requires a long-term strategic response.

SIBAC believes it is absolutely crucial that provincial and federal MPB mitigation activities be carefully and strategically connected to local action in the communities and regions which will be impacted by the epidemic. The goal of SIBAC is to ensure that MPB-related resources are efficiently and effectively connected to community leaders, businesses and organizations to increase the likelihood of success. SIBAC feels that its knowledge and connections to the local communities and regional business leaders will contribute to this success.
The member organizations of SIBAC have formal relationships with a large number and variety of local economic development organizations, Community Future Development Corporations, chambers of commerce and tourism organizations. These organizations are recognized for their capacity and expertise in implementing local initiatives and projects. SIBAC views these organizations in the Southern Interior as key implementing partners that SIBAC will continue to work with moving forward.

**Figure 12-1 The New SIBAC Organizational Model**

- **Statement of Purpose**
  - MPE-related issues
  - Collective voice and representation of the region
  - Equity and fairness

- **Structure**
  - Board limited to elected officials
  - Equal minimum "ask" for all board members
  - Equal funding commitment from participants
  - Full-time paid manager
  - On-going administration and capacity support
  - Provincial government support and guidance

- **Role**
  - Advocacy
  - Information and research
  - Implementation support for transition
  - Project development
  - Monitoring of MPE impacts

- **Policies**
  - Mitigate of MPE impacts
  - More than forestry but must be traced back to MPE
  - Support existing land use plans

- **Service Area**
  - Entire SIBAC region
  - Communities, First Nations and NGOs
  - Private business not a service focus

- **Strategic Focus**
  - Engage government agencies
  - Focus on rural economic development
  - Maintain regional perspective
  - Coordinate, integrate, avoid duplication
SIBAC’s continued existence and involvement is intended to bring a high level of local ownership for MPB-related initiatives that over time will lead to meaningful transition in rural communities in the Southern Interior. SIBAC’s role will be to support efforts already underway by senior governments and also to further move initiatives towards maximum benefit for MPB-impacted areas.

12.3 Guiding Principles and Selection Criteria

12.3.1 Principles

To guide its future activities SIBAC proposes to use the following guiding principles and project selection criteria. These principles provide insights into the values of the member organizations and include:

- SIBAC will ensure that communities most at-risk of impact from MPB will be given priority assistance in SIBAC activities.
- SIBAC views regional co-operation and collaboration among First Nations, communities, regions, provincial and federal government as critical to efficiently and effectively addressing the challenges that are now being created by the MPB epidemic.
- SIBAC believes that regional economic development planning and implementation that supports rural communities and First Nations will positively impact the entire region.
- SIBAC will focus future efforts on projects and implementation tasks that are supported by multiple stakeholders, including the business community, that will best position SIBAC work for success.

12.3.2 Project Support Selection Criteria

It is proposed that each fall the SIBAC Board will hold a strategic planning session to confirm priorities for SIBAC activities for the upcoming year. Based on the outcomes of this annual strategy session, SIBAC will work with interested partner groups to develop projects and initiatives within these designated priority areas. SIBAC will use some of its organizational funding as “first-in” project seed funding and will approach other potential funders in order to build and implement projects.

SIBAC has set forth several criteria that will form the foundation for guiding SIBAC in the selection of future SIBAC-supported projects and activities. These include:

- **Strength of Partnership Participation.** This includes the partners involved and the commitment they have made to the initiative or project (as measured by effort and resources).

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9 When SIBAC uses the term “community” or “communities”, this includes all communities and consists of municipalities, First Nation communities, and unincorporated rural communities.
• **Regional Inclusion.** SIBAC represents participating regional districts and tribal councils in the Southern Interior of BC. SIBAC will view initiatives that cover multiple regional areas with priority consideration.

• **Project Sustainability.** SIBAC will support projects that clearly demonstrate a full implementation plan and that can highlight how projects will support economic growth and diversification or environmental sustainability in the Southern Interior.

• **Expert Involvement.** SIBAC will consider the establishment of a steering Committee that will guide the project or initiative as a valuable tool in ensuring that resources are well-used.

• **Reach of Project.** Projects and initiatives that address issues of widespread concern or that create solutions or tools that can be widely used throughout the Southern Interior will be given priority.

• **Timing of Project.** Projects for consideration must demonstrate the finite period in which they will initiate and complete their tasks and demonstrate their successes and value. Ideally, outcomes could be demonstrated within 24 months of project initiation.

### 12.4 Future SIBAC Funding

Moving forward, SIBAC believes that it is important that the organization secure multi-year funding for at least the next three-year period. SIBAC also believes it is critical to secure appropriate resources to implement projects in the priority areas that have been identified by SIBAC for mitigation of MPB impacts on communities and First Nations.

**Member Funding Commitment for Ongoing SIBAC Activities and Operations.**

Therefore, each Regional District and Tribal Council in the Southern Interior will be asked to make an equal financial contribution to SIBAC for a period of three years in order to fund SIBAC’s ongoing operations and administration. Only those organizations that contribute to ongoing administration and operations will remain as SIBAC members. Each member organization will then also be asked to appoint an elected official as its representative to the SIBAC Board.

**Request for Provincial and Federal Funding for SIBAC Priority Initiatives.**

SIBAC has put forward several specific recommendations where SIBAC feels it possesses significant knowledge and regional insight and is in a positive position to assist in developing and implementing MPB solutions. These include potential implementation initiatives involved in:

• Assessment and mitigation of watersheds at high risk for water quality and of importance to rural and First Nation communities;
• Projects that seek methods which maximize value from timber supply through innovation, partnering and access to fibre as part of revitalizing and diversifying the forest sector;
• Working collaboratively on wildfire hazard reduction in close proximity to communities;
• Supporting the economic diversification efforts of rural communities;
• Working with the most at-risk resource-dependent communities and tribal councils in planning and implementing economic development plans, in order to mitigate and diversify communities; and,
• Facilitating regional economic development and fostering further community and First Nation collaboration.

SIBAC recognizes that both the federal and provincial governments are facing revenue challenges, but at the same time have also made considerable funds available for immediate economic stimulus. SIBAC is convinced that the impacts of the MPB epidemic on some Southern Interior communities will be significant and require a response similar to that given by senior governments to previous major sub-regional economic crises.

SIBAC also believes it is important to immediately begin developing initiatives that demonstrate solutions to MPB problems and accelerate the economic diversification and resilience of at-risk MPB communities. Therefore, SIBAC will be meeting with federal and provincial politicians to seek funding for SIBAC which the organization will use for MPB initiative funding as described above.

SIBAC fully recognizes the importance of ensuring due diligence, financial accountability and effective initiative management and will ensure appropriate project evaluation is undertaken to ensure that SIBAC’s involvement is adding value in resolving MPB problems and diversifying rural economies in the Southern Interior region of BC.
13 SUMMARY AND CONCLUSIONS

13.1 Future Role of SIBAC

The SIBAC Board believes that although the organization has accomplished a significant amount over the past two years, there remains much to be done. The MPB epidemic will result in a variety of impacts that will vary in timing, intensity and duration. As a result, the response to the MPB epidemic needs to have both an immediate and longer-term approach.

Going forward, it is proposed that SIBAC membership will be comprised of Southern Interior Regional Districts and Tribal Councils and the Central Interior First Nations CFDC. SIBAC as an organization will have three major functions:

1 Advocate for Implementation of the SIBAC MPB Mitigation Plan Report
SIBAC will continue to work with the provincial and federal governments to develop strategies and actions to mitigate the negative impacts of the MPB epidemic and to develop solutions to take advantage of the opportunities presented by the epidemic.

2 Develop and Implement Actions and Projects That Will Help Achieve the SIBAC Report Recommendations
SIBAC believes that through the various partnerships it has developed and projects it has supported, it has helped to develop new tools which will assist Southern Interior communities to deal with the MPB epidemic. As a result, SIBAC is requesting additional funding from the provincial government that the organization will use as seed funding to continue to develop and implement projects which will demonstrate solutions to some of the challenges and opportunities created by the MPB epidemic. SIBAC is also requesting this funding so it can continue to work with those communities and First Nations most impacted by the MPB epidemic.

3 Monitoring the Impacts of the MPB Epidemic
As noted above, the MPB epidemic will create a wide variety of impacts, challenges and opportunities over an extended period of time. Both the provincial and federal governments have recognized this fact by developing longer-term approaches and strategies to the MPB epidemic. In their background research, SIBAC has tried to predict the most likely impacts of the epidemic on the Southern Interior. However, these impact predictions are based on a large number of assumptions and future events. Therefore SIBAC believes it is important that it continue to monitor the MPB impacts on the Southern Interior so that advice to the two senior levels of government can be revised as necessary.
13.1 Priority SIBAC Recommendations

The full SIBAC MPB Mitigation Plan report contains 24 recommendations grouped into six major theme areas. While SIBAC believes that all of the Plan report recommendations are important, based on community consultations the following six recommendations are seen as the most urgent priority in the short-term. SIBAC will be working with the Federal and Provincial Governments and partner organizations to develop strategies and projects that work towards achieving these recommendations.

MPB and the Environment

SIBAC Recommendation #1 - That the Province work with communities and First Nations to assess consumptive watersheds at high risk of negative water quality impacts as a result of the MPB epidemic and undertake appropriate mitigation activities. It is recommended that the Ministry of Environment work with the UBCM, Interior Health, local governments and First Nations to identify consumptive watersheds at high risk for water quality or flooding as a result of the MPB epidemic. There is a need to assess numerous watersheds that are used for consumptive purposes. Once high-risk watersheds are identified, the Province will need to provide funding for the completion of mitigation plans for major MPB at-risk community watershed areas.

MPB and the Forest Sector

SIBAC Recommendation #5 - That the Province should work with local Governments and First Nations to continue to seek methods that maximize value from the timber supply through innovation, partnering and access to fibre. SIBAC believes it is imperative that the Province work closely with the forest-dependent communities, First Nations and the business community to continue to seek methods to maximize value from current and future timber supplies. This includes examining best possible uses for both the dead and dying pine within the SIBAC TSAs and the remaining live trees. SIBAC believes that this work should include undertaking inventory assessments, fibre availability and cost analyses, and economic potential assessments. SIBAC also believes it is important that the Province increase value-added production in BC and access to fibre for new business entries, and promote collaboration amongst licensees and those looking to access fibre. SIBAC communities have consistently raised the need to implement new approaches that will increase the employment created from BC’s public forests while maintaining environmental sustainability.

MPB and Community Safety

SIBAC Recommendation #17 - That the Province, Municipalities, Regional Districts and First Nations work collaboratively on wildfire hazard reduction. SIBAC believes there is a need to foster more regional collaboration to reduce the risks associated with wildfire hazard by undertaking increased collaborative fire hazard reduction planning and mitigation treatments.
**MPB and Government Revenues**

**SIBAC Recommendation # 18 - That the Provincial Government develop new methods of regional resource revenue sharing with Local Governments and First Nations.** As a result of a fundamental shift in the BC economy, communities and First Nations need to establish sustainable sources of local government income. This funding needs to move away from the inherent challenges of relying on industrial and commercial taxation in small rural communities. At the same time, the provincial government needs to review how resource revenues collected from the regions are shared with local government and First Nations governments and how these can be used to grow and diversify local economies moving forward.

**Rural Development**

**SIBAC Recommendation # 21 - That the Provincial and Federal Governments dedicate funding for diversification for rural economic development in BC.** This funding would focus specifically on the engagement and participation of smaller communities, rural areas and First Nations to actively participate in economic development. SIBAC believes that new rural economic development funding and programs must be designed to assist smaller and economically challenged rural communities and unincorporated areas. In addition, the provincial and federal governments need to make funding readily available, unlike current programming that comes with considerable external priorities and focuses funding in small allotments at minor components of the total economic development initiative.

**MPB Communities At-Risk**

**SIBAC Recommendation #24 - That the Provincial Government provide implementation resources to MPB at-risk communities and Tribal Councils.** SIBAC believes it is imperative that the provincial and federal governments provide additional resources to the most-at-risk MPB communities and Tribal Councils so they can proactively begin to prepare for MPB impacts and implement appropriate MPB mitigation and transition actions.
A-1 Overview and Scope

SIBAC recognizes that the MPB epidemic will have culturally unique impacts on the First Nation communities in the Southern Interior. To identify First Nations impacts and concerns, and propose mitigation strategies and actions for First Nation communities, SIBAC has contracted with five Tribal Councils: Lilooet Tribal Council, Nicola Tribal Alliance, Shuswap Nation Tribal Council, Okanagan Nation Alliance, Ktunaxa-Kinbasket Tribal Council, and Nlaka’pamux Nation Tribal Council. In addition, the Community Futures Development Corporation of the Central Interior First Nations was contracted to identify First Nations impacts, concerns and propose mitigation strategies and actions for independent First Nation communities in the region.

SIBAC requested that the each organization identify, describe, and prioritize the concerns and predicted impacts from the MPB epidemic in terms of:

- a. Economic Impacts
- b. Cultural Impacts
- c. Social Impacts
- d. Environmental Impacts
- e. Other Impacts

The organizations were also asked to make recommendations regarding:

- a. Prioritized actions to help mitigation with:
  - Economic Impacts
  - Culture Impacts
  - Social Impacts
  - Environmental Impacts
- b. Legislative and Policy Recommendations
- c. Other Recommendations

A-2 Ktunaxa Nation Council

A-2.1 Location and Community Represented

The Ktunaxa/Kinbasket Development Corporation (KKDC) was engaged to prepare an MPB report covering the Ktunaxa Nation and the member bands within Canada including the Akisqnuk First Nation, St. Mary’s First Nation, Lower Kootenay Indian Band and the Tobacco Plains Indian Band. (See SIBAC website for full report).

A-2.2 Approach

The report relied on existing information compiled in a number of referenced documents, distributed survey questions, stated agreement with First Nations positions referenced in other reports and verbal communications received from both Ktunaxa members and employees of the Nation. These responses are not to be interpreted as comprehensive or
representative of all Ktunaxa Nation members. The report is intended to be a starting point in identifying some Nation members’ views on the potential impacts of the current MPB epidemic on the Ktunaxa. It is noted that Ktunaxa members are wary of how the report may be interpreted and for what purpose it may be used.

A-2.3 Key MPB Issues and Concerns

The Ktunaxa Tribal Council investigated issues and concerns focusing on implications at the personal and community level. The impacts are summarized here.

Economic Impacts

The economic impacts of the MPB impact are anticipated to centre on:

- Trees killed by the MPB within the reserves and around the communities cause job loss, increase the risk of wildfire and seriously affect the community members’ way of life.
- Efforts to control the MPB populations have resulted in significant uplifts in Annual Allowable Cut (AAC) and harvest levels of pine stands. This has directly affected the economic benefits including jobs, revenue, training/skill development, and investment associated with the Ktunaxa Nation Community Forest Licence. Although there was a benefit from the increased harvest in terms of immediate revenue, the quality of the logs was reduced by the beetle damage, resulting in a selling price significantly lower than expected.
- The Community Forest five-year cut period ends in September 2009, necessitating a new Timber Supply Review for the licence area. The full impact of the MPB infestation on AAC will be known at that time.
- Mill closures, oversupplies of sawlog, and other factors affecting markets for softwood lumber have caused job loss for plant employees, logging and other forest industry contractors and suppliers.
- There is potential loss of assets and infrastructure for communities should equipment/business owners be idled and default on loan payments.
- Postponed treaty negotiations have impacted Ktunaxa’s desire to manage lands according to the Nation’s stewardship principles.

Cultural Impacts

There were several cultural impacts and concerns identified including:

- Without First Nations involvement, planned salvage operations have the potential to compromise resource values, causing an increase in the spread of invasive plant species, adversely affecting fish and wildlife habitat, and impacting water quality, quantity and timing of flows.
- The Ktunaxa Nation has “identified cultural landscapes within their traditional territory”.
- Concern that climatic changes (i.e. warmer winters) will spread the infestation to higher elevations which have important spiritual and cultural significance.
• The Lower Kootenay Band expressed specific concern over the potential impact on Western White Pine, given the species’ cultural significance for construction of the yaksumit (canoe) by the Yaqan Nukiy people.

Social Impacts

There are several social impacts that could include:

• Impacts to the Ktunaxa cultural and spiritual values.
• The loss of healthy forests will negatively impact Ktunaxa social activities. Activities impacted include those traditionally done in groups such as hunting, fishing and gathering.
• Concern is noted that an increase in unemployment in First Nation communities could lead to an increase in negative social conditions such as alcoholism and drug use.

Environmental Impacts

The environmental section focused on specific areas that need to be addressed, and identified several specific environmental impacts including:

• The MPB has impacted both lodgepole and Ponderosa pine trees within Ktunaxa communities.
• Salvage and control has been concentrated outside of reserve and community areas. Within community and reserve areas there is a build-up of forest fuels and associated risk of severe wildfires with potential loss of habitat for wildlife and plant species. The Ktunaxa people have relied on these species for sustenance, commerce and cultural uses.
• Concern that funding will not be available to treat fire hazards, which may lead to threats to lives, property, and environmental damage should uncontrolled fires occurs.
• Dead and dying pine trees contribute to increased fuel loading and corresponding interface wildfire potential within the two-kilometre zone surrounding reserves.
• Concern that removal of forest cover resulting from salvage logging will adversely impact water quality, quantity and timing of flow. The combined factors could have serious impacts on the runoff (flooding), ecology and species’ habitat, and the health and safety of Ktunaxa Nation members.

Other Impacts

Further impacts were also identified including:

• Increased activities associated with the MPB require funding to address manpower recruitment, training, and infrastructure to enable active participation in the planning and referral processes, mitigation treatments and rehabilitation of the lands and resources affected by the epidemic.
• Most Nation members have not received adequate education regarding the threat and potential impacts to themselves, future generations, and cultural and other
values within their traditional territory. There is a need to fund effective communication of MPB implications to Ktunaxa people.

A-2.4 MPB Recommendations and Actions Targeting Mitigation

The work undertaken on behalf of the Ktunaxa Tribal Council outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.

Economic Impacts

The recommendations identified for the economic impacts of the MPB include:

- Nation members identified a need for government to create a strategic plan that includes participation of First Nations, industry and government in partnership to investigate economic opportunities in a comprehensive manner. This partnership group needs the resources to identify existing and potential shared long-term employment and revenue sharing opportunities.
- A lead agency needs to be identified and funds made available for fuel management projects that address fire risks between the community core and the reserve boundary.
- Tourism or expansion into natural areas may create the need for trained workers to assess and deal with danger trees, build trails and infrastructure, lead educational programs, etc.

Culture Impacts

The recommendations associated with the culture impacts of the MPB include:

- First Nation involvement in the planning of salvage harvesting and MPB mitigation treatments including access management.
- Not all areas affected by MPB must be harvested, giving due consideration to ecosystem values in the decision-making process.
- Capacity development within the Ktunaxa Nation to assess and record culturally significant sites in areas that will be considered for salvage opportunities.

Social Impacts

The recommendations that are believed to mitigate social impacts include:

- Funding for training First Nation members to be effective participants in the planning, referral and implementation stages of MPB treatments.
- Retraining and other social programs targeting displaced workers to help transition to other industries.
- Increased language and cultural programs in schools will help youth gain confidence, self-respect and a better knowledge of their history and culture.
• There is a need for funded programs and more opportunity for Ktunaxa participation in economic development, to provide benefits that extend well beyond Ktunaxa communities.

**Environmental Impacts**

Recommendations that may assist in mitigating environmental impacts include:

• Comprehensive resource inventories within traditional lands are considered essential to improving knowledge and understanding, and communicating about the potential impacts on First Nations. Specific inventory information to be collected include: timber, flora and fauna, non-timber values such as traditional medicines and food, culturally significant areas, water, access, and business capability.

• Water quality monitoring for drinking water supplies, water for agriculture and livestock, as well as native streams, lakes and ponds.

• Manage wildlife habitat through ecosystem restoration in areas having potential for wildlife viewing in the future.

• Adequate funding for completion and implementation of Forest Fuel Management, Community Protection and Emergency Response Plans – including provision to employ First Nation members and utilize existing Nation businesses to create and implement plans.

• In conjunction with forest fuels planning and implementation, there is a need to provide for ecosystem and habitat restoration/preservation. Co-ordinated planning for ecosystem restoration and forest fuel management can be more efficient and effective when combined on a landscape level, rather than when done in isolation.

**A-2.5 Other Recommendations**

The KKDC also considered additional recommendations that may provide mitigation value including:

• KKDC will create Forest Fuel Management Plans for areas within 100 metres of the community core for each of the four communities. Funding is required for treatment of reserve lands outside the 100-metre zone.

• Secure funding for landscape-level planning and treatments of forest fuel reduction and ecosystem/habitat restoration projects on reserve lands outside of the community core.

• The process to apply for and fund large-scale, multi-jurisdictional projects should be streamlined.

• Funding for education and communications programs for First Nations communities to further knowledge of and develop responses to the challenges posed by the MPB. Included is the need for communications with surrounding non-First Nations communities, with emphasis on actions to mitigate wildfire risks.
A-3 Lillooet Tribal Council

A-3.1 Location and Communities Represented

The Lillooet Tribal Council is comprised of seven Northern St’at’imc Indian Bands: Bridge River Indian Band (Nxwisten), Cayoose Creek Band (Sek’wel’wa’s), Lil’wat (Mt. Currie), Seton Lake Band (Tsalalh), T’it’q’et Administration, Ts’kw’aylaxw First Nation, and Xaxli’p (Fountain) Band. The majority of the Lillooet Timber Supply Area is covered by the St’at’imc.

The Lillooet Tribal Council invited the six Northern St’at’imc communities that fall within the SIBAC Region and the beetle-impacted area to participate (See SIBAC website).

A-3.2 Approach

The approach within the communities involved undertaking individual surveys. In total, 147 questionnaires were filled out by various members from each community (Lillooet Tribal Council, 2008). The questions captured three main areas of concern, including:

- General thoughts on MPB with the focus on capturing the current MPB situation;
- Specific cultural, social, economic and ecological concerns; and,
- Any proposed mitigation and legislative recommendations.

A-3.3 Key MPB Issues and Concerns

The Lillooet Tribal Council investigated issues and concerns focusing on implications at the personal and community level. The impacts are summarized here.

Economic Impacts

The economic impacts of the anticipated MPB impact centre on:

- Immediate job losses for forest/natural resource reliant communities and individuals.
- Displacement of families and communities that are resource dependent.
- Opportunities not being realized in relation to wood volume not being harvested, due to stumpage, point of appraisal and steep terrain.
- Lack of funding to implement/expand skill development and training programs.
- Opportunities not being realized by the removal of MPB-affected wood for community safety (Wildfire Protection and Danger Tree removal).
- Visual impacts and the decrease in tourism due to dead trees.

Cultural Impacts

There were several cultural impacts and concerns identified, including:
• Loss of heritage and archaeological sites including culturally modified trees, trail markers, pit houses, spiritual sites, gravesites, camps and other archaeological sites.
• Impacts on hunting and traditional migration and wintering areas.
• Impacts on fishing due to soil erosion/siltation, increased water temperatures and decreased oxygen levels.
• Plant gathering and sustenance gathering areas including medicinal plants, berries and mushrooms.
• Unknown cumulative impacts on culture and heritage.
• Loss of quality of life due to loss and inability to practise the St’at’imc way of life.
• Loss of traditional ecological knowledge.
• Loss of pine and the uses associated with pine, i.e. pine needles (basket making) pine pitch (medicinal and other uses).
• Dangers associated with dead trees around the communities, to the people carrying out cultural activities.

**Social Impacts**

There are several social impacts which could include:

• Long-term effects on the St’at’imc people and their quality of life due their relationship with their environments/ecosystems.
• Feeling that social areas (homes, community gathering places) and social events (ball/hockey tournaments, dances) could be affected due to safety issues (fire / danger trees). Less social, family and community interaction.
• Loss of employment means an increase in social programs (Social Assistance).
• People leaving the area to search for employment opportunities.
• Visual degradation and the impacts on “Beautiful British Columbia”.

**Environmental Impacts**

The environmental section focused on specific areas that need to be addressed. It identified several specific environmental impacts, including:

• Water quality and quantity and the effects on people, fish and wildlife:
  o Increased water temperature; and,
  o Increased siltation.
• Loss of fish (changes in spawning cycles).
• Loss of wildlife and change in animal behaviour.
• Forest fires.
• Loss of the living forest
• Soil degradation by erosion (water/wind/fire) and slope instability (mudslides)
• Possible occurrence of desertification (trees provide stability for water and soils) changes to Biogeoclimatic Zones.
• Concern with government’s and industry’s focus on removing trees, which could trigger an imbalance.
• Changes in plant, wildlife and fish habitat (shelter, food, migration and distribution)
• Increase of invasive plants.
• Other forest pests (Spruce budworm, Douglas Fir beetle).
• Air quality.

Other Impacts
Further impacts were also identified including:

• Public safety and protection around highways, hydro/telephone lines, railroads, and creeks and other places that people frequent.

A-3.4 MPB Recommendations and Actions Targeting Mitigation
The work undertaken on behalf of the Lillooet Tribal Council outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.

Economic Recommendations
The recommendations identified for the economic impacts of the MPB include:

• Create employment opportunities to alleviate the spread and removal of dead trees to prevent fire hazards (i.e. fuel mitigation projects).
• Need capital and training dollars to support projects and capacity building for people and youth that are transferable.
• Make a stance to government to make it economical for individuals and forest companies to deal with harvesting and replanting. Lower stumpage.
• Consider Tourism as an alternative source of income.
• Seek out new opportunities, such as non-timber forest products, or value-added alternatives, biofuels, and finding a market for the blue wood and Yellow Pine.

Culture Recommendations
The recommendations associated with the culture impacts of the MPB include:

• Make use of existing funding and additional funding for job creation/creation of more heritage sites, to deal with the cultural concerns. This may involve carrying out studies to survey cultural sites and develop policies of protection. Use GPS to record all culturally modified trees, trails, burial sites and other sites. Continue to monitor the impacts.
• Support cultural uses of the forest and non-timber forest products.
• Remove dead trees around village sites, traditional gather areas, burial sites, pit houses, heritage sites and trails.
• Continue practising traditional ways such as traditional burning, gathering traditional medicines/food, and pruning plants. If traditional knowledge, language and way of life are lost, it will have further impacts on the people.
Social Recommendations

The recommendations that are believed to mitigate social impacts include:

- Funding to create jobs that deal with the beetle kill, thus creating less dependence of employable people on social assistance.
- Lower hours required to receive employment insurance.
- Direct funding and diversity of training to each of the communities to receive a percentage of jobs for people to work within their own areas, and options for those who are currently involved in the forest industry and involve youth.

Environmental Recommendations

Recommendations that may assist in mitigating environmental impacts include:

- More funding for jobs and manpower to deal with the environmental impacts of the infestation.
- Replant native trees and plants.
- Incorporate traditional burning practices and practise Aboriginal Title and Rights every day.
- Research and study the long-term impacts and mitigation measures and monitor the impacts.
- Let nature take its course.
- Conduct an environmental assessment for each of the communities
- A holistic ecosystem-based plan in place.

A-3.5 Legislative and Policy Recommendations

Federal and Provincial

The key legislative and policy recommendations that the Lilooet Tribal Council make to the federal and provincial governments includes:

- Lobby to get Lilooet appraisal and stumpage out of the Cascades District. Need for the Lilooet Forest District to be re-established.
- Speed up legislation for First Nations to harvest the wood, and decrease the red tape at the bureaucratic level to obtain licences and timber permits.
- Recognition of Aboriginal Title and Rights, and for policies and legislation to reflect this recognition.
- Implementation of traditional burning for ecological reasons.
- Ensure appropriate amount of funding to deal with MPB for both on and off reserve.
- Use the McRae Report to assess the Lilooet TSA in conjunction with the St’at’imc Land Use Plan. Work with the Lilooet Tribal Council and the surrounding communities.
- Implement the recommendations
A-3.6 Other Recommendations

The Lillooet Tribal Council also considered additional recommendations that may provide mitigating value, including:

- Increase government involvement and encourage government to pay more attention to local issues.
- Set up a WorkSafe program along with certified workers, i.e. unit crews for fuel management.
- Learn more about how the MPB epidemic relates to global warming.
- For industry, government and communities to set aside differences and work together more effectively.

A-4 Unaligned Indian Bands

A-4.1 Location and Communities Represented

Community Futures Development Corporation (CFDC) of Central Interior First Nations (CIFN) was commissioned to provide a report identifying and prioritizing the major impacts of the MPB epidemic for those Bands unaffiliated with SIBAC or Southern Interior Tribal Councils. Seven Bands were identified: Ashcroft First Nation, Douglas First Nation, High Bar First Nation, Lower Nicola Indian Band, N’Quatqua First Nation, Samahquam Ucwalmicw First Nation, and Skatin First Nation (See SIBAC website for full report).

A-4.2 Approach

Information was gathered from Phase 1 and 2 of the First Nations MPB Impact Assessments conducted in 2006 and 2007 for the First Nations Forestry Council. CFDC of CIFN contacted each of the First Nations communities to ensure the reporting was accurate and to provide an opportunity to add to or express additional concerns not identified in the previous reports. Each Band reported information separately, and the collected information was combined with the earlier work. The focus for the SIBAC work was ensuring that four key issues were addressed, including: economic, cultural, social, and environmental impacts.

The information presented in the report was reviewed and approved by the Chiefs and Councils of each Nation prior to submission to SIBAC.

A-4.3 Key MPB Issues and Concerns

Economic Impacts

The anticipated economic impacts of the MPB impact are:

- Economic opportunities associated with timber products and emerging non-timber industries could be lost. The sheer volume of impacted wood and associated harvesting will negatively impact the existing timber business due to the flood of
fibre. Many band members are employed in the forest sector and their jobs are at-risk.

- Loss of future revenue-sharing opportunities as infested timber is either lost and/or salvaged from traditional territories.
- Reduction in land value will negatively affect treaty negotiations.
- The growing tourism industry, especially eco-tourism, will be impacted.
- Non-timber forest products such as mushrooms, berries and herbs have become an economic opportunity but may be negatively impacted.
- Opportunities for sustainable management of forestland resources may be compromised. Capacity and resources are needed to complete Environmental Resource Plans. There is an urgency to collect information on forestland values, underlined by the rapid progression of the infestation.
- First Nation communities’ traditional reliance on fisheries and forests for both survival and trade may be compromised.
- Increased fire hazards may impact adjacent stands, including non-pine stands such as Douglas fir, potentially compounding the impacts of the infestation.
- A number of existing reserves are too remote and expensive to service.
- First Nations’ rights and title in regards to decision-making in areas of economic development are impediments to economic growth.

**Cultural Impacts**

There were several cultural impacts and concerns that have been summarized including:

- The infestation’s impact on ceremonial and traditional healing sites, culturally modified trees, and trade trails needs to be understood. These values need recognition in planning/implementing land base activities associated with the infestation.
- Increased risk of wildfire presents a specific threat to communities and cultural values (i.e. graveyards, trails, sites).
- First Nations communities are connected to the land. Loss of pine forests and changes in ground cover will impact traditional uses (i.e. hunting, fishing, trapping), social activities (i.e. berry and mushroom picking, herb gathering) and will impact spiritual values. Without the natural wilderness, youth cannot learn their traditional way of life, culture and appreciation for a holistic understanding for their traditional territories.
- Impacts to ungulates, furbearers and wildfowl and their habitats will impact community food supplies and materials.
- Ecosystems damaged by salvage logging will threaten flora and fauna including already endangered species, traditional foods and medicines.

**Social Impacts**

There are several social impacts, including:
There is growing concern over the threat of catastrophic wildfires and potentially devastating impacts on communities, infrastructure and heritage sites.

The physical and mental well-being of people is affected due to the threats posed to their traditional way of life. This is a consequence of the cumulative impacts posed by: increased fire danger; altered water yields; risk of erosion and flooding; decreased availability of traditional food sources, plants and medicines; changes in wildlife habitat and migration patterns; impacts of salvage harvesting; and loss of employment.

**Environmental Impacts**

The environmental issues and concerns include:

- Increased fuel loading and associated risk of wildfire is a primary concern.
- There is concern over impacts on watersheds, river systems and riparian habitats compounded by threats posed by salvage logging and road construction. Specific issues include water yields, erosion and landslides, flooding and water quality deterioration.
- The combined impacts of past harvesting and present salvage logging may worsen the ability to rehabilitate territory, especially in areas of steep, dry and rocky terrain.
- Alterations in habitat may negatively impact wildlife and migration patterns. Slashing, brushing, MPB and wildfires threaten many wildlife species with the potential for extinction.

**Other Impacts**

Additional key impacts that could not readily be accommodated in the categories above included:

- Capacity building, to address wildfire risks and community safety, is a priority.
- Some communities expressed concerns over limited road access in and out of their community.

**A-4.4 Recommendations and Prioritized Actions Targeting Mitigation**

The work undertaken by the CFDC Interior First Nations on behalf of the unaffiliated Bands highlights several key recommendations that may mitigate specific MPB impacts.

**Economic Recommendations**

The recommendations identified for the economic impacts of the MPB include:

- Capacity building will come from First Nations people. Internal weaknesses must be addressed to successfully move outward into local, regional and world markets. Building for the future through assessments, planning and expanding on partnerships is seen as the strategy. Opportunities exist to implement existing plans.
- Developing and implementing emergency response plans using First Nations peoples will address a number of areas: improved forest fire-fighting capacity, community safety, training and certification, employment and capacity building.
- Habitat preservation and asserting control over the emerging economic opportunities of non-timber forest product resources are priorities.
- Developing economic opportunities for MPB-impacted timber include: expansion of community firewood collection, equipment supply and rental, post and rail manufacturing, providing material for low-cost housing, pellet manufacturing, replication of heritage structures, and select milling/specialty wood.
- Reforestation and retention of non-pine species are seen as priorities to mitigate fall downs in timber supply thru the mid-term.
- Identification and protection of cultural and spiritual sites will provide short-term training and maintenance employment.
- Forest Stewardship planning, including industry partnerships, is an imperative in moving to sustainable resource management. This includes incorporation of other plans and initiatives (i.e. cultural-specific plans, fuel management plans).

**Culture Recommendations**

The recommendations associated with the culture impacts of the MPB include:

- Prepare cultural-specific plans and models built on inventories of infrastructure, cultural heritage values, and forests (including ground cover of plants used for traditional uses).
- Preserve culture and traditional territories by working with organizations such as the Nicola-Similkameen Innovative Forestry Society (NSIFS) in the development of ecological and cultural models for integration in Sustainable Forest Management plans.
- Fire protection plans should cover areas significant for their economic, cultural and social benefits (i.e. fishing, hunting, collecting food and medicinal plants for traditional uses).
- Protection of ceremonial, cultural and spiritual sites and traditional trails present short-term and ongoing training and site maintenance opportunities, providing both employment and education for community members.
- Install monitoring plots in a range of MPB-impacted sites including salvage areas. Ongoing monitoring will further understanding of the changes in forest structure over time and help establish and develop Traditional Use Studies.

**Social Recommendations**

The recommendations that may mitigate social impacts include:

- Conduct inventories of traditional camps and traplines to acknowledge past and current use and identify rehabilitation needs of traditional territories. These features are important to preserve culture and continuance of social customs for youth and elders.
• Promote traditional and academic education thru development of a Traditional Ecological Knowledge program.
• Fire-protection and fuel-management plans need to address a broad range of areas including heritage sites and areas of cultural and social significance. Protection of these areas will provide benefits for fishing, hunting and collecting food and medicinal plants for traditional uses.

Environmental Recommendations

Recommendations that may assist with environmental mitigation include:

• Forest fuel management is the first priority, to protect communities and surrounding natural resources. Plans should address inhabited and uninhabited reserves, seasonal use areas, areas that provide economic and social benefits (i.e. fishing, hunting, food collection, medicinal plants, and traditional uses) as well as Crown land areas surrounding reserves.
• Fuel management plans to include provisions for use of alternate species (i.e. deciduous).
• Emergency response plans and evacuation plans for fire and flood events need to be in place before the Forest Fuel Management plans can be completed. Neighbouring communities and other parties of interest should be included in plan preparation. The assessment process needs to identify infrastructure issues and needs (i.e. roads, communication network).
• Undertake complete environmental assessment related to risks associated with soil erosion, groundwater changes, and community safety.
• Undertake ecosystem restoration and retention strategies aimed at protecting water supplies and the environment.
• Undertake site remediation and planting on all salvaged or unsalvaged MPB-killed stand in order to protect soil and water resources.
• Undertake controlled burns to enhance the growth and production of certain foods and plants.
• Complete plant and wildlife habitat models to support preparation of sustainable forest management plans and operational plans to more accurately predict impacts to current and future habitat supply at the stand and landscape levels.

A-4.5 Legislative and Policy Recommendations

Federal and Provincial

The key legislative and policy recommendations that the unaligned Bands make to the federal and provincial governments include:

• Development of revenue-sharing opportunities associated with timber removed from traditional territories.
• Securing long-term forest tenures for First Nations.
A-4.6 Other Recommendations

The unaligned Bands also considered additional recommendations that may provide mitigating value, including:

- Support preparation of Traditional Land-Use Plans, Forest Opportunity Assessments and Action Plans, and support their use for inventories of resources on reserve lands, infrastructure and significant cultural heritage values. This will identify information gaps, provide information to other plans (i.e. Fuel Management Plans) and identify capacity building needs.
- Complete and then conduct tests of Community Emergency Response Plan readiness.
- Train and develop emergency responder teams.
- Prepare a 10-year strategic MPB Management Plan for reserve lands which includes long-range fuel management, ground surveys and identification of treatment regimes. Ensure information is linked to other plans (i.e. Emergency Preparedness Plans, Land Stewardship Plans, Traditional Use Studies, and Economic Development Plans).
- Review other First Nations’ land-use planning projects.
- Discuss MPB impacts and concerns with neighbouring communities and other interested parties that share areas of interest and/or common boundaries. Work towards identifying the common goals and actions.
- Work with neighbouring communities in the creation and implementation of Emergency Response and Evacuation Plans in case of fire, flooding, etc.

A-5 Nicola Tribal Association

A-5.1 Location and Community Represented

The Nicola Tribal Association is comprised of seven Bands: Siska, Nicomen, Cooks Ferry, Shackan, Nooaitch, Coldwater, and Upper Nicola. Nicola Tribal Association communities participating in this project are situated mainly in the Nicola Valley along the Coldwater, Nicola, Thompson and Fraser Rivers. The communities are within the Merritt and the Lillooet Timber Supply Areas.

A-5.2 Approach

This report highlights the impacts of the mountain pine beetle on economic, social, cultural and environmental areas of the Nicola First Nations. This report utilizes both information from a survey conducted in 2005 and information derived from individuals, First Nations companies, and local bands during the development of this report. A social indicator report was developed for Stuwix Resources Joint Venture, a forest licence company owned by eight local First Nation Bands in the Merritt Forest District. This report outlines the impacts of the mountain pine beetle on the Nicola Bands which include those who are represented by the Nicola Tribal Association as well as those that are located within the Nicola Watershed (Lower Nicola Indian Band) and the Merritt TSA (Upper Similkameen Indian Band). Specific NTA priorities and time frames can be found in the full report on the SIBAC website.
A-5.3 Key MPB Issues and Concerns

The Nicola Tribal Association investigated issues and concerns focusing on the personal and community levels. The impacts are summarized here.

**Economic Impacts**

The anticipated economic impacts of the MPB impact include:

- Tenure insecurity, due to significant non-replaceable forest licences (NRFL) and Forest and Range Opportunities/Agreements.
- Security on investments (equipment and human resources) to harvest NRFL volumes.
- Profitability of forestry activities due to MPB impacts and overall economic situation.
- Potential Joint Ventures and working relationships between First Nations and the forest industry could be put in jeopardy due to lack of economic stability of licences.
- Lack of training opportunities through the Forests For Tomorrow (FFT) program. The 25% First Nations opportunities target is currently under-utilized (11% uptake) due to lack of trained First Nations people to undertake contract opportunities (i.e. Silviculture Surveys, Danger Tree Assessments etc.).

**Cultural Impacts**

There were several cultural impacts and concerns identified, including:

- Preservation of traditional food-gathering areas from disturbance.

**Social Impacts**

There are several social impacts that could include:

- Loss of employable community members to other areas, i.e. oil and gas sector.
- Younger community members leaving their communities to seek opportunities in larger centres/cities for extended periods of time or indefinitely.
- Substance abuse issues due to stresses put on the families by separation.

**Environmental Impacts**

The environmental section focused on specific areas that need to be addressed and identified several specific environmental impacts, including:

- Increased access to relatively undisturbed areas due to increased road construction for harvesting and resource extraction.

A-5.4 MPB Recommendations and Actions Targeting Mitigation

The work undertaken on behalf of the Nicola Tribal Association outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.

**Economic**

The recommendations identified for the economic impacts of the MPB include:
• Need to make the IFPA uplift permanent. Currently the uplift is scheduled to expire December 31, 2011. The future of Stuwix Resources JV depends on this decision.
• Need permanency or longer-term First Nations Forest Licences.
• FRAs and FROs need to be replaced with long-term renewable licences.
• Need for FN Community Forests.
• Larger or multiple Woodlots for First Nations.
• Investors are attracted by permanent or long-term timber tenures.
• Non-First Nations investors are attracted to First Nations tenures because they are among the few large tenures available outside of large industry. Investors are also attracted to the tax breaks and associated First Nations programs.
• Need to analyse viability of new forestry ventures such as chipping and grinding operations.
• Merritt’s primary industry is forestry. There is a need to assist First Nations in developing markets for timber, pulp, hog fuel, lumber, and value-added products.
• Viability studies need look at those that suit current and future wood baskets of the Nicola Tribes.
• New ventures need to be assessed such as Pellet Plants and BioCarbon Pellet plants.
• Need to review how wood is utilized in the biodegrading process of the proposed Highland Valley Waste process.
• Need to look at recommendations that were developed in the 2002 Value Added report.
• Need to rebuild the First Nations silviculture program on all levels – planning, surveying/data collection, and ground treatments.
• First Nations have been looking at the viability of a large-scale coniferous nursery operation.
• New forms of tourism need to be looked at and funding dollars made available for research and development of new opportunities such as First Nations Ecotourism, snowmobile tours, quad tours, etc.
• Large-scale proposed development such as Coquihalla Ski Resort, Wind Energy, Hydro Projects, and Highland Valley Waste need to be assessed for long-term benefits and impacts.
• Impacts of the MPB on agricultural activities need to be investigated, such as large openings, hydrology, introduction of invasive plants, etc.
• Need to focus on existing infrastructure (such as mills), and on increasing efficiency. One issue is why Merritt mills are surviving the current downturn in the forest industry.
• Need to identify and develop new forest opportunities such as fuel management and wildfire protection.
• Find new opportunities to promote and increase the services of the Provincial Nicola Fire Base.
• Need to increase the local First Nations opportunities through further studies and surveys on First Nations tenures and business ventures.
• Need for an Economic Symposium to allow both the First Nations and non-First Nations communities to look at the existing situation and develop strategies on where
we want to go in the future. An economic symposium will allow for networking of local business entrepreneurs and outside investors.

- Need for First Nations revenue-sharing. Currently much of the FN stewardship dollars are a result of revenue generated from non-renewable forest tenures.
- Need to have First Nations involved in shared decision-making. Currently there is a movement under the new relationship, but it is still not at an acceptable level.
- There is a need for training and certification. Areas identified are: falling certification, silviculture certification, fuel management, and fire management.
- There is a need to incorporate First Nations knowledge and practices into western practices and promote it as BC Forestry.
- Need to look at the pros and cons of Non-Timber Forest Products and NTFP tenures.
- Need to look at silviculture tenures.
- Need to look at how First Nations can incorporate Carbon Credits.

**Culture**

The recommendations associated with the culture impacts of the MPB include:

- Need for further surveys on the social and economic situation on reserves, develop a baseline for future studies.
- Utilize past data and do a gap analysis for future studies.
- Need for community meetings to get involvement from the grassroots up, i.e. traditional groups, bands, Tribal Councils.
- Need for further Traditional Use Data Collection. This information is one of the most important requirements before any development or treatment can occur.
- Need to support First Nations cultural practices and incorporate First Nations values into the decision-making process.
- First Nations need capacity dollars in order to effectively participate.
- Need for further RIC training as a part of archaeology assistant training.
- Need to retain youth, make our communities more attractive in order to retain youth, and provide opportunities for youth to return home.
- Leadership and higher level First Nations positions are currently overwhelmed. Leadership training and development programs need to be identified.
- Non-First Nations are also involved in many First Nations organizations, either by employment or sitting at the same table, i.e. by working for industry or government. They also require First Nations training. The community needs to look into the First Nations Forestry development program that is being developed by UBC.
- Need to support and enhance First Nations culture on and off reserves.
- Need to identify First Nations practices and how they can be managed. There is currently no hunting, fishing or plant management in place. Large changes to the land will result in a need for management of First Nations resources.

**Social**

The recommendations that are believed to mitigate social impacts include:

- Need to identify social issues affecting First Nations on and off reserves.
• Need to identify and execute social development programs in order to maintain or enhance current social levels on and off reserve.
• Need for social programs such as life skills courses.
• Need for bursaries and scholarships in identified disciplines.
• Need for skills training in developing trades. For example, Wind Energy Technician training.
• Need to recognize our youth and create opportunities for them to participate in their communities.
• Support local educational facilities such as the Nicola Valley Institute of Technology. Support can be through attracting new students and identifying and supporting new disciplines and trades programs.
• Need to identify and promote training programs and funding opportunities for displaced workers. For example, the Job Opportunity Program.

Environmental
Recommendations that may assist in mitigating environmental impacts include:

• Need for water and watershed management.
• Need to gather data on watershed and water issues and pursue further hydrological studies.
• Need for further research on the impacts of global warming on our local ecosystems.
• Need to review all the work that has been completed through the NSIFS program and see where the study information can be incorporated into other projects. For example, a recent meeting resulted in a synergy of information-sharing between NSIFS data and the Forests For Tomorrow program.
• Need for Environmental Assessments Review training and funding.
• Need for funding for First Nations involvement.
• Need to be involved in large-scale operations that result in large areas of forest removal and/or large-scale impacts on the land (i.e. forestry and mining).

A-5.5 Legislative and Policy Recommendations

Federal and Provincial
The key legislative and policy recommendations that the Nicola Tribal Association make to the federal and provincial governments includes:

• More stringent legislative regulation/policy regarding the take/leave species during harvesting operations.
• Enhanced regulation/legislation surrounding policy dictating what type of timber profile must be harvested as a priority – green wood versus mountain pine beetle infested wood.
• Revision of the current provincial consultation process. Simplify the process for protecting the quality and quantity of domestic water sources. Water management must receive priority over timber management.
• Make referral changes, both in funding levels and time allowances, to allow First Nations to firmly develop capacity, technology and to allow ample time to review the material. This will eventually allow for meaningful and inclusive First Nations participation in land management decisions.

A-5.6 Other Recommendations

The Nicola Tribal Association also considered additional recommendations that may provide mitigation value, including:

• There is a need to develop an environmental symposium for the Nicola Valley, similar to the one that was done in 2001 where studies were highlighted and presented. It is a chance to see what is happening on the ground and to network.
• ILMB needs to develop a First Nations working group that participates with all levels of planning and on-the-ground applications.
• Need to be involved in Environmental Assessment Reviews. Also a need to get First Nations acquainted with the Environmental Overview Assessment process.
• Need to involve larger First Nations organizations such as the First Nations Forestry Council, First Nations Energy Council, to work with and on behalf of local bands and Tribal Councils.

A-6 Okanagan Nation Alliance

A-6.1 Location and Community Represented

The Okanagan Nation Alliance is comprised of seven Okanagan (Syilx) Indian Bands: Okanagan Indian Band, Westbank First Nation, Penticton Indian Band, Osoyoos Indian Band, Lower Similkameen Indian Band, Upper Similkameen Indian Band and Upper Nicola Indian Band. The Okanagan Territory is comprised of portions of the Merritt Timber Supply Area (TSA), Okanagan/Shuswap, Arrow/Boundary, Columbia and Kootenay Lake TSAs. (See SIBAC website for full report).

A-6.2 Approach

The Okanagan project team conducted interviews with 50 Band members from each community and undertook an extensive literature review in completing their report. Many excerpts, articles, reports and studies are quoted throughout the Okanagan Nation Alliance Report (Okanagan Nation Alliance, 2008).

A-6.3 Key MPB Issues and Concerns

The Okanagan Nation Alliance investigated issues and concerns focusing on implications at the personal and community levels. The impacts are summarized here.

10 Upper Nicola Indian Band is affiliated with both the ONA and NTA
Economic Impacts

The negative economic impacts of the MPB are anticipated to be:

- Negative economic impacts to Okanagan communities will vary, dependent on each Band’s reliance on the forest industry.
- Loss of existing capacity within Bands that have developed/invested significant resources into the forest resource sector (i.e. infrastructure, equipment, logging expertise/services, and technical expertise/services).
- It is a complex issue separating economic impacts solely related to MPB, due to the forestry industry’s overall current economic downturn.
- True commercial value of the Forest and Range Opportunity Agreements to become non-viable and essentially liabilities for First Nations.
- Potential negative impacts on tax base for communities (Osoyoos and Westbank First Nation) that collect property taxes (i.e. potential decrease in industrial and residential tax base).
- Potential to jeopardize existing agreements between First Nations (Stuwix e.g.) and industry partners.

For the Okanagan Nation there is also the possibility of economic opportunities that may emerge in association with the MPB, including several Nation-level initiatives:

- **Forests for Tomorrow:** The ONA became a Recipient Agreement Holder for the Okanagan, Revelstoke and Golden TSAs to conduct work as mandated by the provincial MOFR Forests for Tomorrow program. The goal of ONA's involvement is to increase the opportunities for Bands and Band members to gain employment and training through this initiative. There may be some skills transferability for Band members who are engaged in the logging industry and become displaced due to MPB.
- **Pellet Plant Feasibility Study:** In August of 2008 the ONA commissioned Timberline Natural Resource Group to conduct a feasibility study into the potential for a pellet plant(s) in the Territory.
- **Tree Nursery Feasibility Study:** In June of 2008 the ONA commissioned a research study to determine if it is financially viable for member Bands to contemplate entry into the nursery sector. The study is looking at the potential to grow both trees and indigenous plants from the Okanagan.
- **Economic Advancement Committee:** Since April 2008 the ONA has been holding monthly meetings with a 26-member Committee made up of industry, education, Bands, unions, ONA and government representatives to discuss ways and means of improving the uptake of Okanagan into post-secondary education, the mainstream workforce, and regional partnerships and joint-ventures.

Cultural Impacts

There were several cultural impacts and concerns identified across the Nation including:

- Removal of the traditional practice of controlled burning has resulted in significant ecological degradation (MPB epidemic itself).
- The inability to gather traditional foods and medicines.
• Focusing specific cultural impacts on the MPB impacts is too narrow; all things are interconnected and should consider Traditional Ecological Knowledge when undertaking land-use planning.
• Feeling of loss associated with trees that signify memories of people or important moments in an individual’s life.
• Loss of pine trees will result in loss of use of traditional pine resources used in traditional products, including:
  o Pine needle (basket making);
  o Pitch posts (grave markers);
  o Pine pitch – (medicinal uses and other uses);
  o Pine nuts – (food/medicinal); and,
  o Pine cambium – (food/medicinal).
• Loss of culturally modified trees for trail markers.
• Degradation of non-timber forest products.

**Social Impacts**

Social impacts are hard to measure in the contemporary sense; reliance on statistical information does not consider the relationship between the Okanagan People and their ecosystems and the interconnecting factors. In addition, there is little or flawed data to try gauge social impacts. Nevertheless, key social impacts could include:

• Concern with the sustainable management of non-timber forest products and other traditional uses of the ecosystem.
• Health impacts – loss of traditional diet has resulted in health-related issues, i.e. diabetes.

Anticipated effects of MPB on the Okanagan Territory and Syilx people will no doubt be devastating.

**Environmental Impacts**

The environmental section focused on specific areas that need to be addressed, and identified several specific environmental impacts, including:

• Past and current forest management practices to limit biodiversity monocropping-style forestry management practices and tendency to plant only one type of high-yield pine tree in vast areas has resulted in the MPB infestation.
• Soil implications:
  o Disturbance associated with salvage logging; and,
  o Disturbance resulting in an increase in noxious weeds.
• Water implications:
  o Reduction of summer flows; and,
  o Increased water temperature.
• Changes to habitat:
  o Plants – removal of canopy; and,
  o Animals that rely on pine stands.
• Fish – timing of fish runs (spawning) in association with historical flow events with increased water temperature leading to delays in the spawning cycle.

Other Impacts

Further impacts were also identified, including:

• Negative health impacts associated with the loss of traditional diet and access to traditional medicines.

A-6.4 MPB Recommendations and Prioritized Actions Targeting Mitigation

The work undertaken on behalf of the Okanagan Nation Alliance outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.

Economic Recommendations

The recommendations identified to address the economic impacts of the MPB include:

• Long-term security for First Nation forestry tenures.
• Capacity development.
• Support detailed analysis about what to do with the merchantable volume of timber remaining after the current MPB epidemic, creating a vision for both the short-term (3-5 years) and long term (10-30 years).
• Analysis is needed to determine best/highest use of the wood and to help identify how to get out of the cycle of simply generating small-dimension lumber for very low profit. There needs to be work done to determine what opportunities are out there and how First Nations can get into the processing end of the forestry business.

Culture Recommendations

The recommendations associated with the culture impacts of the MPB include:

• Develop information-sharing protocols to allow for the incorporation of Traditional Ecological Knowledge in forest management practices.
• Develop measures that incorporate Traditional Ecological Knowledge for accurate monitoring of MPB impacts.
• Address the effects of the MPB through a health impact assessment, keeping in mind the unique medicines, diet, and food sources of the Okanagan Nation.

Social Recommendations

The recommendations that are believed will mitigate social impacts include:

• Conduct a capacity assessment of the Okanagan Nation and member Bands surrounding social, cultural and health impact assessment processes.
• Set long-term capacity development goals related to the social, cultural and health impact assessment process needs.
Environmental Impacts

Recommendations that may assist in mitigating environmental impacts include:

- Outline effective management for indicator species that will be key to understanding the impacts to wildlife and habitat; species could be related to economic, social, cultural and/or health impacts.
- Conduct a full baseline analysis in order to finally take a proactive approach and appropriately measure and monitor the impacts of the MPB, and allow for a historical summation of the MPB impacts.

Legislative and Policy Recommendations

Federal and Provincial

The key legislative and policy recommendations that the Okanagan Nation Alliance make to the federal and provincial governments includes:

- Long-term security for First Nation forestry tenures.
- Federal and provincial governments need to provide ongoing funding to assist with both the research and mitigation actions that will need to take place.
- Develop information sharing protocols to allow for the incorporation of Traditional Ecological Knowledge in forest management practices.
- Evaluate the potential for a joint steering Committee, or other mechanisms, that would ensure the full participation of the Okanagan Nation and member Bands in all MPB-related plans, strategies and policy development within the Territory.
- In order to ensure that an appropriate methodology is implemented in all MPB plans, strategies, and policies, the Okanagan Nation and member Bands should be included on an ongoing basis.

A-6.5 Other Recommendations

The Okanagan Nation Alliance also considered additional recommendations that may provide mitigation value, including:

- Evaluate the potential for a partnership among UBC Okanagan, the Okanagan Nation, and member Bands for future research on MPB impacts. That partnership needs to be directed and housed at the Okanagan Nation and/or member Bands.

A-7 Nlaka’pamux Nation Tribal Council

A-7.1 Location and Community Represented

The Nlaka’pamux Nation is comprised of seven Bands: Boothroyd, Boston Bar, Kanaka Bar, Lytton First Nation, Oregon Jack Creek, Skuppah and Spuzzum. Nlaka’pamux Nation communities participating in this project are situated between the towns of Yale in the south, Lillooet in the northwest and Oregon Jack Creek in the northeast along both the
Fraser and Thompson Rivers. The communities are within the Kamloops, Lillooet and Fraser Timber Supply Areas.

A-7.2 Approach

The majority of the information and recommendations are derived from a number of discussions with various Nlaka’pamux individuals and groups over the past two years. The identity of the individuals and groups include Nlaka’pamux elders, Nlaka’pamux Forestry Technical Group, Nlaka’pamux Chief and Council, individual discussions with member Nlaka’pamux Nation Tribal Council communities, discussions between communities, licensees and other third-party proponents, historical knowledge as well as informal discussions with many Nlaka’pamux community members. These discussions, which have resulted in the formation of much of the information contained in this report, has been both formal and informal in nature, but regardless, they have captured in some very important issues to be raised, as described in the following sections. Specific NNTC priorities and time frames can be found in the full report located on the SIBAC website.

A-7.3 Key MPB Issues and Concerns

The Nlaka’pamux Nation Tribal Council investigated issues and concerns focusing on the personal and community level. The impacts are summarized here.

Economic Impacts

The economic impacts of the MPB impact are anticipated to include:

- **Referrals**
  - Increased referral burden to First Nations, lack of capacity and funding/resources to meaningfully and adequately respond.
  - Overtaxing existing resources/capacity (technician, leadership) to respond to referrals, only to have their input continuously ignored.
  - Inadequate timeframes to respond to referrals.

- **Loss of Secure Employment**
  - Previous job losses associated with licensee/industry that have either shut down or changed operations further compounded by MPB effects.
  - The Nlaka’pamux communities are quite geographically isolated from major centres, thus creating hardships in sourcing and establishing partnerships and joint ventures with major licensees.

- **Stumpage**
  - The current stumpage pricing for the quality of wood located in the majority of the Lillooet TSA is very inflated and over-priced.
  - The current stumpage system does not recognize terrain differences and tends to underestimate actual costs (i.e. road construction), thus resulting in high stumpage.
  - High transportation costs due to loss of production facilities in the Lillooet TSA are not considered in stumpage appraisal.

- **Harvesting Practices and Long-Range Timber Supply Forecast**
  - Harvesting MPB-affected pine is not economically viable.
• Douglas Fir stands are being targeted for harvest.

- When potential ventures are being considered, licensees tend to focus almost primarily on the economic return of the venture, with other values being considered secondarily. This in many cases does not fit the forest management priorities of the First Nation communities.
- Nlaka’pamux communities have faced the inability to access timber volumes outside of the Forest and Range Opportunities (FROs) framework.

**Cultural Impacts**

There were several cultural impacts and concerns identified, including:

- Medicines and foods used in ceremonies and for sustenance will be impacted. The full extent is not well understood, underlining the need for inventories and impact assessments.
- Culturally modified trees charting historic events may be lost.
- Loss of habitat and mature pine may affect opportunities to teach youth traditional ways.

**Social Impacts**

There are several social impacts that could include:

- Fuel loading/Fire hazard.
- Danger trees and the potential for windthrow.

**Environmental Impacts**

The environmental section focused on specific areas that need to be addressed and identified several specific environmental impacts, including:

- Environmental impacts of MPB seem to be secondary to the economic value, i.e. MPB salvage.
- **Wildlife**
  - Protection of migration corridors.
  - Impacts to ungulate winter range, i.e. thermal cover and forage. Less snow interception.
  - Decreased cover from predators.
  - Increased hunting pressure due to increased access associated with harvesting, i.e. road development.
  - Increased human disturbance on sensitive species (i.e. grizzly bears).
  - Increased human disturbance at critical times, e.g. calving.
- **Hydrology**
  - Water quality and quantity concerns.
  - Increased sedimentation.
  - Decreased slope stability.
  - Decreased snow intercept.
  - Increase in peak flows – less evapotranspiration.
  - Concern of impacts on fishery stocks in lakes, streams and rivers.
A-7.4 MPB Recommendations and Actions Targeting Mitigation

The work undertaken on behalf of the Nlaka’pamux Nation Tribal Council outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.

**Economic**

The recommendations identified for the economic impacts of the MPB include:

- Increase resourcing and funding amounts to look at innovative uses of Ponderosa pine.
- More effort needs to be put into surveying, monitoring and treatments in the coastal areas – especially in the northern portion of the Fraser TSA. The Mountain Pine Beetle is just starting to move into these areas and many areas could still benefit from a frontline approach to treating the beetle, such as fall and burn techniques or small patch removal.
- More resources and long-term funding needs to be allocated to First Nations, to assist with dealing with the extensive referral burden of increased harvest rates over many of the TSAs.
- Promote the Community Forest Agreements (release them from being pilot projects) and make more of these types of tenure available to communities or develop a similar type of tenuring system with stumpage breaks, outside of the FRO wording and make them readily available to communities to secure and manage. Different tenure options, such as Community Forest Agreements, where the tenure is area-based and locally controlled, tends to fit more within the needs and wants of local First Nation communities. This type of tenure allows for local control of forest management within the First Nation’s area of interest and also promotes the ability to combine important values that First Nations see fit to incorporate into everyday forest management.

**Culture**

The recommendations associated with the culture impacts of the MPB include:

- Funding increases to allow First Nations to undertake Nation-based Land Use Planning activities.
- Re-introduce prescribed / traditional burning practices to bring back a necessary component to many lowland ecosystems, to promote healthy and natural ecosystems.
- Local control of forest management within First Nations’ area of interest promotes the ability to combine important values that First Nations see fit to incorporate into everyday forest management.
- First Nations must now develop strategies to document and, if required, preserve culturally important CMTs from harvesting.

**Social**

The recommendations that are believed to mitigate social impacts include:
• Continue funding to communities to reduce the hazards around communities in relation to both Mountain Pine Beetle hazard trees and fuel reduction measures.
• Solidify funding efforts to ground treat high-hazard fuel loading areas on Crown lands surrounding communities after the completion of the Community Wildfire Protection Plan.

**Environmental**

Recommendations that may assist in mitigating environmental impacts include:

• More effort and resources put into larger-scale (landscape-level) planning for wildlife values and retention.
• Considering other forest resource values as equals to timber values.
• Increased resourcing and studies on the long-term hydrological effects from the MPB impacts, with a special focus on xeric sites.

**A-7.5 Other Recommendations**

The Nlaka’pamux Nation Tribal Council also considered additional recommendations that may provide mitigation value, including:

• Internal landscape-level and large-scale planning will allow First Nations to compile both information and recommendations prior to a project occurring, thus resulting in an initial proactive consolidated approach to dealing with potential concerns, rather than having to react on an individual project-by-project basis.

**A-8 Shuswap Nation Tribal Council**

**A-8.1 Location and Community Represented**

The Secwepemc People, known as the Shuswap, is a Nation of 17 Bands occupying the south-central part of British Columbia. Member Bands include: Adams Lake, Bonaparte, Kamloops, Little Shuswap, Neskonlith, Simpcw, Shuswap, Skeetchestn, Splatsin, and Whispering Pines/Clinton.

**A-8.2 Approach**

Shuswap Nation Tribal Council (SNTC) held a work session September 29, 2008 at the Quaaout Lodge attended by a number of the member Bands, SNTC forestry staff, and others having a direct interest in the process of identifying MPB impacts and mitigation. A follow-up session October 22, 2008 contributed to completion of the report by the southern Secwepemc Bands and the SNTC forestry staff. The work builds on existing identified impacts and provides recommendations on prioritized mitigation measures in regard to economic, cultural, social and environmental impacts. Specific SNTC priorities and time frames can be found in the full report located on the SIBAC website.
A-8.3 Key MPB Issues and Concerns

The Shuswap Nation Tribal Council investigated issues and concerns focusing on the personal and community levels. The impacts are summarized here. Many of the issues, concerns and recommendations overlap and the reader is encouraged to review the entire report to understand these overlaps. For summary purposes, specific comments are inserted in what is believed to be the key topic area.

Economic Impacts

The economic impacts of the MPB impact are anticipated to centre on:

- Traditional economies, built on hunting, fishing, trapping and gathering of foods and medicines, contribute to the social identity and well-being of First Nations communities while offsetting poverty and unemployment.
- Significant impacts on salmon fishery are anticipated.
- Emerging economic opportunities with non-timber forest resources may be impacted.
- Existing and future timber business and tenures will be affected. Those involved in harvesting and road construction cope with the change in harvesting where the same amount of volume is cut in a shorter period of time. Consolidation in the industry affects the marketing of logs.
- Loss of land values, a component of title and rights negotiations, may be affected.
- Values of homes may be affected by changes in aesthetics, the threat of windthrow, and wildfire.

Cultural Impacts

There were several cultural impacts and concerns identified, including:

- Traditional cultural values, artefacts, ceremonial and traditional healing sites and trade trails will be impacted. The full extent is not well understood, underlining the need for inventories and impact assessments.
- Medicines and foods used in ceremonies and for sustenance will be impacted. The full extent is not well understood, underlining the need for inventories and impact assessments.
- Culturally modified trees charting historic events may be lost.
- Loss of habitat and mature pine may affect opportunities to teach youth traditional ways.
- Culturally significant species within the endangered species list may be impacted.

Social Impacts

There are several social impacts that could include:

- People are fearful of wildfires and the potential impact on their lives.
- Medicines and foods used in ceremonies may be affected.
- The well-being of people depends on a vibrant culture that includes traditional land-based activities such as hunting, fishing, trapping and trading – all of which may be impacted.

**Environmental Impacts**

The environmental section focused on specific areas that need to be addressed and identified several specific environmental impacts, including:

- Access development associated with harvesting poses risks to watersheds, wildlife, habitat, and ecosystems.
- Impacts on water quality, quantity and timing of flow, and possible flooding are of serious concern.
- Ecosystem changes and the impact on habitats and forest values need to be understood and managed for.
- Loss or reduction of traditional animal and plant foods as a result of habitat changes are a concern.
- Loss of natural barriers affects cattle grazing, risking impacts on habitat, water and forestland values.
- Emerging economic opportunities associated with non-timber forest resources may be affected.
- Endangered species and their habitats may be further impacted.
- Soil resources may be impacted. This includes concerns for potential erosion and landslides.

**Other Impacts**

Further impacts were also identified including:

- The Indian and Northern Affairs Canada (INAC) bureaucracy is considered an impediment to growth. INAC policies often are seen to work in opposition to Band management objectives and contribute to low business opportunities on reserves.
- Timber tenure transfers under the province’s *Forest Act* impact the economic viability of First Nations tenures. Secwepemc oppose this legislation as it is seen to infringe upon their rights and title.
- The Free Use Permit process under the *Forest Act* to access the right to timber for domestic use purposes (i.e. the Sappier & Gray court case) is considered an infringement on the Secwepemc rights.
- Worker and public safety dealing with the risk of dead pine trees is seen as an issue.

**A-8.4 MPB Recommendations and Prioritized Actions Targeting Mitigation**

The work undertaken on behalf of the Shuswap Nation Tribal Council outlines a variety of mitigation measures that suggest how to alleviate the MPB impacts across the areas of concern.
**Economic Impacts**

The recommendations identified for the economic impacts of the MPB include:

- A lack of adequate funding and other capacity measures has been a limiting factor to the successful implementation of any mitigative measures. Multiple funding sources and funding limitations should be addressed via long-term funding commitments, with specified milestones for measuring success.
- It is not efficient for each and every community to develop a mitigative measure or capacity. Efficiencies may be gained through ‘shared services’ or ‘centres of excellence’ (i.e. one Band providing the service to member Bands). Community-to-community protocols for mitigation are considered beneficial and are outputs of the proposed Traditional Use and Land Use planning initiatives.
- First Nations should control the emerging economic opportunities with non-timber forest resources.
- Recognition, protection and enhancement of traditional economies and their contribution to the social identity and well-being of First Nations is an imperative in land-use planning.
- Develop a human resource strategy with input from the First Nations Human Resource Labour Council to utilize available human resource potential within communities and to fill labour market shortages.
- Establish greenhouses for production of species for streamside protection, along rights-of-ways and for planting in harvested areas.
- Educate the five Nations on the impact of the MPB harvesting uplifts, impacts on timber tenures, Annual Allowable Cuts, mill closures and job losses. Locate operating areas for First Nation tenures in non-pine areas. Diversify within and across the wood fibre industry.
- At the strategic level, develop land and resource stewardship planning, tourism, agriculture, commercial and non-forest industrial strategies as a diversification measure.
- Develop an appropriate revenue-sharing formula including compensation package associated with forestland values.
- Investigate cap-and-trade (carbon credit) opportunities.

**Culture Impacts**

The recommendations associated with the culture impacts of the MPB include:

- Inventory the extent and location of the many impacts to establish basic records and monitor over time. Traditional Use Inventories to commence during this MPB epidemic so that a land-use plan can be completed post-MPB in 2013. Currently no provincial funding exists to undertake this work – only an archaeological inventory that does not encompass all aboriginal uses of the land.
- Developing a framework applicable to member communities for preparation of Land and Resource Use Plans (LUP) is a high priority. The LUP works in conjunction with the Traditional Use Inventories, and both are seen as critical
components to providing certainty over the Secwepemc land base for the communities and economic development initiatives.

- Protection of the cultural heritage values should include an overarching agreement with standardization and objectives similar to the Archaeological Overview Assessment (AOA) process.
- Identify, inventory, restore and protect ceremonial and traditional healing sites and trade trails. Conduct research to fully understand and record events on the land and how the MPB impacts traditional use.
- Conduct detailed inventories of resources used for traditional medicines, foods and ceremonies – including occurrence and geographical locations – to further the understanding of potential MPB impacts.
- Landmarks leading to spiritual sites – including pictographs, caves, sweat lodges and spirit quest locations – need to be protected. If damaged by harvesting and/or road building, restore campsites where people go to share traditions and habitat used for foods and medicines.
- Culturally modified trees charting historic events are important assets. Implementation of an education program furthering the knowledge of the importance of these sites and attributes is recommended.
- Loss of Lodgepole pine stands results in loss of green trees used for food, vitamins and spring-cleaning until the next generation of stands returns. Fund community research to enable elders to record Secwepemc use of the pine tree. This information will be passed on to the next generation.

Social Impacts

The recommendations that are believed to mitigate social impacts include:

- Develop a human resource strategy for rural communities and their economies to develop employment opportunities, trades, technical and blue-collar jobs.
- Wildfires and potential impact on infrastructure, and the safety of individual members carrying out traditional practices were clearly expressed as matters of concern. While MPB wildfire and community protection funding is utilized the sheer volume of pine stands on and near reserves represents a great danger to the people. More federal funding, including multi-year funding, is needed to fulfill the wildfire and community protection plans developed.
- Values identified are unique to individuals, families, communities, divisional or tribal levels and must be recognized and considered.

Environmental Impacts

Recommendations that may assist in mitigating environmental impacts include:

- Develop Community Plans that address risks to communities and infrastructure.
- Utilize existing programs for fuel management and fire protection. Expand resources moving forward. Identify and address ‘blockages’ to implementation of Community Wildfire Protection Plans.
• Complete a literature review of relevant studies regarding the water resource and potential impacts of the MPB infestation. Review the community watershed process for potential application of the Water Act and Water Protection Act provisions for First Nations communities.
• Complete risk assessments on flooding, erosion and landslide hazards.
• Manage ecosystems with the inclusion of First Nations traditional knowledge. This includes consideration for use of deciduous species, using prescribed fire, reducing noxious weeds, streamside protection, management for grasslands, and reforestation of watershed areas.
• Fund research for non-timber forest resources to assess different forest stand types and occurrence.
• MPB brings increased harvesting and accompanying access in an expedited manner. Access can potentially affect erosion in community watersheds, increase wildlife harvesting, and negatively impact sensitive cultural sites. Access-management planning, partnership agreements for monitoring compliance, and enforcement by local Bands is needed.
• Assess the impact of cattle grazing on watershed values.
• Implement strategies protecting soil resources and riparian habitats in support of the salmon fishery.
• Inventory both endangered species and First Nations culturally significant species and their habitats. Incorporate protection measures in land-use planning.
• Predictive Ecosystem Mapping to model impacts on plant species including mushrooms and berries from the infestation and other land uses is recommended.
• Amend silviculture standards to account for non-timber forestland values, including materials used for traditional tools and implements.

A-8.5 Legislative and Policy Recommendations

Federal and Provincial
The key legislative and policy recommendations that the Shuswap Nation Tribal Council makes to the Federal and Provincial governments include:

• Address INAC impediments to economic growth of member Bands.
• Simplify the process for protecting the quality and quantity of domestic water sources. Water management must receive priority over timber management.
• Stumpage is an impediment to revenue-sharing and is in opposition to accommodation measures. First Nations desire half of all stumpage revenues coming off their territory.
• Strengthen provincial legislation to restrict or close areas to ATV use where required.

A-8.6 Other Recommendations
The Shuswap Nation Tribal Council also considered additional recommendations that may provide mitigation value, including:
• The MPB infestation, accompanying harvesting and road-building activities, are considered to have increased the impacts and infringements on First Nations lands, resources, title and rights. The government permitting system is impacting First Nations cultural uses.
• Timber tenure transfers under the province’s Forest Act impacts on the economic viability of First Nations tenures. Secwepemc oppose this legislation as it is seen to infringe upon their rights and title.
• The Free Use Permit process under the province’s Forest Act to access the right to timber for domestic-use purposes is considered an infringement on Secwepemc rights.
• Creation of a Secwepemc law to claim the right to and management of non-timber forest resources will happen and needs funding. Opportunity exists to co-develop this with Southern Interior Nations for use in the SIBAC region.
• Engage in Safe Company Certification and work towards improving the program.
• Consider ways and means to decentralize forestry operations.
### Provincial Forest Employment Coefficients

<table>
<thead>
<tr>
<th>Location</th>
<th>Harvesting</th>
<th>Silviculture</th>
<th>Total Processing</th>
<th>Total Direct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow</td>
<td>0.47</td>
<td>0.04</td>
<td>0.63</td>
<td>1.14</td>
</tr>
<tr>
<td>Boundary</td>
<td>0.46</td>
<td>0.09</td>
<td>0.65</td>
<td>1.20</td>
</tr>
<tr>
<td>Cranbrook</td>
<td>0.36</td>
<td>0.05</td>
<td>0.54</td>
<td>0.95</td>
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<td>0.60</td>
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<td>0.09</td>
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### Indirect and Induced Multipliers

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<th>Migration (No Safety Net)</th>
<th>Woods</th>
<th>Manufacturing Mills</th>
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<td>1.63</td>
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<tr>
<td>Boundary</td>
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<td>1.63</td>
<td></td>
</tr>
<tr>
<td>Cranbrook</td>
<td>1.42</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td>Golden</td>
<td>1.37</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
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<td>1.37</td>
<td>1.54</td>
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</tr>
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<td>Kamloops</td>
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<tr>
<td>Merritt</td>
<td>1.43</td>
<td>1.57</td>
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</tr>
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<td>Okanagan</td>
<td>1.61</td>
<td>1.71</td>
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<tr>
<td>Revelstoke</td>
<td>1.37</td>
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## Total Employment at 2006 Harvest Volume

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<tr>
<th>TSA</th>
<th>Harvesting &amp; Silviculture</th>
<th>Total Processing</th>
<th>Indirect/Induced</th>
<th>Total SIBAC</th>
<th>Total BC indirect and induced</th>
<th>Total BC Employment</th>
<th>Stumpage Revenue ($1000)</th>
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<tr>
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<td>281</td>
<td>551</td>
<td>468</td>
<td>1,300</td>
<td>1,239</td>
<td>2,071</td>
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<td>449</td>
<td>1,277</td>
<td>1,214</td>
<td>2,042</td>
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<td>474</td>
<td>1,355</td>
<td>1,288</td>
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<td>Golden</td>
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<td>162</td>
<td>174</td>
<td>571</td>
<td>568</td>
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<td>Invermere</td>
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<td>630</td>
<td>455</td>
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<td>1,401</td>
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<tr>
<td>Lake</td>
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<td>579</td>
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<tr>
<td>Non-SIBAC milling</td>
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<td>Total BC</td>
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<td>-</td>
<td>-</td>
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<td>40,301</td>
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## Loss of Total Employment at the TSA Level (2023)

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<th>TSA</th>
<th>Scenario 1: Pine priority harvest</th>
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<td></td>
<td>low</td>
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<tr>
<td>Arrow</td>
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<td>Boundary</td>
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<tr>
<td>Cranbrook</td>
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</tr>
<tr>
<td>Golden</td>
<td>0</td>
</tr>
<tr>
<td>Invermere</td>
<td>0</td>
</tr>
<tr>
<td>Kamloops</td>
<td>2,411</td>
</tr>
<tr>
<td>Kootenay Lake</td>
<td>2</td>
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<tr>
<td>Lillooet</td>
<td>268</td>
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<tr>
<td>Merritt</td>
<td>2,011</td>
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<tr>
<td>Okanagan</td>
<td>969</td>
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<tr>
<td>Revelstoke</td>
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<td>Total SIBAC</td>
<td>6,005</td>
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### Table C-1  Kootenay Boundary Local Area Components (By Regional District)

<table>
<thead>
<tr>
<th>East Kootenay Regional District</th>
<th>Communities</th>
<th>Electoral Areas</th>
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</thead>
<tbody>
<tr>
<td><strong>Local Area</strong></td>
<td><strong>Communities</strong></td>
<td><strong>Electoral Areas</strong></td>
</tr>
<tr>
<td>40 Ferri, Elkford, Sparwood, Fernie</td>
<td>EA A and B</td>
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</tr>
<tr>
<td>41 Cranbrook, Kimberley</td>
<td>Cranbrook, Kimberley</td>
<td>EA C and E (already split)</td>
</tr>
<tr>
<td>42 Invermere, Radium Hot Springs, Canal Flats</td>
<td>EA F and G</td>
<td></td>
</tr>
<tr>
<td>43 Castlegar, Nakusp</td>
<td>EA I, J, and K</td>
<td></td>
</tr>
<tr>
<td>44 Nelson, Salmo, Kaslo, Silverton, New Denver</td>
<td>EA D,E,F, G, H</td>
<td></td>
</tr>
<tr>
<td>45 Creston</td>
<td>EA A, B, C</td>
<td></td>
</tr>
<tr>
<td>46 Grand Forks, Midway, Greenwood</td>
<td>EA C, D, E</td>
<td></td>
</tr>
<tr>
<td>47 Trail-Rossland</td>
<td>Fruitvale, Montrose, Trail, Warfield, Rossland</td>
<td>EA A and B (already split)</td>
</tr>
<tr>
<td><strong>Central Kootenay RD</strong></td>
<td></td>
<td></td>
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<tr>
<td>43 Castlegar-Arrow Lakes</td>
<td>Castlegar, Nakusp</td>
<td>EAs EA I, J, and K</td>
</tr>
<tr>
<td>45 Creston</td>
<td>EA A, B, C</td>
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<tr>
<td><strong>Kootenay Boundary RD</strong></td>
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<tr>
<td>46 Grand Forks, Midway, Greenwood</td>
<td>Grand Forks</td>
<td>EA C, D, E</td>
</tr>
<tr>
<td>47 Trail-Rossland</td>
<td>Fruitvale, Montrose, Trail, Warfield, Rossland</td>
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## Table C-2  Okanagan Local Area Components (By Regional District)

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<thead>
<tr>
<th>North Okanagan Regional District</th>
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<tbody>
<tr>
<td>35</td>
<td>Vernon</td>
</tr>
<tr>
<td></td>
<td>• Lumby</td>
</tr>
<tr>
<td></td>
<td>• Vernon</td>
</tr>
<tr>
<td>36</td>
<td>Spallumcheen</td>
</tr>
<tr>
<td></td>
<td>• Spall</td>
</tr>
<tr>
<td></td>
<td>• Enderby</td>
</tr>
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<table>
<thead>
<tr>
<th>Central Okanagan Regional District</th>
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</tr>
</thead>
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<tr>
<td>33</td>
<td>Peachland</td>
</tr>
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<td>34</td>
<td>Kelowna</td>
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<table>
<thead>
<tr>
<th>Okanagan-Similkameen RD</th>
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<tr>
<td>26</td>
<td>Princeton</td>
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<td>27</td>
<td>Oliver-Osoyoos</td>
</tr>
<tr>
<td>28</td>
<td>Penticton</td>
</tr>
<tr>
<td></td>
<td>• Okanagan Falls</td>
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</table>
## Table C-3  Thompson, Nicola, Lillooet, Columbia-Shuswap Local Area Components (By Regional District)

<table>
<thead>
<tr>
<th>Squamish-Lillooet Regional District</th>
<th>Thompson-Nicola Regional District</th>
<th>Columbia-Shuswap Regional District</th>
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</thead>
<tbody>
<tr>
<td>25 Lillooet</td>
<td>29 Ashcroft Lytton, Ashcroft, Cache Creek, Clinton</td>
<td>37 Salmon Arm Salmon Arm, Sicamous</td>
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<td>• Ashcroft, Lytton Lytton, Ashcroft, Cache Ck</td>
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<td>30 Merritt Merritt</td>
<td>32 North Thompson EA A, B, O</td>
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<td>• Clearwater EA A, B</td>
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<td>• Barriere EA O</td>
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<tr>
<td></td>
<td>31 Kamloops Logan Lk, Kamloops, Chase</td>
<td>38 Golden Golden</td>
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<td></td>
<td>• Kamloops Logan Lk, Kamloops</td>
<td>39 Revelstoke Revelstoke</td>
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APPENDIX D - SUMMARY OF RECOMMENDATIONS

- SIBAC RECOMMENDATION 1 - That the Province work with communities and First Nations to assess and mitigate watersheds at high risk for water quality problems due to the MPB epidemic.

- SIBAC RECOMMENDATION 2 - The Province should complete a MPB management and salvage strategy for each TSA in the Southern Interior.

- SIBAC RECOMMENDATION 3 - That the Provincial and Federal Governments should examine potential flooding risks in Communities.

- SIBAC RECOMMENDATION 4 - That the Ministry of Environment regularly update Communities on major actions the Ministry is undertaking in response to the MPB epidemic.

- SIBAC RECOMMENDATION 5 - That the Province should continue to seek methods that maximize value from the timber supply through innovation, partnering and access to fibre.

- SIBAC RECOMMENDATION 6 - That the Province should ensure land-based investments (silviculture) continue and cover the entire land base.

- SIBAC RECOMMENDATION 7 - That the Province should undertake changes to forest policy which support Community and First Nation priorities for economic development.

- SIBAC RECOMMENDATION 8 - That the Province and Federal governments support transition and training of forest workers and related displaced workers so that they are able remain in their current communities.

- SIBAC RECOMMENDATION 9 - That the SIBAC Committee will support Provincial Government initiatives to generate new activities and address MPB issues.

- SIBAC RECOMMENDATION 10 - That the Provincial and Federal Governments work with Communities and First Nations to develop tourism infrastructure in Southern Interior Communities.
SIBAC RECOMMENDATION 11 - That the Provincial and Federal Governments continue to fund the barrier replacement program and range improvements.

SIBAC RECOMMENDATION 12 - That the Provincial and Federal Governments should undertake hazard/dead tree removal along critical corridors.

SIBAC RECOMMENDATION 13 - That the Provincial and Federal Governments should work to address limited water supplies for livestock.

SIBAC RECOMMENDATION 14 - That the Province should undertake comprehensive and Integrated range management planning.

SIBAC RECOMMENDATION 15 - That the Province work with Communities and First Nations to create “wildfire reduction unit crews”.

SIBAC RECOMMENDATION 16 - That the Ministry of Forests & Range implement policy and/or regulation changes that would facilitate increased wildfire hazard treatments in the Southern Interior.

SIBAC RECOMMENDATION 17 - That the Province, Municipalities, Regional Districts and First Nations commit to working more collaboratively on wildfire hazard reduction.

SIBAC RECOMMENDATION 18 - That the Provincial Government develop new methods of regional resource revenue sharing with local governments and First Nations.

SIBAC RECOMMENDATION 19 - That the Provincial and Federal Governments explore government incentives to foster business investment in rural communities.

SIBAC RECOMMENDATION 20 - That the Provincial Government create a Rural Strategy for BC.

SIBAC RECOMMENDATION 21 - That the Provincial and Federal Governments dedicate funding for rural economic development in BC.

SIBAC RECOMMENDATION 22 - That the Provincial Government create and support a new economic development program/initiative which encourages and facilitates regional collaboration on economic development in the Southern Interior.
SIBAC RECOMMENDATION 23 - That the Provincial Government work with Rural Communities to protect community services and assets.

SIBAC RECOMMENDATION 24 - That the Provincial Government provide implementation resources to MPB At-Risk Communities and Tribal Councils.
APPENDIX E - LITERATURE CITED


various Timber Supply Determinations for Southern Interior TSAs.
