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Mountain Pine Beetle ***Action Plan***

***Sustainable Forests,
Sustainable Communities***

**Annual Progress Report
2006/2007**

**Submitted by the
Ministry of Forests and Range
Mountain Pine Beetle Emergency Response Division**

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MPB Action Plan Progress Highlights Report for 2006/07

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Introduction

British Columbia is currently experiencing the largest mountain pine beetle outbreak ever recorded. As a result, government has produced a comprehensive Mountain Pine Beetle Action Plan that is the cornerstone of the Province's coordinated response to the infestation and its impacts.

The Action Plan guides all levels of government, communities, industries and stakeholders working to mitigate impacts of the mountain pine beetle (MPB). It addresses forestry and environmental issues as well as economic, social and cultural sustainability.

The Province's overall goal is to sustain the long-term economic and environmental well-being of impacted communities¹, while dealing with the short-term consequences of the epidemic. Seven objectives have been adopted to guide achievement of this goal:

1. Encourage immediate and long-term economic sustainability for communities.
2. Maintain and protect worker and public health and safety.
3. Recover the greatest value from dead timber before it burns or decays, while respecting other forest values.
4. Conserve the long-term forest values identified in land use plans.
5. Prevent or reduce damage to forests in areas that are susceptible but not yet experiencing epidemic infestations.
6. Restore the forest resources in areas affected by the epidemic.
7. Maintain a management structure that ensures effective and coordinated planning and implementation of mitigation measures.

Under each objective a number of activities are identified in the Action Plan, some of which were to be carried out in 2006/2007 and others that have been identified as being required at some time during the five year period covered by the plan. The tables in this report summarize the key actions taken in 2006/2007.

Spread of the Infestation

The most recent surveys show about 9.2 million hectares of B.C. forests – an area nearly three times the size of Vancouver Island – in a stage of red-attack (meaning the trees are dead and the beetle has moved on). This is up from 8.7 million hectares in 2005. The epidemic has killed an estimated 582 million cubic meters of merchantable timber, equivalent to 15 years of normal harvest for the Province's central and southern Interior. The outbreak continues to kill mature pine trees in the central Interior and is well established in the Thompson-Okanagan and Kootenay regions. Infestations east of the

¹ In this use, the meaning of the term "communities" is intended to be broad, including First Nations Bands, Municipalities and rural settlements.

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Rocky Mountains in the Peace River region and Alberta have become more widespread in the past year, despite efforts to hold them in check through aggressive management. Only if a period of extremely cold weather (e.g. -20C in the fall or -40C in late winter) occurs throughout the affected area can the epidemic be stopped. As a result, it is likely the epidemic will only be over once it has infested most of the mature pine in B.C. Ministry of Forests and Range analysis shows that, at the current rate of spread, 80 per cent of the merchantable timber in B.C.'s central and southern Interior will be dead by 2013. In a large portion of the epidemic area, pine makes up over 50 per cent of the harvestable timber.

Synopsis of 2006/07 Highlights

This report summarizes efforts during the 2006/07 fiscal year to implement British Columbia's **Mountain Pine Beetle Action Plan 2006-2011**. The list of activities and accomplishments reflects a coordinated effort by all participating ministries and agencies, working with the Mountain Pine Beetle Emergency Response Division.

Progress has been made under all of the seven objectives set out in the Action Plan. Some projects have moved forward more quickly than others due to priorities, capacity, or the need to get foundational work in place. Ongoing initiatives, such as the reassessment of harvest levels and expedited salvage have continued on course despite challenges presented by low lumber prices. Activities to minimize the spread of the epidemic along its eastern and northern flanks were accelerated during the past year in cooperation with the federal government and the Province of Alberta.

In three important areas, the progress during 2006/07 has been particularly noteworthy:

- ***Diversification of the Resource Sector***

An important aspect of British Columbia's response to the epidemic has been to ensure the affected regions have strong and diverse economies so that they are able to weather a decline in timber harvesting and manufacturing in the mid-term (15-30 years). Local and provincially based strategies are being designed to support small businesses, strengthen the service sector and provide for a resilient and sustainable mix of enterprises.

The largest and most immediate benefits will likely come from sub-surface resources such as minerals, oil and gas. The positive business climate in the province, combined with substantial new investments to collect and make available geophysical information, has enabled mineral exploration to increase by 35 per cent over 2005 level, resulting in \$175 million in activity in northern B.C. last year. This is already leading to local benefits, and has considerable medium and long-term potential.

- ***Innovative Uses for Salvaged Timber***

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Significant progress has been made on research and pilot projects to find new and innovative ways to stay competitive in the solid-wood and pulp industries using salvaged pine. The provincial and federal governments, along with the forest industry and university research groups are collecting and analyzing information that will help companies set salvage harvesting priorities, and adapt manufacturing processes to remain efficient and competitive while producing products from recovered timber.

Considerable effort is also being directed at developing new products and alternative commercial uses for the damaged timber. A high level of interest is emerging for development of the bioenergy sector as a way to derive value from dead pine while concurrently addressing critical energy needs in the province and elsewhere. A provincial Bioenergy Strategy is being developed to help guide the Province's initiatives. The role for timber as an energy source is rapidly gaining recognition and commercial viability, as demonstrated by the growth in the production of wood pellets and a recent call for wood-based green energy proposals by BC Hydro.

- ***Intergovernmental Cooperation***

In addition to a high level of cooperation amongst B.C.'s government ministries and agencies, the Province has worked closely with the Governments of Canada and Alberta, as well as with local community and First Nations governing bodies during the past year to put in place cooperative programs and generate a "team" approach to dealing with the Mountain Pine Beetle epidemic.

British Columbia and Canada have both made substantial budget and staff allocations to supplement the ongoing efforts of various ministries, departments and agencies involved in beetle-related activities. Funding has also been allocated to three regional Beetle Action Coalitions and to the First Nations Forestry Council, in order to ensure communities have the information and capacity needed to address regional impacts of the epidemic. This organization structure has enabled coordinated planning and project management across the Interior.

In addition to the realignment of existing programs and budgets, the Province has invested approximately \$70 million in specific initiatives related to MPB response during 2006/07 and the federal government contributed an additional \$60 million. Many other organizations, companies and individuals are carrying out research, exploring economic opportunities and investing in projects over-and-above the governments' involvement.

Objective 1

Encourage immediate and long-term economic sustainability for communities.

2006/07 Actions	Progress
<p>1. Complete socio-economic statistical baseline studies for MPB impacted regions and communities.</p>	<ul style="list-style-type: none"> • The Integrated Land Management Bureau commissioned a report entitled “<i>Socio-Economic Statistical Baseline Report on the Mountain Pine Beetle Impacted Regions</i>”. Completed in October 2006, the report provides a statistical baseline of current and historical socio-economic conditions in the Bulkley-Nechako, Cariboo, Fraser-Fort George and Thompson-Nicola regional districts. The report is a reference document for regional community coalitions, the provincial government, and other stakeholders. • Local and regional organizations are examining the current and potential socio-economic impacts of the epidemic. • Socio-economic impact analyses are being conducted on specific project proposals and Allowable Annual Cut decisions on an ongoing basis.
<p>2. Continue to support First Nations, the Cariboo-Chilcotin Beetle Action Coalition, Omineca Beetle Action Coalition, (as well as similar groups should they develop elsewhere in affected regions) and local governments throughout the entire impacted area.</p>	<ul style="list-style-type: none"> • The Province provided the First Nations Forestry Council with \$8.4 million to fund projects that will help First Nations communities deal with Mountain Pine Beetle impacts. The council allocated \$30,000 to each of 103 impacted communities to carry out planning and mitigation activities. • The First Nations Mountain Pine Beetle Initiative opened an office near Prince George on Lheidli T’enneh territory with a \$679,335 budget provided by the Province to harmonize First Nations and government strategic partnerships in co-management of the epidemic. • The Cariboo-Chilcotin Beetle Action Coalition received an additional \$900,000 from the Province during 2006/07 to carry out detailed planning and support implementation of its regional economic development strategies. • Upon completion of its start-up phase, the Omineca Beetle Action Coalition received \$900,000 from the Province to help advance its strategies and workplan for sustainability of regional communities. • The Province provided \$50,000 to help a Beetle Action Coalition become established and begin work in the southern Interior.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>3. Through regional development trusts, such as the Northern Development Initiative Trust (NDIT) and the Southern Interior Development Initiative (SIDIT), begin to support locally-developed economic development strategies in MPB impacted communities.</p>	<ul style="list-style-type: none">• Staff members from several ministries have been assigned to support the initiatives of First Nations, regional Beetle Action Coalitions and other groups in their work to develop and implement strategies that mitigate the community impacts of the MPB epidemic. In addition, two members of the Province's MPB Emergency Response Division work full-time on these activities.• In 2006/07 two First Nations representatives were added to the Forest Investment Account-Forest Science Board. First Nations were involved in the priority-setting process for the 2007/08 call for research proposals and the evaluation process.
<p>4. Continue to support maintenance of a healthy, profitable forest industry.</p>	<ul style="list-style-type: none">• NDIT has funded 78 projects with a total expenditure of \$28.1 million leveraging total project expenditures of \$177.6 million. These projects provide immediate results through 114 construction jobs, 36 full-time jobs and \$11.6 million in payroll and benefits injected into the economy. In addition, seven new start-up businesses are associated with NDIT projects in small communities.• SIDIT has completed its strategic plan and intends to make funding announcements in the fall of 2007.• NDIT worked with representatives of First Nations and the Beetle Action Coalitions to develop strategies and priorities to invest the \$30 million portion of the Northern Trust that is targeted specifically at mitigating impacts of the epidemic.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>5. Accelerate the prudent development of other resource-based sectors (e.g., mining and energy) to diversify the economic base of the region.</p>	<p><i>A combination of activities and circumstances has enabled mineral exploration to increase by 35 per cent over 2005, resulting in \$175 million in activity in northern B.C. last year.</i></p> <ul style="list-style-type: none">• Within the Cariboo region alone, mineral exploration in 2006 increased by more than 50 per cent in value to more than \$20 million. As a result of this exploration and sustained high metals prices, one new mine application was submitted to government.• Ministry of Energy, Mines and Petroleum Resources devoted more than half its minerals field staff and funding resources to complete geoscience surveys and encourage mineral exploration and mining in the core epidemic area.• In 2006 the BC Geological Survey completed a regional reconnaissance assessment of the core epidemic area, geological mapping near 100 Mile House, a copper-gold deposits study near Quesnel, geochemical studies near Lillooet and McLeod Lake, and preliminary mapping and study of gold deposits in the Lillooet-Merritt area. Results from these programs led to new claim-staking and mineral exploration activities by several companies.• Geoscience BC (a non-profit society established through a \$25-million provincial grant) completed and released geochemical and geophysical surveys over the past year which led to staking of mineral claims in the region. The geophysical survey was conducted jointly with the federal government's Geological Survey of Canada.• Ministry of Energy, Mines and Petroleum Resources, Geoscience BC and the Geological Survey of Canada created a larger geophysical program to carry out in 2007.• The Omineca Beetle Action Coalition is developing a mineral exploration strategy to help communities assess potential opportunities and prepare to support mineral exploration in the region.• The Province provided \$200,000 to the University of Victoria for research to increase the understanding of the geology, mineral, and oil and gas potential in the Nechako Basin, an area heavily impacted by the mountain pine beetle.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>6. Protect existing capacity and complete an assessment of possible agriculture expansion and agro-forestry potential.</p>	<ul style="list-style-type: none">• A BC Beef Cattle Industry Strategy is being finalized by the Province and the beef industry. It focuses on the sustainability and growth of the sector and provides recommendations for both industry and government.• Through the Integrated Land Management Bureau the Province has developed legal objectives designed to ensure prime agricultural areas in the Omineca region are maintained and made available for agricultural development.• The Province is undertaking a land sales pilot project in the Vanderhoof area to actively market arable Crown land for agriculture development. This pilot project will focus on salvaging the value of beetle-damaged timber from agriculture development lands and reinvesting a portion of the timber revenue in land-clearing for agriculture. Six parcels of land have been identified for the pilot.• An arability study conducted by the Province in the Morice area (near Houston) identified 10,800 hectares for potential new agriculture development. Arability analysis projects identify Crown lands that are both arable and suitable for agriculture. Planning for additional arability studies is underway in the Lakes District and Cariboo-Chilcotin areas.• The Ministry of Agriculture and Lands initiated a review of existing agricultural tenures requirements and is examining the possibility of new tenures for agroforestry, improved pastures and community pastures.• The Province has appointed an agroforestry coordinator and undertaken a number of projects as part of an initiative to expand the agriculture sector in the areas of silvopasture (integrating tree and livestock production), and forest farming (integrating the production of timber and non-timber botanical forest products).• The Province has provided support for a variety of projects through the Agri-food Futures Fund: agroforestry, First Nations agriculture, and functional foods. There is ongoing coordination, review and integration with Forest Investment Account funding.• Natural range barrier mapping has been completed by the Ministry of Forests and Range in the Skeena-Stikine, Nadina, Vanderhoof, Prince George, Quesnel, Chilcotin, Cascades, Okanagan-Shuswap, and Kamloops forest districts, and is underway in 100 Mile House.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>7. Continue to encourage outdoor recreation and tourism businesses.</p>	<ul style="list-style-type: none">• Ministry of Environment and Ministry of Forests and Range collaborated to re-establish range barriers in several areas disturbed through timber salvage harvesting. These restored barriers are important to the cattle industry and also protect environmentally sensitive features.• The Province is supporting the British Columbia Cattlemen's Association to be the delivery agent for mitigation fencing on 28 projects. In 2006/07, 109 kilometres of fencing were constructed, protecting the potential loss of 92,000 animal unit months (a measure of range capacity based on the forage requirements of one cow and calf).• Ministry of Forests and Range is undertaking projects to maintain natural barriers that protect riparian areas, and conducting assessments of long-term range potential in MPB impacted areas. • Approximately 500 (about 40 per cent) of the Province's forest recreation (camping) sites have beetle-infested trees. In many cases these trees present a safety and fire hazard, and diminish aesthetic and recreational values. In 2006/07 the Ministry of Tourism, Sport and the Arts spent \$300,000 on beetle mitigation at 160 recreation sites. Approximately 11,000 hazardous trees have been felled, piled and/or burned or bucked for firewood.• Three community enhancement grant programs available through the Ministry of Community Services:<ul style="list-style-type: none">○ TOWNS FOR TOMORROW - \$21 million, over three years, for capital projects in small communities that enhance community infrastructure.○ LOCALMOTION FUND - \$40 million, over four years, for capital projects such as bike paths, walkways, greenways, improved access for people with disabilities, and projects that support children's activity programs in community playgrounds.○ BC SPIRIT SQUARES - \$20 million for capital projects to create or improve outdoor public meeting and celebration spaces such as traditional town squares.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>8. Continue to encourage new, expanding and emerging economic development and business development opportunities.</p>	<ul style="list-style-type: none">• Ministry of Economic Development has completed its strategic plan for the Asia Pacific Initiative with implementation starting in 2007/08. The initiative will enhance trade and investment linkages with Asia and encourage new investment, economic development and diversification. This initiative will help communities impacted by the MPB epidemic to access new markets for existing products and new endeavours.• Ministry of Economic Development supported the establishment of Regional Economic Alliances in the Central Interior, South Peace and East Kootenay regions. These collaborative regional bodies have a focus on economic development and diversification and the emergence of new clusters of businesses that are able to generate synergies to enhance growth and profitability.• Ministry of Community Services Infrastructure Planning Grant Program offers grants to support local government in projects related to the development of sustainable community infrastructure.• Through the Ministry of Economic Development the Province has completed strategic planning for WorkBC, an initiative aimed at meeting future labour force needs. The initiative will facilitate enhanced immigration, assess and address retraining needs and support the continued development of B.C.'s labour force to meet the needs of a growing economy. Regional Skills Councils will be formed in a number of beetle-impacted areas to develop long-term plans for addressing skill shortages.• The Province has expanded its Front Counter BC program by opening nine offices and offering phone-in and internet services. The program provides a single point of access for individuals and businesses to obtain information and authorizations necessary to start, expand or continue operations that rely on the use of Crown land and resources.• Through the Integrated Land Management Branch the Province has established legally binding land-use objectives in the Omineca Region to ensure key areas next to communities are available for development. These areas are termed "Settlement Reserve Areas".

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>9. Support joint initiatives with First Nations related to development of enterprises based on management and harvesting of non-timber forest products.</p>	<ul style="list-style-type: none">• With support from the Province and Canada, many regional, community and sector-based initiatives are underway to encourage diverse business growth. For example:<ul style="list-style-type: none">○ The Cariboo-Chilcotin Beetle Action Coalition developed a Secondary Wood Manufacturing Strategy that aims to double the size of the sector in the region within 10 years.○ 27 community-based economic development projects, including the 16-97 (North Central) South Peace and East Kootenay Regional Economic Alliances, worth over \$1.2 million in direct and leveraged investment.○ The Agroforestry Development Initiative – Agri-food Futures Fund, a cost-sharing program for producers engaged in four agroforestry projects in MPB-affected areas.• In the Interior, the Ministry of Forests and Range has entered into 137 forest harvesting tenures with First Nations. This includes over 1 million cubic metres of allowable annual cut to recover beetle-damaged timber. Licences for harvesting another 1.5 million cubic metres of annual beetle timber by First Nations are nearing completion.• Initial discussions have taken place regarding approaches and policy requirements.

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<i>Five-Year Actions</i>	<i>Progress</i>
<p>Continue to encourage and support communities and First Nations to develop plans for long-term community well-being and sustainability.</p>	<ul style="list-style-type: none">• As part of its \$8.4 million funding for First Nations Forestry Council initiatives in 2006/07, the Ministry of Forests and Range included \$500,000 to provide core support for the Council to work with communities and conduct the necessary planning and coordination to ensure successful programs. This core funding is also committed for 2007/08.• Ministry of Economic Development has assigned a lead staff person and placed a second staff person in Prince George to coordinate ministry activities and collaborate with other ministries and federal, First Nations and local government initiatives.• The First Nations Mountain Pine Beetle Initiative has conducted planning sessions with First Nations communities and identified protecting communities from wildfire as their first priority.• The Cariboo-Chilcotin Beetle Action Coalition has conducted a number of studies and developed draft strategies to encourage economic diversification and sustainability of communities.• The Mountain Pine Beetle Emergency Response Division staff works directly with local and First Nations governments to encourage collaboration and coordination amongst communities and with provincial and federal organizations. A number of meetings and workshops have been conducted over the past year to support these efforts.• Funding to support integrated community sustainability planning projects is available to all local governments under the federal-provincial gas tax agreement.

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<i>Five-Year Actions</i>	<i>Progress</i>
<p>Encourage innovation and new opportunities to accelerate economic growth in MPB impacted areas.</p>	<ul style="list-style-type: none">• Through the Ministry of Economic Development, the Province is supporting several projects aimed at economic diversification in beetle-impacted regions. Examples include:<ul style="list-style-type: none">○ Development of regional alliances.○ Identifying industrial land availability in MPB-impacted regions to support future industrial diversification and development.○ An amenity migration study, in concert with the Omineca Beetle Action Coalition and others to facilitate investment and encourage people to move to the region.○ A pilot community-based bio-energy project on Vancouver Island, which will have potential benefits to rural communities in beetle-impacted regions.• Ministry of Agriculture and Lands provided technical assistance to 100 Mile House and several First Nations to develop an industrial hemp production and processing strategy. Several farmers tried growing industrial hemp crops in 2006.• Ministry of Agriculture and Lands initiated development of an agroforestry toolkit concentrating on silvopasture, forest farming and alternate crops linked to mechanisms for their integration into agricultural land, woodlot and community forest-use options. This is being done jointly with other provincial and federal agencies.
<p>Continue to monitor the impacts of the epidemic and salvage activities on the long-term timber supply that has historically supported communities.</p>	<ul style="list-style-type: none">• Ministry of Forests and Range updated timber supply information and continued to conduct analyses regarding the immediate and longer term impacts of the epidemic and salvage activities on the provincial timber supply. The Chief Forester will report on this work and continue monitoring impacts during 2007.• A number of specific projects have been undertaken to understand and address the epidemic's impact on land use and resource objectives. For example:<ul style="list-style-type: none">○ The Land and Resource Management Plan (LRMP) Mountain Pine Beetle Assessment Project was completed for the Kamloops and Okanagan-Shuswap LRMP planning areas, and final reports delivered in July 2006. Workshops were held in November 2006 for monitoring committees to review the reports and to develop recommendations for responding to implications of the infestation on each of the strategic land use plans.

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<i>Five-Year Actions</i>	<i>Progress</i>
<p>Assess the role of small woodlands, including community forests and woodlot licenses and ensure mitigation strategies reflect their full range of values.</p>	<ul style="list-style-type: none"> ○ The Kamloops Timber Supply Area Mountain Pine Beetle Horizontal Initiatives Coordination Committee was formed to realize efficiencies among all agencies involved in beetle-related socio-economic analysis projects. The project will provide updated multiple accounts resource modeling and information on the implications of the infestation on the suite of LRMP-related values. ○ A multiple accounts analysis was done for the Merritt TSA to provide information about the implications of the epidemic on the suite of non-timber resource values.
<p>Identify longer term infrastructure requirements necessary to accommodate economic growth and diversification initiatives, including infrastructure development opportunities that would help address the socio-economic gap between MPB affected First Nations and non-aboriginal communities.</p>	<ul style="list-style-type: none"> ● Ministry of Agriculture and Lands started an agroforestry toolkit concentrating on silvopasture, forest farming and alternate crops to integrate into agricultural land, woodlot and community forest-use options. This is being done jointly with other provincial and federal agencies. ● The Olympic Live Sites program has contributed \$3.8 million for projects in 18 communities in the Nechako and Cariboo regions impacted by the MPB epidemic. The money is being used for infrastructure development and upgrades to sports facilities, and has leveraged more than \$9 million in total project funding. ● Ministry of Economic Development administers the \$100-million Municipal Rural Infrastructure Fund. ● FP Innovations, Forintek Division and BC Wood developed a proposal to review the unique infrastructure needs of First Nations licensees as many of them have been recently established and are still in the process of developing a competitive business model. ● The Canada/BC Municipal Rural Infrastructure Fund commits \$102 million. A minimum of 80 per cent of funding will be targeted toward communities with less than 250,000 people. The Ministry of Community Services coordinates water, sewer, public transit and environmental energy improvement projects and the Ministry of Economic Development coordinates culture, tourism, recreation, local road and connectivity projects.

Objective 2

Maintain and protect worker and public health and safety.

<i>2006/07 Actions</i>	<i>Progress</i>
<p>1. Work with the forest companies, contractors, and others to ensure continued high safety standards are applied on roads and forestry operations to protect workers and the public.</p>	<ul style="list-style-type: none"> • The BC Forest Safety Council and the Forest Safety Ombudsman continued to focus on improving safety in 2006/07. • Government efforts to improve forest safety include a coroner dedicated to forest safety, hiring a dedicated safety officer for the Ministry of Forests and Range, and a senior manager for safety in BC Timber Sales. • The Ministry of Forests and Range is taking action to improve forest worker safety by: <ul style="list-style-type: none"> ○ Reviewing forest regulations and policy from a safety perspective. ○ Establishing best practices. ○ Ensuring business objectives go through a safety lens. ○ Ensuring compliance and enforcement of legislation and licences. ○ Raising the profile of forest safety internally and externally.
<p>2. Identify and monitor critical water supplies that may be impacted by the infestation or forestry mitigation activities.</p>	<ul style="list-style-type: none"> • The Province has Sensitive Area Mapping Model under development to predict which areas within a watershed are most sensitive to change and help identify areas that would be hydrologically sensitive to both beetle infestation and mitigation activities. • The Ministry of Environment water stewardship division operates a number of hydrometric stations to monitor water. • Government is investigating the impact of beetle attack on reforestation, aquatic ecosystems, and public health to assess best riparian management, salvage harvesting and rehabilitation practices. • Researchers from the University of British Columbia, University of Northern British Columbia, Ministry of Forests and Range and Canadian Forest Service are investigating a range of beetle impacts on hydrology. • The Forest Practices Board conducted a special investigation into the risks of increased frequency and severity of peak stream flows in beetle-killed watersheds. It used the Baker Creek watershed as a test case, and made recommendations to government and industry.

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3. Carry out fuel management and implement wildfire mitigation activities where necessary for public safety.

- Government has drafted a discussion paper as a first step in the development of a GIS-based hydrologic risk assessment that would provide both a hydrologic hazard rating for watersheds and potential consequences for values at risk.
- Spatial data is being gathered to determine the scale of rising water table levels in the Vanderhoof Forest District. This will contribute to a broad scale assessment of hydrologic risk.
- A project has been started by the Ministry of Forests and Range research branch to use active and abandoned stream flow gauging sites in the Thompson basin to monitor the impacts of MPB salvage harvesting on watershed hydrology.
- Ministry of Environment carried out assessments on nine watersheds of differing sizes to identify watershed sensitivity and restoration opportunities.
- In 2006 the Ministry of Education provided a \$1-million grant to the BC School Trustees Association to support school districts affected by the pine beetle infestation. With criteria developed by the Association, the funds will be used over two years.
- Fuel management initiatives will help reduce the possibility of devastating wildfire losses such as those experienced in the summer of 2003. The Provincial Fuel Management Strategy has identified 460,000 hectares as potentially needing treatment due to the presence of mature pine and proximity to communities. Ten per cent of this is adjacent to First Nations reserve lands. The program is funded by the Ministry of Forests and Range in cooperation with the Government of Canada, and administered by the Union of BC Municipalities. A partnership with First Nations Emergency Services Society has been formed to provide program delivery to First Nations communities. 4,100 hectares of land were treated in 2006/07.
- Provincial, federal and First Nations agencies have formed a working group to accelerate planning and fuel treatment for First Nations communities. The group is also working to simplify and streamline fuel management given multiple jurisdictional issues with regards to managing fuels on and adjacent to reserve lands. First Nations Emergency Services Society is proceeding with eight applications for fuel management plans for First Nations communities.

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- A 25-hectare fuel break in Mount Robson Park was completed and fuel break planning and layout has been completed for a 1,400-hectare fuel break to be established in Manning Park in 2007. Priority hazard fuel reduction was also undertaken in Syringa, Premier, Manning, Fintry and Ellison parks to protect park values and adjacent communities.
 - Surveys indicated about 500 (roughly 40 per cent) of the Province's forest recreation camping sites have beetle-infested trees. In 2006/07 the Ministry of Tourism, Sports and the Arts spent \$300,000 on MPB mitigation efforts at 160 recreation sites. About 11,000 hazardous trees have been felled, piled and/or burned or bucked for firewood.
4. Monitor air quality and minimize the public health effects of smoke from increased use of prescribed burning.
- Ministry of Forests and Range protection program, working with the Union of BC Municipalities and the First Nations Emergency Services Society, developed best management practices for fuel management for MPB-affected forests.
 - Ministry of Environment has developed "best management practices" for debris pile burning, and supported planning for Prince George airshed.
5. Continue providing advice and cooperation to communities to mitigate the damage to forests in urban areas such as municipal parks.
- This work has continued at the local level.
6. Continue working with the federal government and private land owners to address the epidemic on private property.
- Through the Federal Mountain Pine Beetle Initiative, administered by Natural Resources Canada, over 60 land owners received funding support of between \$2,000 and \$25,000 each to assist with mitigation of the beetle epidemic.

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<i>Five-Year Actions</i>	<i>Progress</i>
<p>Carry out assessments of the long-term safety needs of the transportation network (forest roads, municipal roads, and public highways) within the impacted regions and develop plans for necessary maintenance, upgrades or changes.</p>	<ul style="list-style-type: none">• Ministry of Transportation committed \$90 million over three years to upgrade the public roads system impacted by the increased logging truck traffic in beetle areas. In 2006/07 the Province completed 189.3 lane kilometres of improvements to the paved highway system, improved 291.5 lane kilometres of gravel roads, and reconstructed a bridge.• Ministry of Transportation consulted with the forest industry, BC Timber Sales, Ministry of Forests and Range, local governments and First Nations to make improvements that would preserve the safety of the public highway system during MPB harvest activity.<ul style="list-style-type: none">○ Joint meetings resulted in coordinated and targeted improvements to roads and structures, including the realignment of several roadways to eliminate curves that would be considered hazardous given the increased volume of heavy industrial traffic.○ Resurfacing took place to remove ruts caused by heavy loads, road base and drainage improvements to strengthen the roadways to facilitate a longer harvest period, as well as various intersection improvements to preserve or improve public safety.○ In the continued effort to promote truck safety, several truck safety stops were constructed, a brake check area was paved north of Williams Lake, and a project to construct an acceleration lane from the Vanderhoof weigh scales was initiated.○ Discussions with the McLeod Lake First Nations resulted in a partnership that achieved cost-savings and timing efficiencies in the upgrading of the Carp Lake Road.• Highway improvements were coordinated with works in municipalities as appropriate, with planned improvements to Forest Service Roads, as well as in conjunction with works by road and bridge maintenance contractors.• The Ministry of Forests and Range invested \$7 million to upgrade and maintain Forest Service roads that have been impacted by increased activity related to MPB. This is the first portion of a three-year, \$21-million commitment to road upgrades.

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<i>Five-Year Actions</i>	<i>Progress</i>
Work with communities, including First nations, agencies and service providers to establish baseline information and monitor trends in public health and safety that may be impacted by the longer term consequences of the epidemic.	<ul style="list-style-type: none">• With funding support from the Province, the First Nations Forestry Council is working with 103 beetle-impacted First Nations communities to identify needs and concerns specific to dealing with the epidemic as well as identifying future needs of communities who will be impacted in upcoming years.
Identify and monitor areas of unstable terrain that may be impacted by the infestation or mitigation activities.	<ul style="list-style-type: none">• The Province began a study on the use of remote sensing and forest inventory data in the development of a spatially dynamic model of slope-stability in northern British Columbia.• The Ministry of Environment conducted a terrain stability assessment in area proposed for prescribed fire in Mount Robson Park.
Undertake work to understand and address how the epidemic and subsequent activities impact the sustainability of cultural values, traditions and practices.	<ul style="list-style-type: none">• With funding support from the Province, the First Nations Forestry Council is working with 103 beetle-impacted First Nations communities to identify needs and concerns specific to dealing with the epidemic as well as identifying future needs of communities who will be impacted in upcoming years.
Monitor changes in fire occurrence in areas affected by the epidemic and address suppression resource requirements accordingly.	<ul style="list-style-type: none">• In 2006, two experimental fires and numerous small-scale test fires were conducted at the Carrot Lake study site near Vanderhoof as part of the research into fire behaviour in beetle-killed forests. The Ministry of Forests and Range and the Canadian Forest Service (Natural Resources Canada) are working together to expand wildfire documentation and will continue research at the study site in 2007. Additional study sites may also be established in 2007.• Operational safety training for crews working in this new fuel type has been developed for Ministry of Forests and Range firefighters.

Objective 3

Recover the greatest value from dead timber before it burns or decays, while respecting other forest values.

<i>2006/07 Actions</i>	<i>Progress</i>
<p>1. Consult with local government, regional coalitions and First Nations in the ongoing development of salvage strategies.</p>	<ul style="list-style-type: none">• Funding has been provided to the First Nations Forestry Council to enhance its ability to review and comment on salvage harvesting plans prepared by forest companies.
<p>2. The Forest Practices Board will continue its role as an independent public watchdog that reports to the public about compliance with the Forest and Range Practices Act and the achievement of its intent.</p>	<ul style="list-style-type: none">• The Forest Practices Board conducted a special investigation into the risks of increased frequency and severity of peak stream flows in beetle killed watersheds. It used the Baker Creek watershed near Quesnel as a test case. The Forest Practices Board made recommendations to government and industry.
<p>3. Work will be continued with the federal government, Forestry Innovation Investment Ltd. and others to carry out research and assessments that will help determine how long dead timber will retain economic value (shelf-life) and to use the information to guide salvage priorities.</p>	<ul style="list-style-type: none">• Studies have been conducted to understand the rate of deterioration, degrade and fall of trees killed by MPB, and a sample plan has been developed to measure tree characteristics related to shelf-life of beetle-killed trees.• Ministry of Forests and Range, with the Canadian Forest Service, has collected and analyzed data and produced a report on merchantability based on shelf-life for three sample areas.• Through Forestry Innovation Investment Ltd., the Province carried out a high-speed sawmill grade outturn and recovery study. A trial comparing old grey-stage MPB fibre to a green lodgepole pine fibre sample was conducted in November 2006 with the results published in April 2007. This represented the first statistically sound quantification of lumber yields from this type of fiber to assist in the assessment of shelf-life for MPB logs.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>4. On an ongoing basis, using new information as it becomes available, determine the best rate of harvest to capture the economic value from timber to be salvaged over the term of the strategy, while considering future forest values, consistent with established land use objectives.</p>	<ul style="list-style-type: none">• During 2006/07, the Chief Forester released his allowable annual cut decisions for the Williams Lake and 100 Mile House timber supply areas and Tree Farm Licence 48 near Chetwynd.• To provide greater certainty on the land and guidance to salvage operations, the Province, through the Integrated Land Management Bureau has developed objectives for the maintenance of biodiversity and other forest values.• Ministry of Forests and Range conducts ongoing work to monitor harvesting activities, improve information and analysis, and updates timber supply projections in the beetle-affected area.• Ministry of Environment is working with stakeholders and experts to assess the impacts of salvage harvesting on hydrology and wildlife, and to identify mitigation measures.
<p>5. Continue to issue licenses and encourage expedited development for salvage opportunities already awarded, and where additional opportunities and demand are identified, invite additional applications for licenses to harvest increases in Allowable Annual Cut.</p>	<ul style="list-style-type: none">• Ministry of Forests and Range continued to advertise and issue licenses to harvest timber in priority salvage areas.• Ministry of Forests and Range has entered into 137 forest harvesting tenures with First Nations in the Interior region. This includes over 1 million cubic metres of allowable annual cut to recover beetle-damaged timber. Licences for harvesting another 1.5 million cubic meters of annual beetle timber by First Nations are nearing completion.
<p>6. Price damaged timber in a manner that recognizes its value, and provides revenue to the Crown and industry viability during the term of the salvage program.</p>	<ul style="list-style-type: none">• Timber is priced based on the market value for the particular stand and species harvested. The pricing system takes into account condition and quality. Beetle-killed timber that is harvested within one or two years of attack retains much of its original value and is priced accordingly, whereas trees that have deteriorated in quality may be graded as lower value. In April 2006 the Province made official changes to log grades to recognize the differences in log quality.

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2006/07 Actions	Progress
7. Encourage full utilization of the existing timber processing capacity.	<ul style="list-style-type: none">• Forestry Innovation and Investment Ltd. funded a number of projects to help the wood products industry better utilize MPB-damaged timber:<ul style="list-style-type: none">○ <i>Preserved wood</i> – Using U.S. commercial wood treaters to demonstrate the effectiveness of treating blue-stained lumber with borates for use in above-ground applications in termite prone areas.○ <i>Bio-products</i> – Evaluating the technical potential for using MPB-killed fibre for ethanol production and assess the economics for commercial viability.○ <i>Oriented Strand Board (OSB)</i> – Extracting OSB strands from sawmill MPB wood waste residues as an alternative to pulp chips.○ <i>Logs</i> – Assessing the commercial potential for using sound-wave technology for identifying defects in MPB logs prior to manufacturing.○ <i>Lumber</i> – Assessing the technical and economic feasibility for treating blue-stained MPB boards with hot soy oil for use as commercial siding on buildings.○ <i>Lumber</i> – Completing pre-commercial development of a vision/scanning system to locate the checks in logs to position them for optimized sawing accuracy.• Research is being conducted by the University of Northern British Columbia to adapt the use of terahertz waves (similar to X-rays) to “see” inside wood and determine the fibre quality of logs and processed wood products. One of the goals is to enable better utilization of beetle-affected logs.
8. Ensure road networks have sufficient capacity for timber transportation needs.	<ul style="list-style-type: none">• In 2006/07, the Ministry of Transportation worked with other stakeholders to preserve or improve the safety of the public highway system during MPB harvest activity. Ministry of Transportation staff consulted with representatives of the forest industry, BC Timber Sales, the Ministry of Forests and Range, local governments and First Nations.<ul style="list-style-type: none">○ Joint meetings resulted in the realignment of several roadways to eliminate curves considered hazardous given the increased volume of heavy industrial traffic. Resurfacing took place to remove ruts caused by these heavy loads, road base and drainage improvements to strengthen the roadways to facilitate a longer harvest period, as well as various intersection improvements to preserve public safety.

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<i>2006/07 Actions</i>	<i>Progress</i>
	<ul style="list-style-type: none"> ○ Several truck safety stops were built, a brake check area was paved north of Williams Lake, and work began on an acceleration lane from the Vanderhoof weigh scales. ● The Ministry of Forests and Range invested \$7 million to upgrade and maintain forest services roads impacted by increased activity related to MPB. This is the first portion of a three-year, \$21-million commitment to road upgrades.
<p>9. Encourage emerging and alternate timber processing industries to utilize timber that is surplus to the capacity of the existing primary industry.</p>	<ul style="list-style-type: none"> ● The provincial government is providing the University of Northern British Columbia with \$2.5 million to establish a world-leading wood and fibre multi-site research laboratory to find further uses for trees that have been infested by the mountain pine beetle. ● A provincial Bioenergy Strategy is being developed to promote new sources of sustainable and renewable energy, and to take advantage of pine beetle-attacked timber. ● BC Hydro issued an invitation for expressions of interest from independent power producers interested in using beetle-killed timber and wood waste to generate energy. ● The Forest Engineering Institute of Canada produced a report on the potential for cutting, chipping and hauling fuel wood for energy production in central B.C.
<p>10. Complete development and begin implementation of measures to encourage value-added wood processing.</p>	<ul style="list-style-type: none"> ● The Cariboo-Chilcotin Beetle Action Coalition developed a secondary wood manufacturing strategy that aims to double the size of the regional sector within 10 years. ● Forestry Innovation Investment Ltd. is exploring the use of small dimension blue-stained MPB lumber for a new line of specialty treated landscape products.
<p>11. Investigate export opportunities.</p>	<ul style="list-style-type: none"> ● Forestry Innovation Investment Ltd. is looking into alternative product manufacturing (from low grade grey-stage MPB) - a 2006/07 study of the economics for selling low grade MPB four-sided rectangular cants to China for remanufacturing was completed. ● Order in Council #885 was approved on December 1, 2006, to allow long-term (five-year) pine log export from the Northern Interior Forest Region. Up to 500,000 cubic metres is exempted from manufacture on an annual basis. Measures are being considered for the Southern Interior Forest Region.

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<i>2006/07 Actions</i>	<i>Progress</i>
12. Develop new and innovative timber tenures to facilitate recovery of timber and achievement of mitigation objectives, and evaluate the viability of existing tenures most impacted.	<ul style="list-style-type: none">• A new intermediate salvage licence is being tested by the Ministry of Forests and Range to help recover optimum value from MPB timber in the northern and southern Interior.
13. Use small-scale salvage opportunities where they are the most appropriate method to achieve mitigation strategies.	<ul style="list-style-type: none">• In 2006/07 the Ministry of Forests and Range refined its policy on the use of small scale salvage permits to focus on small isolated patches of timber harvested for forest management reasons such as leading edge MPB-attacked stands, blowdown, danger trees along roads, powerlines and fencelines, and community interface fuel management areas.
14. Continue to work with the industry and other existing forest product marketing organizations to maintain and expand markets.	<ul style="list-style-type: none">• The Ministry of Economic Development, through its international in-market representatives in Europe has established links with potential European importers and investors. The recruitment of U.S. and Asian-based in-market representatives is underway.• Forestry Innovation Investment Ltd. is working with the Chinese Academy of Forestry in Beijing to assess the durability characteristics of glue-laminated timbers constructed with pressure-treated laminating stock for potential use in outdoor applications in the developing Chinese landscaping industry.
15. Begin the process to update and improve the timber inventory and information about non-timber resources to facilitate more accurate assessments and forest management decisions in the epidemic area.	<ul style="list-style-type: none">• Ministry of Environment updated fish inventory in six forest districts, as well as terrain and soils information in several parts on infestation zone.• Ministry of Forests and Range carried out a number of projects to improve and update inventory information, including:<ul style="list-style-type: none">○ A pilot project for Vegetation Resource Inventory (Phase 1) in Quesnel; conducted in cooperation with licensees and the Quesnel Timber Supply Area Steering Committee.○ Measuring new and re-measuring existing growth and yield permanent sample plots in central Interior impacted areas.

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<i>2006/07 Actions</i>	<i>Progress</i>
16. Ensure management requirements in salvage areas address the need for stewardship of non-timber forest resources.	<ul style="list-style-type: none">○ Providing support to Vegetation Resource Information Management System data conversion and update for areas impacted by small scale salvage and major fires.○ Phase 2 Vegetation Resource Inventory sampling for the Merritt, Burns Lake and Nadina areas.○ Established monitoring plots for the Okanagan, Kamloops and 100-Mile House areas. <ul style="list-style-type: none">● Ministry of Agriculture and Lands and the Ministry of Forests and Range co-chair an Interagency Non-Timber Forest Resource committee to inform, coordinate and integrate initiatives related to the sustainability of non-timber forest resources.● Ministry of Environment has produced a best management practices guide for controlling invasive plant species following salvage harvest or burning.

Objective 4

Conserve the long-term forest values identified in land use plans.

<i>2006/07 Actions</i>	<i>Progress</i>
<p>1. Carry out detailed, qualitative assessments of the impacts to strategic resource values.</p>	<ul style="list-style-type: none"> • The LRMP-MPB Assessment Project was completed for the Kamloops and Okanagan-Shuswap LRMP planning areas, and final reports were delivered to the public and stakeholders in July 2006. Workshops were held in November 2006 for each of the Monitoring Committees to review the reports and develop recommendations for responding to implications from mountain pine beetle on these strategic land use plans. • Kamloops Timber Supply Area MPB Horizontal Initiatives Coordination Committee was set up to realize efficiencies among all agencies involved in beetle-related socio-economic analysis projects. Project partners included the Ministry of Forests and Range, Ministry of Environment, Integrated Land Management Bureau and forest industry. The results provided a number of resource analyses that will assist planners and decision makers. • The Ministry of Forests and Range initiated a study on the use of remotely sensed images to measure soil disturbance in MPB salvage areas. • Ministry of Forests and Range and the Integrated Land Management Bureau undertook a multiple accounts analysis for the Merritt Timber Supply Area to provide information about the implications of the beetle for a variety of non-timber resource values. • Ministry of Environment assessed beetle impacts to park values in 12 provincial parks. • The Province funded 26 assessments through the Forest Investment Account, including: <ul style="list-style-type: none"> ○ Ecosystem structure, function and processes. ○ Biodiversity implications for species such as grizzly bear and northern caribou following MPB. ○ Peak flow and water yield responses to MPB infested and salvage-logged watersheds. ○ Stand and forest dynamics following MPB (e.g. regeneration; productivity; impacts on young stands; how MPB salvage harvesting affects other forest health concerns). ○ Forest engineering studies related to designing cost-effective and environmentally appropriate methods of harvesting and hauling as well as shelf-life studies.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>2. Continue working with First Nations and with land use plan monitoring committees and stakeholders on epidemic-related risk assessments to ensure beetle management and timber salvage activities are carried out in a manner that respects the values identified in land use plans and by First Nations.</p>	<ul style="list-style-type: none">• Of the \$8.4 million provided to the First Nations Forestry Council, the Province included \$7.9 million to deal with MPB impacts in the land use planning process, providing First Nations with tools to gather and format inventory information. This will enable First Nations to participate in land use planning to deal with impacts of the infestation in larger-scale land and resource planning processes and at the community level.• Monitoring committee meetings were organized and facilitated by the Province's Integrated Land Management Bureau for all Land and Resource Management Plans in the Omineca region. This includes Prince George, Fort St James, Robson Valley, Vanderhoof and Mackenzie.• The LRMP-MPB Assessment Project was completed for the Kamloops and Okanagan-Shuswap LRMP planning areas, and final reports were delivered in July 2006. Workshops were held in November 2006 for the monitoring committees to review the reports and develop recommendations for responding to implications from mountain pine beetle on these strategic land use plans.• Continued to build on the results and process identified in the <i>2004/05 Vanderhoof LRMP-MPB Risk Assessment</i>. The Vanderhoof LRMP is in the final stages of an update and amendment project (funded by the Forest Investment Account) for eight general management direction values, including: wildlife, biodiversity, recreation and tourism, job and community stability, access management, agriculture and range, and fire management.• As part of the <i>Vanderhoof LRMP General Management Direction Update and Amendment Project</i>, LRMP stakeholders and government agencies developed a revised access management plan that will be recommended for implementation. The updated plan provides for a range of recreation settings and experiences (e.g. motorized and non-motorized) through the identification of recreation opportunities on the land base.• The Integrated Land Management Bureau has worked with forest licensees and the Ministry of Forests and Range to draft objectives for the retention of biodiversity values.• An initial assessment has been completed to identify potential mountain pine beetle impacts on objectives, strategies and values identified in the Dawson Creek LRMP.

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<p>3. Ensure management of parks and protected areas incorporates assessment of the impacts of the epidemic on conservation values.</p>	<ul style="list-style-type: none">• The Province continued to review biodiversity strategies in light of the MPB epidemic, to ensure appropriate suppression and salvage operations are balanced with retention of ecological values in key areas.• High-priority hazard tree removals were completed in the Yahk, Moyie, Crooked River, Jimsmith Lake, Green Lake, Mule Deer and Lightning Lake campgrounds. Post-removal restoration was completed in the Lac La Jeune and Tunkwa campgrounds.• 3,660 hectares were probed and 5,698 beetle-infested trees were felled and burned in Mount Robson Park, and a terrain stability assessment was completed for the proposed Yellowhead burn unit.• Fall and burn was conducted in three northeastern parks to help prevent mountain pine beetle spread to Alberta.• Assessment and planning to address MPB impacts was conducted in the West Arm, Premier, Valhalla, Uncha Mountain/Red Hill, Syringa, Itcha/Gatchuz, Nechako Canyon, Fintry, Ellison, Shuswap Lake and Monck parks
<p>4. Incorporate conservation objectives into timber salvage operations, leaving some areas unharvested as temporary conservation areas.</p>	<ul style="list-style-type: none">• The Integrated Land Management Bureau coordinated inter-agency efforts to determine priorities and options for the development of temporary conservation areas that reflect conservation of values identified in land use plans. The Vanderhoof area has been identified as the highest priority and the Province has allocated funding for this project through the Forest Investment Account.• In 2006/07, \$2.3 million was invested in providing relevant scientific knowledge to support the conservation of long-term forest values and restoration of forest resources in areas affected by the epidemic.
<p>5. Examine the opportunities and costs, including possible funding sources, for techniques to restore non-timber values (e.g., wildlife habitat, hydrological function).</p>	<ul style="list-style-type: none">• The Ministry of Environment has assessed opportunities for mitigation of impacts on several select species, including grizzly bear, caribou, burbot, and sensitive ecological features such as ungulate winter range and coarse woody debris.

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<i>Five-Year Actions</i>	<i>Progress</i>
Assess the impact of the epidemic on the full range of forest values to provide information about future management decisions.	<ul style="list-style-type: none">• The Province is working with local land use planning and monitoring committees to develop methods for assessing the implications of the MPB epidemic and various management options on a wide range of timber and non-timber values. “Multiple accounts analysis” (multiple resource value assessment) techniques are being tested to help improve decision making.• Ministry of Forests and Range and the Ministry of Environment are collecting information to improve the understanding and management of key wildlife species impacted by the epidemic. For example:<ul style="list-style-type: none">○ Monitoring of the Narraway caribou herd to determine its core winter habitat.○ Radio-collaring and monitoring caribou from the Kiskatinaw herd to determine core winter habitat and feeding behaviour.

Objective 5

Prevent or reduce damage to forests in areas that are susceptible but not yet experiencing epidemic infestations.

2006/07 Actions	Progress
<p>1. Continue to establish Emergency Management Units, as needed, according to science-based criteria and the appropriate forest management strategies applied.</p>	<ul style="list-style-type: none"> • Maps of the infestation were updated and new Emergency Bark Beetle Management Areas were designated by the Ministry of Forests and Range on January 10, 2007. Beetle Management Unit strategies are being updated and used to rank funding priorities for the allocation of provincial and federal funding through the Forest Investment Account.
<p>2. Continue to conduct timely and appropriate detection and assessment surveys to monitor the level of infestation and success of mitigation actions.</p>	<ul style="list-style-type: none"> • The annual provincial overview survey was completed by the Ministry of Forests and Range in September 2006 with maps made available in February 2007 • Detailed aerial detection (e.g. helicopter GPS surveys, aerial photography) was carried out in key areas where suppression activities were conducted. • Ministry of Forests and Range, in cooperation with the Council of Forest Industries, completed the annual magnitude survey to determine timber volumes killed by MPB to assist industry in planning their harvesting operations.
<p>3. Collaborate with neighboring jurisdictions to contain out-breaks and reduce damage in border areas.</p>	<ul style="list-style-type: none"> • Ministry of Forests and Range continues to work collaboratively with the Alberta's Sustainable Resource Development ministry and Natural Resources Canada to share information and coordinate control and mitigation activities in border areas. • Ministry of Forests and Range and the Ministry of Environment have carried out overview detection flights, probing, and falling and burning of infested trees in six parks along the British Columbia/Alberta border.
<p>4. Continue streamlined approach to operational planning and approvals for access and harvesting where necessary to achieve beetle management strategies.</p>	<ul style="list-style-type: none"> • Under the <i>Forest Practices Code Act</i>, the <i>Bark Beetle Regulation</i> provided the authority to establish Emergency Bark Beetle Management Areas, within which operational planning and harvest approval could be streamlined. This authority now exists under the <i>Forest and Range Practices Act</i>, through Section 109 of the <i>Forest and Range Practices Regulation</i>.

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<i>2006/07 Actions</i>	<i>Progress</i>
5. Investigate silviculture regimes that are less susceptible to catastrophic loss.	<ul style="list-style-type: none"><li data-bbox="714 289 1869 430">• The Province’s Future Forest Ecosystems Initiative, led by the Ministry of Forests and Range, is setting research priorities, carrying out trials and modifying policies and practices to address long-term susceptibility to loss from the effects of insects, climate change or other factors.<li data-bbox="714 435 1869 544">• Ministry of Agriculture and Lands has led an investigation of enhanced agroforestry practices. The projects have led to collection, synthesis and communication of information pertinent to B.C., and development of an “alternative crop” database.

Objective 6

Restore the forest resources in areas affected by the epidemic.

2006/07 Actions	Progress
<p>1. Reforest on a priority basis to return the best sites to timber productivity quickly.</p>	<ul style="list-style-type: none"> • All areas harvested commercially (including salvage) continue to be reforested promptly as a legal requirement. • The Province’s Forests for Tomorrow program invested \$15.7 million to regenerate forests in 2006/2007, and will continue to place a high priority on re-establishment of timber crops in key areas that are not commercially harvested but require reforestation.
<p>2. Establish strategies and priorities for returning the most productive multiple-use lands to productivity quickly and efficiently, particularly in areas that provide for a variety of forest values (e.g., water, wildlife, cultural or recreational, in addition to timber)</p>	<ul style="list-style-type: none"> • Researchers from the University of British Columbia, University of Northern British Columbia, Ministry of Forests and Range and Canadian Forest Service are investigating a range of beetle impacts on hydrology. • Ministry of Agriculture and Lands completed a synthesis of silvopasture information pertinent to British Columbia. • The Kamloops Timber Supply Area MPB Horizontal Initiatives Coordination Committee was set up to realize efficiencies among all agencies involved in beetle-related socio-economic analysis projects. This project is based on the Enhanced Type II Silviculture Analysis project and covers the entire Kamloops Timber Supply Area. The project will provide updated resource modeling and information on the implications of the beetle epidemic on a wide range of forest resource values. • Ministry of Environment completed five site-specific restoration projects to mitigate impacts from MPB infestation or related management activities, and developed protocol and draft prescriptions to address pre-Forest Practices Code culverts that may create a barrier to fish passage. • The Ministry of Forests and Range completed the MPB Stewardship Research Implementation Framework, which follows from the <i>MPB Stewardship Research Strategy</i> produced in 2005. The MPB Stewardship Research Implementation Framework documents (at a high-level) research activities that are needed to address priority knowledge gaps.

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<i>2006/07 Actions</i>	<i>Progress</i>
3. Examine the opportunities and costs, including possible funding sources, for silviculture techniques to address mid-term timber supply gap.	<ul style="list-style-type: none">• A number of projects relating to MPB mitigation and management of multiple values were incorporated into the Forest Investment Account-Forest Science Program's research strategies and priorities. In 2006/07, \$2.3 million was invested in research and development focused on providing relevant scientific knowledge to support the conservation of long-term forest values and restoration of forest resources in areas affected by the epidemic.• Through the Forest Investment Account, the Province allocated \$3.2 million and worked in cooperation with the forest industry to enhance tree growth by fertilizing 6,662 hectares in the Northern Interior Forest Region and 8,559 hectares in the Southern Interior Forest Region.• Ministry of Forests and Range carried out re-measurement of long-term research plots examining growth responses of lodgepole pine to sulphur fertilization.• Ministry of Agriculture and Lands completed a synthesis of a long-term UBC study on cattle grazing in thinned and fertilized lodgepole pine stands, and carried out an agroforestry workshop on silvopasture practices for interested producers and agencies.• The Province carried out a literature review of the responses of advanced regeneration (various species) to release following insect outbreaks.
4. Improve forest resource inventory information.	<ul style="list-style-type: none">• Ministry of Forests and Range undertook several projects during 2006/07, including:<ul style="list-style-type: none">○ Completing aerial photo acquisition for 590 mapsheets in MPB impacted areas.○ Orthomapping of red- and grey-attack areas based on 2005 imagery.○ Site productivity gap analysis, business case and implementation plans for all impacted management units, and collecting Site Index / Biogeoclimatic Ecosystem Classification data for the western part of the Williams Lake Timber Supply Area.○ Completing the ground calibration phase of the MPB change detection process.○ Collecting data from 400 of the 600 samples needed to adjust the MPB spread projection model.

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<i>2006/07 Actions</i>	<i>Progress</i>
<p>5. Encourage adaptive management, monitoring, research and innovation.</p>	<ul style="list-style-type: none"> • Through the Forest Investment Account-Forest Science Program, 26 projects were funded in areas such as: ecosystem structure and function, biodiversity implications for species such as grizzly bear and northern caribou, peak flow and water yield responses to infested and salvage-logged watersheds, stand and forest dynamics following MPB, forest engineering studies related to designing cost-effective and environmentally appropriate methods of harvesting and hauling, as well as shelf-life studies. • The 26 projects along with extension work completed by FORREX resulted in 119 research products and extension events, including: technical reports, workshop presentations, training packages, website updates, field trips, newsletter articles and other products. FORREX also developed an information network as a one-stop source for information on MPB as well as an events catalogue. • In 2006/07 two First Nations representatives were added to the Forest Investment Account-Forest Science Board. First Nations were involved in the priority-setting process for the 2007/08 call for research proposals and the evaluation process.
<p>6. Identify the policy issues or constraints to implementation of longer term strategies and address them.</p>	<ul style="list-style-type: none"> • A key aspect of the Future Forest Ecosystems Initiative is identifying policy issues and constraints to achievement of long-term strategies (e.g. species selection and free-growing standards) for the Ministry of Forests and Range.
<i>Five-Year Actions</i>	<i>Progress</i>
<p>Restore forest ecosystem productivity.</p>	<ul style="list-style-type: none"> • Work is ongoing to develop techniques and update plans for restoration activities.
<p>Undertake stand treatments on a priority basis to ensure timber will be available for harvest sooner than originally planned.</p>	<ul style="list-style-type: none"> • Ministry of Agriculture and Lands has started developing an agroforestry toolkit concentrating on silvopasture, forest farming and alternate crops linked to mechanisms for their integration into agricultural land, woodlot and community forest-use options. This is being done jointly with provincial and federal agencies.

Objective 7

Maintain a project management structure that ensures the effective and coordinated planning and implementation of mitigation measures.

<i>Ongoing Actions</i>	<i>Progress</i>
1. Provide leadership through the Minister of Forests and Range and the Premier's Office.	<ul style="list-style-type: none"> • The Minister of Forests and Range has continued to take the lead responsibility and to oversee the functions of the Mountain Pine Beetle Emergency Response Division during 2006/07.
2. Solicit broad stakeholder input through the Minister's Community Advisory Group.	<ul style="list-style-type: none"> • The Minister's Community Advisory Group remains in place as an important part of the overall management structure.
3. Coordinated activities between all levels of government, including federal, local and First Nations.	<ul style="list-style-type: none"> • All levels of government have cooperated to implement the Mountain Pine Beetle Action Plan through federal-provincial agreements, regional Beetle Action Coalitions, the First Nations Forestry Council, and routine working arrangements. • The Province established the First Nations Mountain Pine Beetle Initiative. A First Nations chief executive officer was appointed to provide policy development, strategic planning, facilitation and negotiation services as it pertains to harmonizing First Nations and government partnerships in the co-management of the epidemic. • Ministry of Transportation discussions with the McLeod Lake First Nation resulted in a partnership that saved costs and time in upgrading the Carp Lake Road.
4. Work with First Nations to provide a path for a mutually beneficial relationship with respect to the response to the epidemic.	<ul style="list-style-type: none"> • The Province has provided the First Nations Forestry Council with \$8.4 million to help deal with MPB impacts. • In the area of community protection (fuel management and emergency management), the First Nations Mountain Pine Beetle Initiative continued its work harmonizing First Nations and government co-management of the epidemic by: <ul style="list-style-type: none"> ○ Facilitating five planning sessions with a total of 108 participants and leading to the design of a Community Protection Scorecard Report.

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<i>Ongoing Actions</i>	<i>Progress</i>
<p>5. Work with regional Beetle Action Coalitions to coordinate the efforts of local governments and stakeholders with provincial initiatives.</p>	<ul style="list-style-type: none"> ○ Facilitating and coordinating First Nations, the Province of British Columbia and Government of Canada in launching fuel management trials in select First Nations territories / communities. ● The Mountain Pine Beetle Emergency Response Division and provincial agency staff worked closely with regional Beetle Action Coalitions to share information and plans. ● The Cariboo-Chilcotin Beetle Action Coalition received an additional \$900,000 from the Province during 2006/07 to conduct detailed planning and support implementation of its regional economic development strategies. ● Upon completion of its start-up phase, the Omineca Beetle Action Coalition received \$900,000 from the Province to help advance its strategies and workplan for sustainability of regional communities. ● The Province and the Government of Canada provided \$50,000 to help a Beetle Action Coalition become established and begin work in the southern Interior. ● Staff from several ministries have been assigned to support the initiatives of First Nations, regional Beetle Action Coalitions and other groups in their work to develop and implement strategies that mitigate the community impacts of the MPB epidemic.
<p>6. Assure inter-ministry coordination through the Emergency Response Team (Division)</p>	<ul style="list-style-type: none"> ● Executive members from participating provincial and federal agencies worked closely with the Mountain Pine Beetle Emergency Response Division to implement the Action Plan during 2006/07: <ul style="list-style-type: none"> ○ MPB response strategies were included in the service plans of participating agencies. ○ Ministry of Forests and Range established the emergency response division's primary office in Kamloops. The division was fully operational the past year. ○ The Integrated Land Management Bureau convened inter-agency manager committees to help coordinate responses to the MPB epidemic at a regional level. ○ Ministry of Economic Development has filled a lead position in Prince George to coordinate its activities for mitigating impacts of the epidemic.

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<i>Ongoing Actions</i>	<i>Progress</i>
7. Establish a MPB information network.	<ul style="list-style-type: none"> • The Province and the Council of Forest Industries worked together to develop education kits for teaching secondary school students about the mountain pine beetle and how British Columbia is responding to the epidemic. • Ministry of Forests and Range hired a librarian to develop an online bibliography of MPB literature. • Ministry of Environment created an outreach strategy for environmental and parks values affected by the infestation. • FORREX, funded by the Province, developed an information network as a one-stop source for mountain pine beetle information as well as an events catalogue. • Forestry Innovation Investment Ltd. established a program for domestic research extension and communication. This program included the distribution of printed summary materials and online availability of all information for review and downloading. The 2005/06 project results were distributed to more than 300 individuals in the B.C. forest products industry. The 2006/07 results were distributed and posted in June 2007.
8. Zone the infested and susceptible areas to ensure that forestry mitigation measures taken are suitable and feasible for local circumstances.	<ul style="list-style-type: none"> • Maps of the infestation were updated and new Emergency Bark Beetle Management Areas were designated January 10, 2007. Beetle Management Unit strategies are being updated and used to rank funding priorities for the allocation of provincial and federal funding through the Forest Investment Account.
9. Apply timber administration and pricing consistently in areas with similar circumstances.	<ul style="list-style-type: none"> • This is being applied on an ongoing basis.
10. Work with forest companies and forest industry associations to manage and implement solutions.	<ul style="list-style-type: none"> • The Province continues to work closely with individual companies and industry associations to encourage research and innovation to address technical and administrative issues arising from the beetle infestation.

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<i>Ongoing Actions</i>	<i>Progress</i>
11. Work with stakeholders to communicate about the epidemic and mitigation measures.	<ul style="list-style-type: none">• Frequent communication occurred with local governments, community groups, business sectors, forest products customers and the general public in regard to the epidemic and various response activities.• Ministry of Environment created an outreach strategy for environmental and parks values affected by MPB infestation, hosted workshops on impacts to hydrology from salvage harvest and mitigating impacts, and supported two editions of <i>Streamlines</i>.
12. Work toward establishment of long-term funding to support mitigation and recovery activities.	<ul style="list-style-type: none">• The Province is committed to long-term funding for the various activities needed to deal with the impacts of the epidemic.• The federal government confirmed its 10-year, \$1-billion commitment and announced it would invest \$200 million over the next two years to help B.C. address the epidemic.• The Northern Development Initiative Trust continues to operate a \$30-million fund targeted to MPB-related community and regional economic development initiatives.