

The Value of Mountain Resorts to the British Columbia Economy



BRITISH COLUMBIA

CWSAA
Canada West Ski Areas Association

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Acknowledgments

The Value of Mountain Resorts to the British Columbia Economy study was a comprehensive summary of financial and visitor information for the province's 13 largest Mountain Resort properties for the 2007/2008 season.

Funding for this study came from the Resort Development Branch in the Ministry of Forests, Lands and Natural Resource Operations.

Tourism British Columbia, Ministry of Jobs, Tourism and Innovation would like to gratefully acknowledge the following organizations that assisted with the project by providing financial/visitor information and the economic model analysis:

- Canada West Ski Areas Association
- Participating Mountain Resorts
- EcoSign Mountain Resort Planners Ltd.
- Canadian Ski Council
- Tourism Whistler
- Tourism Sun Peaks
- BC Stats

Executive Summary

Working with the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) Resort Development Branch (RDB) and the Canada West Ski Areas Association (CWSAA), the Research, Planning and Evaluation (Ministry of Jobs, Tourism and Innovation) branch has led a study to determine the economic value of Mountain Resorts to the Province.

Phase One of the study includes British Columbia's 13 destination Mountain Resorts. Phase Two, to be carried out at a later date, will include the remaining regional Mountain Resorts (27 ski hills).

In 2011, data from participating Mountain Resorts were collected and analyzed by the Research, Planning and Evaluation branch. Nine of the 13 Mountain Resorts submitted financial and client[1] information for the 2007/08 season. Estimates were used for the other four Mountain Resorts. BC Stats was commissioned to estimate the economic impact of the resorts, using the aggregated data from the province's 13 largest Mountain Resorts.

Economic Impact Summary:

The total spending related to the annual operations of the Phase One Mountain Resorts combined with the incremental visitor[2] spending for the 2007/2008 season amounted to over $1.1 billion. From this $1.1 billion in spending, the associated effects on the province are:

- Total output (revenue) of $1.1 billion;
- Gross domestic product of $730.9 million;
- Employment of 14,267 full-time equivalent jobs with wages of $460.3 million.

For comparison purposes, the overall tourism revenue in British Columbia in 2008 was estimated to be $13.3 billion; therefore, the Mountain Resorts represented approximately 8% of the total tourism revenues in 2008. In terms of Gross Domestic Product (GDP), the tourism industry generated $7.1 billion in real GDP in 2008; with Mountain Resorts contributing approximately 10% to the total real tourism GDP in 2008.

[1] "Client" refers to those who have directly used the Mountain Resort and where information regarding the user (i.e. client) has been collected by the Mountain Resort.
[2] "Visitor" refers to any clients and their associated travel parties that may or may not have used the Mountain Resort, where the Mountain Resort was the main motivation for the trip but some members of the visitor party may not have used the Mountain Resort.

Specifically, for each spending component:

1) Mountain Resorts:
   From the Mountain Resorts spending of $379.5 million, the associated effects on supplier industries and induced expenditures are:
   - Total output of $280.8 million;
   - Gross domestic product of $329.6 million;
   - A total of 6,602 equivalent full-year jobs supported in the province, with wages and salaries of $185.1 million;
   - Federal, provincial and municipal taxes for $18.8 million, $14.8 million and $8.5 million respectively.

2) Mountain Resorts Incremental Visitor Expenditures:
   From the Visitor spending of $769.1 million, the associated effects on supplier industries and induced expenditures are:
   - Total output of $800.8 million;
   - Gross domestic product of $401.3 million;
   - A total of 7,665 equivalent full-year jobs supported in the province, with wages and salaries of $275.2 million;
   - Federal, provincial and municipal taxes for $57.2 million, $85.5 million and $11.2 million respectively.

Introduction

In 2004, the Province released the British Columbia Resort Strategy and Action Plan to support the growth of British Columbia's all-season resort industry. The goal of the Resort Strategy was to expand business opportunities, attract investment to existing and new resorts, grow the industry and create local jobs, while maintaining to protect the natural beauty of what British Columbia has to offer.[3]

Resorts in British Columbia range from smaller eco-lodges and fishing lodges to larger ski hills distributed throughout the province. The resort tourism sector was valued at $1.9 billion in 2004, employing 26,000 people throughout the province.[4] The overall tourism industry generated over $10.7 billion in revenues in 2004[5], with the resort tourism sector representing approximately 18% of tourism generated revenues.

Tourism in British Columbia continues to be an economic contributor, generating nearly $6.5 billion in real GDP[6] in 2010; representing 4% of the province's total real GDP.[7] In addition, the tourism industry is a recognized job creator for the province by employing 127,000 British Columbians, accounting for approximately one in every 15 jobs in the province.[8] Tourism in British Columbia is a year-round industry that impacts communities large and small throughout all regions of the province.

Mountain Resorts are a valuable component of the tourism industry; they provide one of the most important motivating factors (to ski and/or snowboard) for travelling to and around British Columbia during the winter months, and in the summer provide a stunning backdrop for hiking, mountain biking and golfing. There are 40 Mountain Resorts in the province, which range in size and seasonality, ranging from the world-renowned all-season Whistler Blackcomb resort to the smaller community resorts, which host British Columbians, other Canadians and international tourists alike.

Intuitively it is known that Mountain Resorts are an important contributor to the overall tourism industry in the province. In order to make informed decisions on land-use and resort development proposals an economic evaluation of the British Columbia Mountain Resorts is needed to increase the understanding of decision-makers and for providing a quantifiable comparison for various land-use proposals.

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[3] Government of British Columbia. (2004). *British Columbia Resort Strategy and Action Plan.*
[4] Government of British Columbia. (2004). *British Columbia Resort Strategy and Action Plan.*
[4] Government of British Columbia. (2004). *British Columbia Resort Strategy and Action Plan.*
[5] BC Stats. (2010). *Tourism Sector Recovers in 2010.*
[6] In 2002 dollars
[7] BC Stats. (2010). *Tourism Sector Recovers in 2010.*
[8] BC Stats. (2010). *Tourism Sector Recovers in 2010.*

Project Rationale

The Resort Development Branch in the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is responsible for working with partners to provide timely decisions for new resort proposals, major expansions and other projects at existing resorts. The branch sets and administers policy for all season resort development, implements the BC Resort Strategy, and works to contribute significantly to the increasing tourism revenues for the province.

The Canada West Ski Areas Association (CWSAA) is an important partner in the collaborative work performed by the Resort Development Branch. The CWSAA represents the ski areas and heli and snowcat operations in British Columbia, the Yukon, Alberta, Saskatchewan, and Manitoba.[9] The CWSAA works with the provincial government to protect and advance the interests of ski areas in Western Canada in terms of laws, regulations, and policy. [10]

A number of independent studies have been conducted by members of the CWSAA on the economic impact of products and services they provide, which have been instrumental in lobbying governments and communities for increased support. Economic impact studies are commonly used to provide a quantitative measure of the positive contribution made to the economic prosperity of the jurisdiction in question. A common desire to determine the combined economic impact of the British Columbia Mountain Resorts prompted the CWSAA and the provincial government to partner on quantifying the contribution of the Mountain Resorts to the province of British Columbia.

The Research, Planning and Evaluation Branch (Ministry of Jobs, Tourism and Innovation) was approached in April 2010 by the Resort Development Branch to manage a study to determine the economic contribution of the Mountain Resorts to the province of British Columbia.

Due to the number and varying sizes of resorts, the project was separated into two phases. Phase One includes the 13 market-ready Mountain Resorts, summarized in this report, and Phase Two will include the remaining provincial ski resorts.

In partnership with CWSAA, the Research, Planning and Evaluation Branch collected and compiled financial and client information from the 13 Mountain Resorts to be entered into the BC Stats Input-Output model. This report summarizes the economic impact results for the province's 13 largest Mountain Resorts for the 2007/2008 year, which include:

[9] Canada West Ski Areas Association. (2012). (http://www.cwsaa.org/).
[10] Canada West Ski Areas Association. (2012). (http://www.cwsaa.org/).

- Apex
- Big White
- Fernie
- Kicking Horse
- Kimberley
- Mount Washington
- Panorama
- Red Mountain
- Revelstoke
- Silver Star
- Sun Peaks
- Whistler Blackcomb
- Whitewater

Study Objectives

The objectives of Phase One of the study included:

1. Estimate the economic impact of Mountain Resorts for British Columbia.
2. Break out the impact of local residents (local recreation) vs. visitors (tourists) to Mountain Resorts.
3. Develop a demographic profile of customers of British Columbia Mountain Resorts.

This report summarizes the results of objectives 1 and 2; recommendations for creating a common tool to be used by all Mountain Resort properties to support objective 3 will be addressed following the completion of the first two objectives.

Scope of Analysis

Phase One focuses on the largest 13 Mountain Resorts in the province; for this phase the Research, Planning and Evaluation branch:

- Reviewed tourism information provided by participating resorts, provincial government, national and international travellers surveys, the Canadian Ski Council, and tourism destination marketing organizations.
- Collected financial, employment and client information from participating resorts.
- Estimated the amount of tourism spending at the 13 Mountain Resorts for the 2007/08 season.
- Estimated the amount of tourism spending by visitors to the 13 Mountain Resorts outside the resorts but within the province of British Columbia. This analysis only included those visitors whose primary motivation for travelling to/within British Columbia was to visit the 13 Mountain Resorts.

- Utilized the tourism spending and consolidated mountain resort financial information with the BC Stats Input-Output Model to develop estimates of the economic impacts of the 13 Mountain Resorts at the provincial level.

Description of Mountain Resorts

Over the years there has been a shift from the traditional ski facility to a Mountain Resort; as amenities, lodging, and facilities grow to cater to the demands of local and tourist populations. Although "ski" remains the emphasis at Mountain Resorts, many resorts are building their summer products, which may include hiking, mountain biking, golfing, etc. British Columbia, with its diverse landscape is well-positioned to provide both the winter and summer experiences at Mountain Resorts for residents and travellers.

Mountain Resort Industry in British Columbia

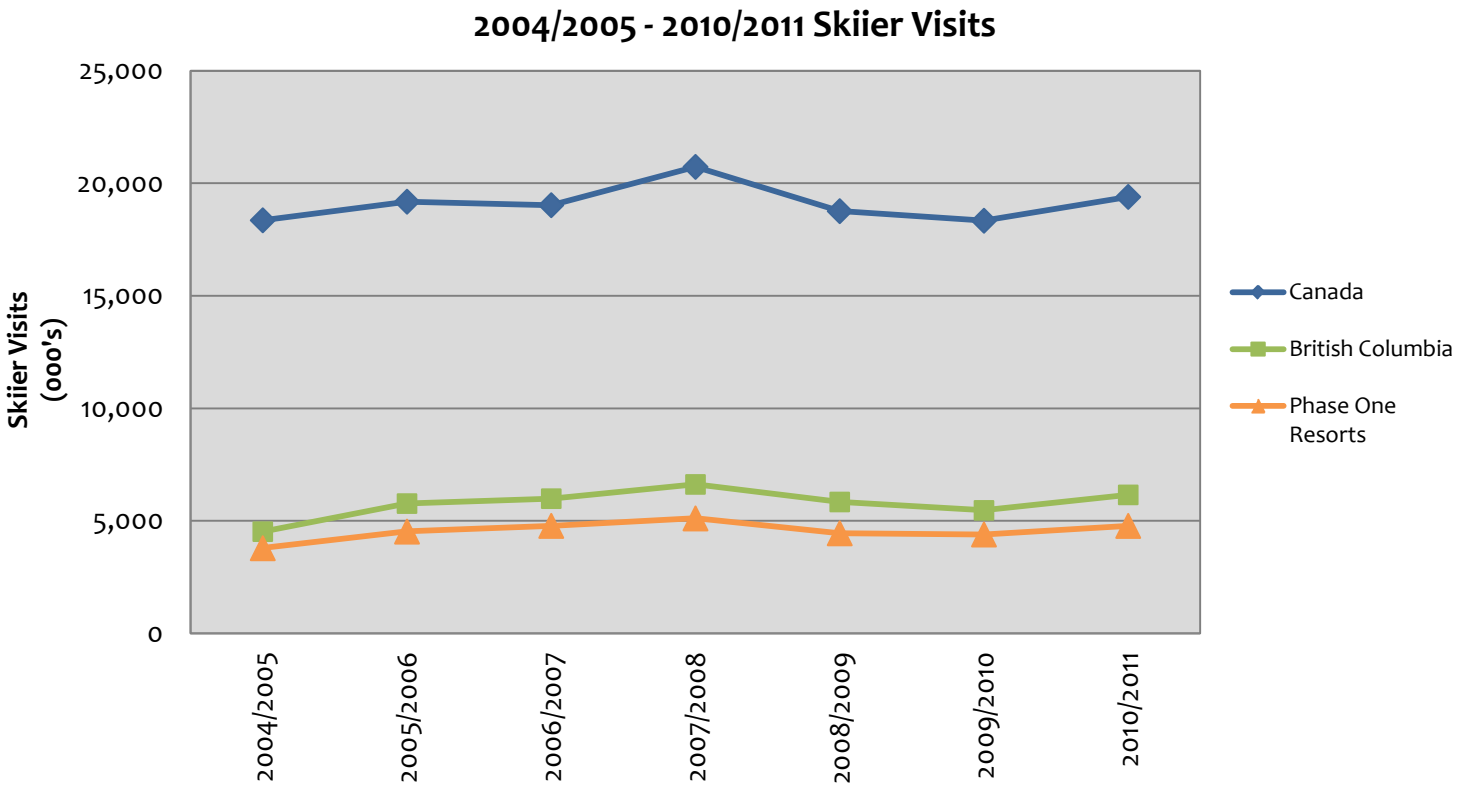
British Columbia's diversity of ski product ranges from black-diamond steeps and chutes, to wide-open terrain and tree lines, with many resorts having ski-in/ski-out accommodations. With the Vancouver 2010 Olympic and Paralympic Winter Games, British Columbia's skiing and snowboarding tourism products received unprecedented worldwide coverage.

Skiier Visits

The common measure of use (i.e. visitation) in the ski industry is the "skiier visit", which represents one skiier or snowboarder participating at a resort for one day.[11] Reviewing 2010/2011 skiier visits information of Canada, BC and Phase One Mountain Resorts (Figure 1), it can be concluded that British Columbia plays a large role in the overall Canadian ski market (32% of Canadian skiier visits) and that Phase One Mountain Resorts represent the majority of the British Columbia ski market (78% of British Columbia skiier visits).[12] Another unique quality of the British Columbia ski market is that nearly one-third of skiier visits (32%) are from international markets, compared to 11% in Alberta, and 5% in Quebec.[13]

[11] Canadian Ski Council. (2011). *2010-2011 Canadian Skier and Snowboarder Facts and Stats.*
[12] Canada West Ski Areas Association (2012).
[13] Canadian Ski Council. (2011). *2010-2011 Canadian Skier and Snowboarder Facts and Stats.*

Figure 1. 2000/2001 – 2010/2011 Skiier Visits



Source: Canada West Ski Areas Association (2012)

Phase One Mountain Resorts

In British Columbia, the 13 major Mountain Resorts are recognized among the best in the world with awards/honours that include:

- Whistler Blackcomb is consistently named the #1 ski resort in North America.
- In 2009, Sun Peaks was named one of the "Top 20 Ski Resorts in North America" by Conde Nast Traveler, as well as the 2008 “Best Family Resort in North America” by the Great Skiing and Snowboarding Guide, a publication compiled by British ski experts.
- Big White Ski Resort was recognized in 2009 as a "Top 5 Family Resort" by the UK-based Sunday Times. Big White is one of Canada's largest ski-in, ski-out resorts and features cruising runs, alpine bowls, a well-equipped terrain park, and beautiful snow-caked trees known as “snow ghosts.”
- In 2009, Ski Canada Magazine voted Mount Washington in the top twelve for Best Powder.

- Best Powder (2009): Revelstoke Mountain Resort, Fernie Alpine Resort, Whitewater Ski Resort, Red Mountain Resort
- Best Steeps (2007): Kicking Horse Mountain Resort, Red Mountain Resort
- Best Tree Skiing (2007): Red Mountain Resort, Whitewater Ski Resort.
- Thompson Okanagan ski resorts were included as Ski Canada's "Best Choice for Lazybones who like to Ski Straight from their Doors" (2008).

With the diversity of the ski product (Table 1), locals and travellers to British Columbia have the choice of destinations within the province.

Table 1. Phase One Mountain Resort Characteristics

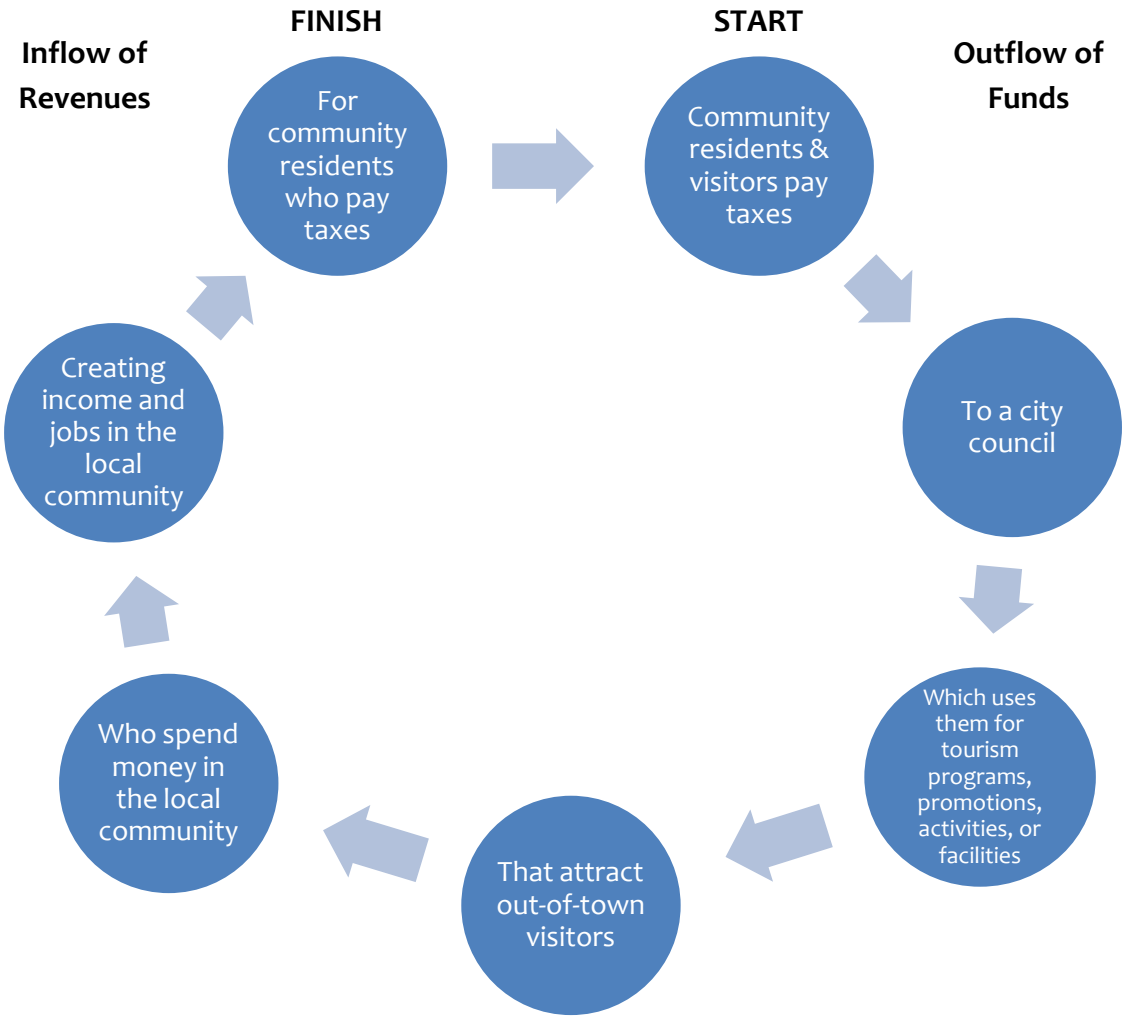
Resorts	Vertical	Skiable Terrain	Number of Runs	Number of Easy Runs	Number of Intermediate Runs	Number of Expert Runs
Apex	610 m (2000 ft)	450 ha (1112 ac)	68	11 (16%)	34 (51%)	22 (33%)
Big White	777 m (2550 ft)	1119 ha (2765 ac)	118	21 (18%)	64 (54%)	33 (28%)
Fernie	1082 m (3500 ft)	1012 ha (2500 ac)	142	33 (30%)	45 (40%)	34 (30%)
Kicking Horse	1260 m (4133 ft)	1200 ha (2965 ac)	127	20 (20%)	21 (25%)	65 (55%)
Kimberley	752 m (2465 ft)	728 ha (1800 ac)	80	16 (20%)	34 (42%)	30 (38%)
Mount Washington	505 m (1657 ft)	647 ha (1600 ac)	81	12 (20%)	21 (35%)	27 (45%)
Panorama	1220 m (4000 ft)	1152 ha (2847 ac)	120	24 (20%)	66 (55%)	30 (25%)
Red Mountain	890 m (2919 ft)	682 ha (1685 ac)	88	9 (15%)	39 (40%)	39 (45%)
Revelstoke	1713 m (5620 ft)	1227 ha (3031 ac)	54	4 (7%)	12 (45%)	16 (48%)
Silver Star	762 m (2500 ft)	1240 ha (3065 ac)	115	23 (15%)	57 (40%)	35 (45%)
Sun Peaks	882 m (2894 ft)	1488 ha (3678 ac)	122	12 (10%)	71 (58%)	39 (32%)
Whistler Blackcomb	1610 m (5280 ft)	3307 ha (8171 ac)	200	40 (20%)	110 (55%)	50 (25%)
Whitewater	623 m (2044 ft)	479 ha (1184 ac)	69	9 (20%)	18 (40%)	18 (40%)

Methodology

To determine the "value" of any sector or activity, often emphasis is placed on economic value evaluation as it allows for quantitative comparisons. For the purposes of this project, determining the economic contribution of the 13 largest Mountain Resorts was the primary objective. The results will provide valuable information for government and industry partners, including the CWSAA.

Economic impact analyses are typically commissioned to demonstrate the importance of the sector or activity as an economic driver to stakeholders. Figure 2 summarizes a general understanding of why economic impact studies are commissioned.[14]

Figure 2. The Conceptual Rationale for Commissioning Economic Impact Studies



In 2002, the B.C. Helicopter & Snowcat Skiing Operators Association commissioned a study[15] to estimate the socio-economic benefits of their products and services in British Columbia. The study has been an instrumental piece for lobbying for the growth of their sector. Building on the knowledge and information from this important study, a need to determine

[14] John L. Crompton. (2010). *Measuring the Economic Impact of Park and Recreation Services*. National Recreation and Park Association, Research Series.
[15] B.C. Helicopter & Snowcat Skiing Operators Association. (2002). *Socio-Economic Benefits of Helicopter & Snowcat Skiing in British Columbia*.

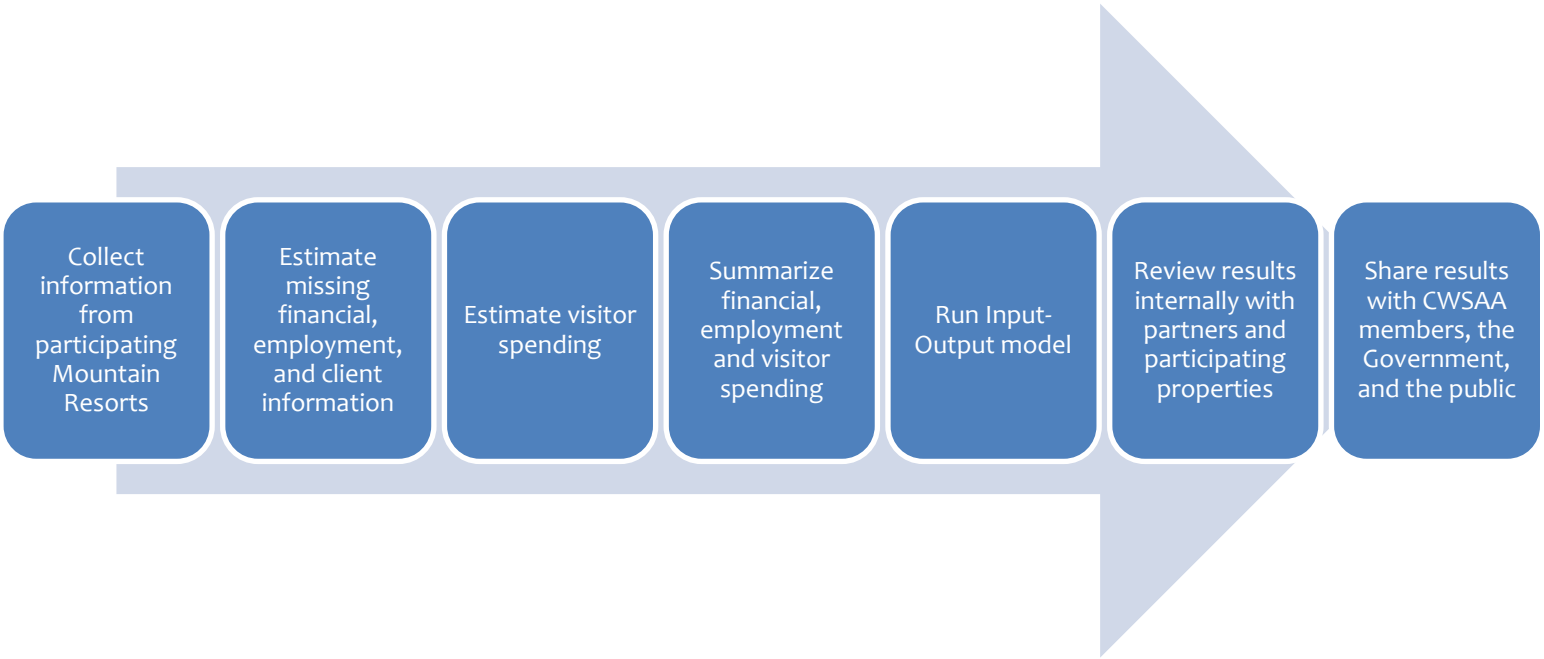
the value of the Mountain Resorts to the province was identified as a priority by the ski industry of British Columbia.

Project Initiation

After initial discussions with the Resort Development Branch and the CWSAA in April, 2010, the project was formally introduced to the 13 destination Mountain Resorts at the CWSAA Spring AGM on May 4, 2010. Following the meeting, all 13 Mountain Resorts agreed to participate and signed a letter of confidentiality ensuring all information was to be kept anonymous and would only be presented when aggregated with the other Mountain Resorts.

Figure 3 below summarizes the process that was followed to collect and summarize information from the Mountain Resorts that was used to enter into an Input-Output model.

Figure 3. Phase One Process



Collecting Information

An extensive review of existing information and tools used by the CWSAA, government, and the Canadian Ski Council (CSC) was undertaken to identify existing information that could be used in the project and to develop a data collection tool to capture additional information from the Mountain Resorts needed to fulfill the objectives of the study. Phase One Mountain Resorts received the data collection tool in March 2011.

The data collection tool focused on three main areas, which included information on:

1) Financials
2) Employment
3) Clients

Financial Information

On an annual basis, participating CWSAA members provide their past season's financial information to EcoSign Mountain Resort Planners Ltd. following a provided template.

As CWSAA members are familiar with the EcoSign template, a similar format was included in the data collection tool. In addition, a section asking questions about components of the financial template was included for use in the modelling process. This section included further detail on top winter and summer revenue and expense categories, "Other" categories, proportions of food vs. beverage revenues, etc.

As the 2007/08 season was selected by the project partners, the EcoSign results for the season had already been completed. With the cooperation of the Mountain Resorts, CWSAA and EcoSign, those resorts that had participated in the EcoSign 2007/08 survey had their financial information populated in the data collection tool. For those resorts that did not participate in the 2007/08 EcoSign survey, it was the responsibility of the Mountain Resort to enter in their financial information following the provided template.

Employment Information

Similar to the financial information, employment information is summarized on the EcoSign survey by the Mountain Resorts. After reviewing the EcoSign employment information for use in the Input-Output model, all Mountain Resorts were asked to provide their total number of full-time and part-time employees during the 2007/2008 season in the data collection tool. Due to the seasonality of the Mountain Resorts, the number of full-time and part-time employees per winter and summer season, and by year-round were incorporated for use in the economic model.

Client Information

In addition to the Mountain Resort operational information (financials and employment), another component of the economic value of Mountain Resorts to the province is the spending by visitors during their visit to the Mountain Resort and during their travels within British Columbia.

To estimate visitor spending of clients (and their travel parties) whose trips to and within British Columbia were motivated by British Columbia Mountain Resorts, information on visitation and visitor characteristics (e.g. market of origin, expenditures, length of stay, etc.) was needed.

Skiier visit counts are collected at each individual Mountain Resort and were made available for this project, and in some instances were supplemented by client surveys conducted at the Mountain Resorts. Skiier visit information was used to determine the use of individual Phase One Mountain Resorts.

In order to analyze the skiier visit information and to estimate visitor spending, a series of questions were included in the data collection tool to collect client information. This included questions about the percentage of local residents, day visitors and overnight visitors for both winter and summer skiier visits, as well as more detailed information regarding overnight visitors. Overnight visitor questions included market of origin, length of stay, trip expenditures and accommodation information. In cases where client surveys are not conducted by the Mountain Resort, individual resorts were asked to provide estimates for overnight visitor characteristics.

Estimating Missing Information

Of the 13 Mountain Resorts that were approached to participate in Phase One of the project, nine resorts completed the data collection tool provided by Research, Planning and Evaluation. The nine participating resorts represented 82% of Phase One skiier visits and 62% of provincial skiier visits for the 2007/08 season; therefore providing a good sample to use as a basis for estimates for the non-participating Mountain Resorts.

In order to estimate missing information (financial, employment, and client), the data collected from participating Mountain Resorts was combined with information from other data sources and input from CWSAA was also used.

For the financial and employment information, estimates of non-participating resorts were derived from proportions of skiier visits and using information provided by the nine participating resorts, factoring in allowances for similar regional characteristics and input from CWSAA.

In regards to estimating the visitor spending of non-participating Mountain Resorts, a number of approaches were investigated using skiier visits and various sources of information provided by the participating properties, the Canadian Ski Council, and from domestic and international travel surveys (i.e. Travel Survey of Residents of Canada and International Travel Survey, Statistics Canada).

Following the estimation of individual non-participating Mountain Resorts, the information for all 13 Mountain Resort was aggregated and summarized (to ensure anonymity) in order to be entered into the BC Stats Input-Output model.

Limitations of Collected Information

The following limitations need to be kept in mind when interpreting and using the results of this study:

- Phase One focuses on the largest 13 Mountain Resorts in British Columbia. Therefore the results are only applicable to these identified resorts and should not be applied to other provincial Mountain Resorts or other areas.
- The accuracy of the estimated economic impact is dependent upon the accuracy of the data provided by the Mountain Resorts and other data used in the analysis.
- The model results are only relevant for the 2007/2008 season. The results should not be applied to any other time frame.
- The model focuses on the operation (and impacts) of the Mountain Resorts and does not include the impacts of other businesses, real estate, visitors, etc. travelling to the local community in which the Mountain Resort is located.

Mountain Resorts Economic Contribution to the Province[16]

A number of models exist to determine the economic value of a particular product, service, and/or industry; Input-Output models are among the most frequently used. The Input-Output model factors in the "inputs" (i.e. the goods and services used in the production process) to determine the "outputs" (i.e. the economic value of these goods and services).

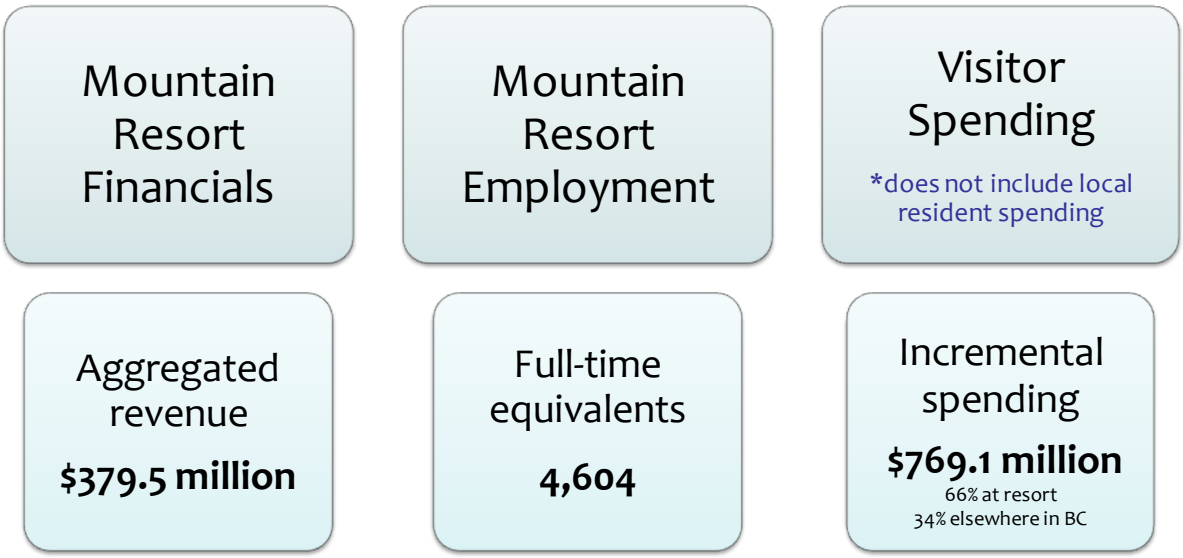
For the purposes of this project, the BC Stats Input-Output model was used to determine the value of the Mountain Resorts to the British Columbia economy. This particular model was selected as it is the most frequently used model to estimate provincial economic impacts, including the overall value of the British Columbia tourism industry. For additional information regarding the BC Stats Input-Output model, please refer to Appendices 1 and 2.

[16] BC Stats. (2012). *BC Input-Output Model Report.* (summarized interpretation provided by BC Stats).

Summary of Model Inputs

Using the BC Stats Input-Output model (BCIOM), the aggregated financial, employment, and client information for the 13 Mountain Resorts' 2007/2008 season (Figure 4) was entered into the model as two separate components; Mountain Resort Operations and Incremental Visitor Expenditures.

Figure 4. Economic Model Inputs



Mountain Resort Operations

Summarized in Table 2, of the $379 million in total revenues for the 13 Mountain Resorts, $346 million was either spent on goods, services, and labour used by the Mountain Resorts, or represented profits earned by the resort owners. Another $34 million represented depreciation and amortization expenditures. Depreciation and amortization of capital equipment is viewed as part of operating surplus in the calculation of GDP (depreciation is a measure of the value of the services provided by capital equipment in a given year, in the same way that labour income is a measure of the value of services provided by labour). Therefore these costs were treated as part of the direct GDP associated with the activities of the Mountain Resorts.

The aggregated information was coded to BCIOM categories. In many cases (e.g. labour, insurance costs, etc.) there was a direct correspondence between the BCIOM categories and the provided information. However, in some instances it was necessary to allocate the data to BCIOM categories. For example, general and administrative costs were allocated to representative BCIOM commodities using information from the model.

Incremental Visitor Expenditures

In addition to the operating costs of the Mountain Resorts, an estimate of incremental spending by tourists visiting the resorts was calculated. This was used to determine the economic impact associated with visitor expenditures.

Incremental expenditures include spending by visitors who travelled to BC to visit the Mountain Resorts. These expenditures represent additional spending on goods and services in British Columbia that would not otherwise have occurred. Incremental spending by resort visitors was estimated at $769 million.

Total spending by visitors was allocated to model categories based on average spending patterns of tourists travelling to British Columbia (this information is available in the BCIOM tables). These expenditures include a wide variety of goods and services, such as accommodation, transportation, food and beverage services, as well as items typically purchased by tourists (e.g. clothing, souvenirs, etc.).

The incremental expenditure estimates used in this analysis exclude spending at the Mountain Resorts. Only ancillary expenditures were included. Spending by tourists on Mountain Resort activities is already reflected in the revenues of these resorts, so the economic impact associated with that spending is captured in the results for the Mountain Resorts.

Key Assumptions of Input Data

The wage component of the labour cost estimate is assumed to include pre-tax wages, salaries and supplementary income (e.g. the employer's share of contributions to EI or CPP, etc.). The model's estimates of income tax revenues are calculated by estimating income taxes associated with a given wage. For the calculation of induced effects, it is assumed that 80% of workers' earnings will be used to purchase goods and services in the province (the remaining 20% goes to taxes, other payroll deductions, and savings).

It is assumed that a social safety net is in place, and that workers hired to work on the project previously had some income from EI or other safety net programs (note: the social safety net assumption only affects the estimate of worker spending, which is the induced effect associated with the project).

Table 2. Summary of Input Data - Mountain Resort Operation

Summary of Input Data - Mountain Resort Operation (values in $000)	
Cost of Goods Sold:	**48,894**
Food and Bar	17,317
Retail Store	28,574
Rental Shop	3,003
Other Direct Costs	**93,936**
General/Admin	32,926
Other direct costs	57,588
Miscellaneous common expenses	3,422
Other Common Expenses	**35,436**
Marketing	19,139
Insurance - Property	2,195
Insurance - Liability	2,646
Land Use Fees - Public	3,815
Land Use Fees - Private	222
Taxes - Property	3,576
Taxes - Other Taxes	344
Snowmaking	1,556
Snow removal	1,944
Property Operation	**1,170**
Profits (gross margin plus operating profit/loss)	**58,831**
Interest Charges	**8,793**
Direct Labour	**93,761**
Supplementary Labour Income	**4,733**
Expenditures on Goods, Services & Labour	**345,555**
Plus: Depreciation & Amortization	**33,917**
Total Expenditures (equals total revenues including concession income)	**379,472**

Summary of Model Results

The two model components, Mountain Resort Operations and Incremental Visitor Expenditures, are summarized separately and are then combined to provide an overall summary of the economic value of the 13 Phase One Mountain Resorts to the province for the 2007/2008 season.

Mountain Resort Operations

Presented in Table 3, of the $379 million in total expenditures of the Mountain Resorts, an estimated $36 million was used to purchase goods and services imported from other countries and provinces, or removed from inventories. Total spending on goods and services was estimated at $344 million. This includes just over $192 million in wages, salaries, benefits, and operating surplus (including depreciation of capital equipment), as well as $10 million spent on commodity taxes (net of subsidies).

The direct British Columbia supply of $141 million represents total spending by the resorts on goods and services produced by British Columbia industries.

The direct contribution to British Columbia's GDP (measured at basic prices) resulting from the operation of the Mountain Resorts is estimated at $200 million.

Another $130 million of GDP is generated in industries supplying goods and services used (directly or indirectly) by the Mountain Resorts or in those industries benefitting from re-spending by workers.

Direct employment at Mountain Resorts (including full-time and part-time workers) is 4,604, with another 1,627 jobs in supplier industries and 372 jobs resulting from spending by workers.

Tax revenues include commodity (e.g. sales tax) and income taxes. Revenues generated directly by the Mountain Resorts are estimated at $23 million. Another $15.5 million in tax revenues are generated by the activities of supplier industries, and $4 million in tax revenues are the result of spending by workers.

Incremental Visitor Expenditures

Summarized in Table 4, the incremental visitor expenditures associated with Mountain Resorts are estimated at $769 million. Of this total, an estimated $189 million is used to purchase products imported from other provinces and countries, or removed from inventories. Incremental visitor spending on goods and services produced in British Columbia is estimated at $580 million, including $97 million in commodity taxes. The direct British Columbia supply (the change in British Columbia supplier industry output resulting from incremental visitor spending) is $482 million.

Because tourist expenditures represent final purchases of goods and services, there are no direct jobs associated with these expenditures. All of the GDP and employment generated by visitor spending originates in supplier industries, including those directly selling goods and

services used by tourists, those further back in the supply chain, and those benefitting from spending by workers (the induced impact).

Industries that sell goods and services directly to tourists provide 5,568 jobs to British Columbians and contribute $243 million to the province's GDP. Another 1,514 jobs and $111 million in GDP are generated in industries further back in the supply chain. Spending by workers contributes another $47 million in GDP and supports 582 jobs in the province.

Tax revenues associated with supplier industry activities are estimated at $50 million, with another $6 million in taxes generated as a result of spending by workers.

Overall Value of Phase One Mountain Resorts

The direct supplier industry impacts, together with the portion of the activities of Mountain Resorts that is tourist-related, are calculated in a way that is consistent with the estimates of tourism revenue, GDP and employment for the province as a whole. Therefore, it should be possible to combine these values and compare them to published measures of the size of the tourism sector.

However, Mountain Resort revenues that originate from spending by locals using the resort facilities would not be part of overall tourism GDP. A measure of the total impact of the Mountain Resorts (including operation of the resorts as well as incremental visitor spending) indicates how much the total economy is affected by these activities.

A measure of the tourist-related portion of Mountain Resort operations, plus incremental spending by visitors indicates how much the tourism sector is affected by these activities and is summarized below in Figure 5.

The total spending related to the annual operations of the Mountain Resorts combined with the incremental visitor spending for the 2007/2008 season amounted to over $1.1 billion. From this $1.1 billion in spending, the associated effects on the province are:

- Total output (revenue) of $1.1 billion;
- Gross domestic product of $730.9 million
- Employment of 14,267 equivalent full-time jobs with wages of $460.3 million.

For comparison purposes, the overall tourism revenue in British Columbia in 2008 was estimated to be $13.3 billion; therefore, the Mountain Resorts represented approximately 8% of the total tourism revenues in 2008. In terms of Gross Domestic Product (GDP), the tourism industry generated $7.1 billion in real GDP in 2008; with Mountain Resorts contributing approximately 10% to the total real tourism GDP in 2008.

Conclusions

Phase One of *The Value of Mountain Resorts to the British Columbia Economy* is completed; over $1.1 billion in spending (Mountain Resort Operations plus Incremental Visitor Spending) in the 2007/2008 season equates to a total economic contribution of $1.1 billion in revenue and $730.9 million in GDP by the 13 largest destination resorts to the province of British Columbia.

Although a conservative estimate (as previously discussed), it provides a reliable indicator that can be used by CWSAA and the Resort Development Branch as to the importance of the sector to the provincial economy. Combining Phase Two resorts (to be commenced in the spring of 2012) will enhance the Phase One information by providing an overall view of the economic value of the Mountain Resort industry which can be used as a baseline measure to evaluate growth, which can be supplemented with other activities that are part of the Mountain Resort industry (e.g. heli-cat skiing, accommodation builds, etc.).

This report provides a high-level summary of the methods used in determining the economic value of the Mountain Resorts to the province; if further information is needed please contact Erin Hodgins, Research, Planning and Evaluation (erin.hodgins@gov.bc.ca).

Table 3. Economic Impact - Mountain Resort Operation

Economic Impact, Mountain Resort Operation				
Total impact, including mountain resorts and supplier industry impacts				
	Direct	**Indirect**	**Induced****	**Total**
Total expenditures, Mountain Resorts ($M)	379.5			
Change in supplier industry output ($M)	141.3	89.9	49.6	280.8
GDP at basic prices ($M)				
Mountain Resorts***	199.6			199.6
Supplier industry impacts	56.2	43.6	30.1	130.0
Employment (#)*				6,602
Mountain Resorts	4,604			4,604
Supplier industry impacts	1,003	624	372	1,998
Household income ($M)				185.1
Mountain Resorts	99.5			99.5
Supplier industry impacts	38.8	29.0	17.8	85.6
Tax revenue ($M)				42.0
Mountain Resorts	22.5			22.5
Supplier industry impacts	9.4	6.1	4.0	19.5

* Based on average annual wages in 2009

** Assumes a social safety net is in place.

*** Note that project expenditure data may not include all components of GDP (e.g., operating surplus)

Allocation of Project Expenditures Mountain Resorts	
Total expenditures, mountain resorts ($M)	**379.5**
minus	
imports from other countries	20.4
imports from other provinces	14.7
other leakages (e.g. withdrawals from inventory)	0.9
Equals:	
Mountain Resorts expenditures on goods & services produced in BC ($M)	**343.6**
Of which:	
Wages, benefits, unincorporated business income and operating surplus ($M)	192.2
Taxes on factors of production net of subsidies ($M)	7.4
Taxes on products net of subsidies ($M)	2.6
Direct BC supply ($M)	**141.3**
(the change in BC supplier industry output associated with mountain resorts)	
Project employment during mountain resorts (#)	4,604
Household income included in mountain resorts ($M)	**99.5**

Tax revenue derived from direct project expenditures Mountain Resorts				
	Federal	Provincial	Local	Total
Total, all sources	**10.1**	**7.8**	**4.6**	**22.5**
Taxes on products net of subsidies ($M)	1.0	1.3	0.0	2.3
Taxes on factors of production net of subsidies ($M)	0.0	2.8	4.6	7.4
Personal income taxes ($M)	4.5	2.1		6.6
Corporate income taxes ($M)	4.6	1.6		6.2
(income taxes paid on worker's wages and returns to capital reported in project expenditure)				

Supplier Industry Impacts				
	Direct suppliers	**Indirect suppliers**	**Total, all suppliers**	**Induced ****
Output ($M)	141.3	89.9	231.2	49.6
GDP at basic prices* ($M)	56.2	43.6	99.8	30.1
Employment (#)*	1,003.0	623.8	1,626.8	371.6
Household income ($M)	38.8	29.0	67.8	17.8
Total tax revenue ($M)	**9.4**	**6.1**	**15.5**	**4.0**
Federal ($M)	4.3	3.0	7.3	1.4
Personal income tax	*2.7*	*2.1*	*4.9*	*1.0*
Corporation income tax	*1.3*	*1.0*	*2.4*	*0.5*
Net taxes on products	*0.2*	*-0.2*	*0.1*	*-0.2*
Provincial ($M)	3.3	2.1	5.5	1.5
Personal income tax	*1.1*	*0.9*	*2.0*	*0.4*
Corporation income tax	*0.5*	*0.4*	*0.8*	*0.2*
Net taxes on products	*1.8*	*0.9*	*2.7*	*0.9*
Local ($M)	1.8	1.0	2.8	1.1

***** Includes wages, benefits, unincorporated business income, operating surplus and net taxes on factors of production

Table 4. Economic Impact – Incremental Visitor Expenditures

Economic Impact, Incremental Visitor Expenditures				
Total impact, including incremental visitor expenditures and supplier industry impacts				
	Direct	**Indirect**	**Induced****	**Total**
Incremental Visitor Expenditures ($M)	769.1			
Change in supplier industry output ($M)	482.3	240.9	77.7	800.8
GDP at basic prices ($M)				
Incremental Visitor Expenditures***	0.0			0.0
Supplier industry impacts	242.7	111.3	47.2	401.3
Employment (#)*				7,665
Incremental Visitor Expenditures	0			0
Supplier industry impacts	5,568	1,514	582	7,665
Household income ($M)				275.2
Incremental Visitor Expenditures	0.0			0.0
Supplier industry impacts	176.8	70.5	27.9	275.2
Tax revenue ($M)				153.9
Incremental Visitor Expenditures	97.4			97.4
Supplier industry impacts	33.3	17.0	6.2	56.6

* Based on average annual wages in 2009

** Assumes a social safety net is in place.

*** Note that project expenditure data may not include all components of GDP (e.g., operating surplus)

Allocation of Incremental Visitor Expenditures	
Total incremental visitor expenditures ($M)	**769.1**
minus	
imports from other countries	*114.3*
imports from other provinces	*69.4*
other leakages (e.g. withdrawals from inventory)	*5.7*
Equals:	
Incremental Visitor Expenditures on goods & services produced in BC ($M)	**579.7**
Of which:	
Wages, benefits, unincorporated business income and operating surplus ($M)	0.0
Taxes on factors of production net of subsidies ($M)	0.0
Taxes on products net of subsidies ($M)	97.4
Direct BC supply ($M)	**482.3**
(the change in BC supplier industry output associated with incremental visitor expenditures)	
Project employment during incremental visitor expenditures (#)	0.0
Household income included in incremental visitor expenditures ($M)	**0.0**

Tax revenue derived from direct project expenditures Incremental Visitor Expenditures				
	Federal	Provincial	Local	Total
Total, all sources	**34.5**	**62.9**	**0.0**	**97.4**
Taxes on products net of subsidies ($M)	34.5	62.9	0.0	97.4
Taxes on factors of production net of subsidies ($M)	0.0	0.0	0.0	0.0
Personal income taxes ($M)	0.0	0.0		0.0
Corporate income taxes ($M)	0.0	0.0		0.0
(income taxes paid on worker's wages and returns to capital reported in project expenditure)				

Supplier Industry Impacts				
	Direct suppliers	**Indirect suppliers**	**All suppliers**	**Induced ****
Output ($M)	482.3	240.9	723.2	77.7
GDP at basic prices* ($M)	242.7	111.3	354.1	47.2
Employment (#)*	5,568.3	1,514.3	7,082.6	582.2
Household income ($M)	176.8	70.5	247.3	27.9
Total tax revenue ($M)	**33.3**	**17.0**	**50.3**	**6.2**
Federal ($M)	12.4	8.2	20.6	2.1
Personal income tax	*10.1*	*5.3*	*15.4*	*1.6*
Corporation income tax	*4.1*	*3.0*	*7.1*	*0.8*
Net taxes on products	*-1.9*	*0.0*	*-1.9*	*-0.3*
Provincial ($M)	14.2	6.0	20.2	2.4
Personal income tax	*4.3*	*2.1*	*6.4*	*0.7*
Corporation income tax	*1.4*	*1.0*	*2.5*	*0.3*
Net taxes on products	*8.5*	*2.8*	*11.3*	*1.5*
Local ($M)	6.7	2.8	9.5	1.7

***** Includes wages, benefits, unincorporated business income, operating surplus and net taxes on factors of production

Figure 5. Combined Economic Impact – Phase One Mountain Resorts

a) Mountain Resorts (Input - $379.5 million)	b) Incremental Visitor Spending (Input - $769.1 million)	Combined (a + b)
• Output (revenue) - $280.8 million • GDP - $329.6 million • Employment – 6,602 equivalent full-time jobs, wages of $185.1 million	• Output (revenue) - $800.8 million • GDP - $401.3 million • Employment - 7,665 equivalent full-time jobs, wages of $275.2 million	• Output (revenue) - **$1.1 billion** • GDP - **$730.9 million** • Employment – **14,267** equivalent full-time jobs, wages of **$460.3** million

Appendix 1: Input-Output Model Interpretation

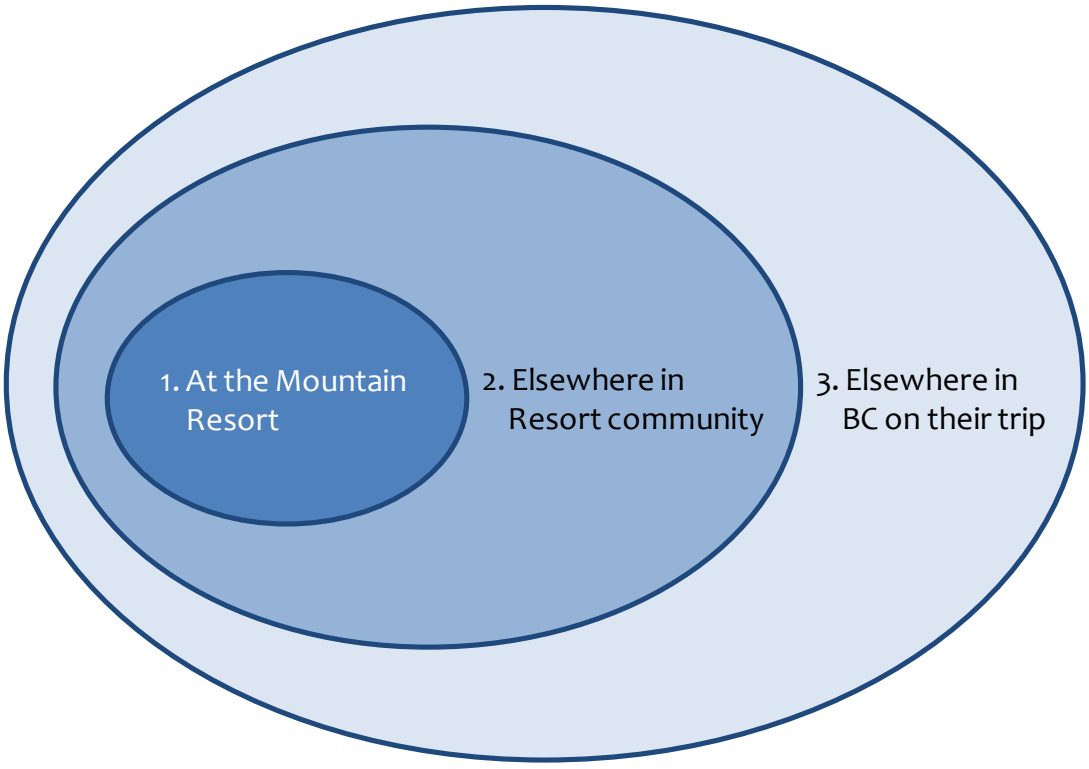
Types of Economic Impacts

Three different types of impacts are reported in a typical input-output analysis[17]:

1) **Direct Impacts**: measures the impact on BC industries supplying goods and services directly used by the project.
2) **Indirect Impacts**: measures the impact on BC industries that are further back in the supply chain. The indirect impact is cumulative, and includes transactions going all the way back to the beginning of the supply chain.
3) **Induced Impacts**: measures the effect that spending by workers (those employed by the project or by direct and indirect supplier industries) has on the economy.

The three different impact types reported from the Input-Output model occur in various geographic locations in the province in relation to Mountain Resorts (Figure 6). Specifically, economic impacts occur at the Mountain Resort, elsewhere in the resort community, and elsewhere in British Columbia.

Figure 6. Economic Impacts of Mountain Resort Visitors in British Columbia



[17] BC Stats (2012).

In regards to the economic impacts of Mountain Resorts, below is a high-level summary of where these impacts occur in relation to the good and services provided by Mountain Resorts:

1) Direct Impacts: The value of businesses that sell final goods and services to (final) customers (e.g. Mountain Resort selling lift tickets to clients).

   a) At the Resort Property:

   - Revenue is generated by the spending of clients, which is often spent on labour, purchasing inputs, taxes, insurance, rent, etc. by the Mountain Resort.
   - Collected through financial information provided by Mountain Resorts.

   b) Elsewhere in Resort community or British Columbia:

   - Visitor expenditure information can be estimated through surveys but is impractical to analyze the financial statements of all businesses money is spent on during visitors' trips.
   - Collected through visitor expenditure information from Mountain Resorts and other data sources.

2) Indirect Impacts: the value of suppliers to businesses producing the final goods and services (e.g. a company selling fuel to a Mountain Resort).

   a) At the Resort Property:

   - Expenditures determined on inputs identified by the direct economic impacts found through the Input-Output model.

   b) Elsewhere in Resort community or British Columbia:

   - Estimated from visitor expenditures combined with the first round of the Input-Output model (from direct economic impacts).

3) Induced Impacts: the value of firms selling goods and services to employees spending wages earned working for the Mountain Resort. This type of impact is not often estimated or reported.

How Economic Impacts are Measured[18]

Output, GDP, employment and tax revenues are the key measures used to assess the economic impacts associated with a project. In order to properly interpret the results of a British Columbia Input-Output Model (BCIOM) analysis, some background information about what these measures represent and how they are calculated may be helpful. A brief explanation of terms and concepts follows.

Output is simply a measure of the total value of production associated with a project. In an ***industry-based*** analysis, output is equal to the value of goods and services produced by the British Columbia industry or industries that are affected by a specific project. In an ***expenditure-based*** analysis, it can be measured as the total dollar amount of all spending on ***goods and services produced in British Columbia.*** It should be noted that purchases of goods and services produced outside the province do not directly affect British Columbia businesses, so these expenditures are explicitly excluded from the analysis. This is usually the main reason why the direct impact on British Columbia industries is less than initial project expenditures.

Gross Domestic Product (GDP) is a measure of the value added (the unduplicated total value of goods and services) to the British Columbia economy by current productive activities attributable to the project. It includes **household income** (wages, salaries and benefits, as well as income earned by proprietors of unincorporated businesses) from current productive activities as well as profits and other income earned by corporations. Only activities that occur within the province are included in GDP.

Employment estimates generated by the model are derived from estimated wage costs using information on average annual wages in an industry. They are not full-time equivalent (FTE) measures. Instead, they reflect the wages paid and hours spent on the job by a typical worker in an industry. For an industry where most employees work full time, the numbers will be very similar to FTE counts. However, in an industry where part-time work is more common, the job counts will be quite different from FTEs.

Government tax revenue estimates generated by the model include income taxes as well as commodity taxes. *Provincial and federal tax revenues* **include federal and provincial personal and corporation income taxes. Also included are** PST, GST and other *commodity* taxes such as gas taxes, liquor and lottery taxes and profits, air transportation taxes, duties and excise taxes. Property tax revenues are not included in the estimates. *Municipal tax revenues* are primarily related to accommodation taxes.

[18] BC Stats (2012).

Which Measures Should Be Used to Evaluate Economic Impacts?[19]

Output and GDP are both valid economic measures. However, there are some key differences between them that should be kept in mind when analyzing the results of an input-output analysis.

Output measures correspond to total spending or production, but may overstate the economic impact of a project because the value of a good or service is counted each time it changes hands.

If one is only looking at direct effects, output is a meaningful measure since it shows the total dollar value of industry production. However, there is a danger of double-counting when activities in industries further up the supply chain are also included. Output measures may overstate the indirect economic impact associated with a particular project since the activities of every industry that has contributed in some way to the creation of a final product are counted each time a good or service changes hands.

For example, when a construction company builds a house, the selling price of the house includes:

- the cost of the land on which it is built;
- the cost of inputs (lumber, shingles, cement, carpets, paint, hardware, plumbing fixtures, architectural services and so on) purchased and used by the builder; and
- the value of the work done by the construction company.

An **output-based impact measure** would include the entire selling price of the house (including all these imbedded costs) in the direct output of the construction industry. The value of architectural services included in the cost of the house would also be counted as an indirect output impact on the architectural services industry. The value of the lumber used would be counted as an indirect output impact on the wood industry, and going further back in the supply chain, the value of the logs used by the sawmill would be counted in the indirect output impact on the logging industry. In this example, the value of the logs used to produce the building materials is counted at least three times: once in the direct output impact and twice in the indirect output impacts on the sawmill and logging industries. In other words, the indirect output impact could be quite high simply because goods (or services) used in production have changed hands many times.

Indirect output impacts provide useful information about the total amount of money that has changed hands as goods and services are transformed into final products. ***GDP is a better measures of the economic impact since the value of the work done by each industry is attributed only to the producing industry, and is counted only once.***

GDP is calculated by subtracting the cost of purchased goods, services and energy from the total value of an industry's output. As a result, the value of the work done by a producing industry is only counted once. In the construction example, the direct GDP impact would only include the value of the work done by the construction firm. The indirect impact on the

[19] BC Stats (2012).

sawmill industry would only include the value of the work done to transform the logs into lumber, and the indirect impact on the logging industry would be a measure of the value of the work done by the loggers. There is no double counting in GDP measures.

It should be noted that the relationship between GDP and output is a useful analytical measure since it shows the extent to which industries rely on labour and capital as opposed to material and service inputs in production. The analysis of economic impacts relies on this relationship, since output is more easily and directly measured than GDP. In fact, the starting point for most input-output analyses is a measure of the direct output associated with a project. From this, known relationships between output and other indicators such as GDP and employment can be used to estimate the economic impact associated with a specific project.

Interpreting the BCIOM Results[20]

This section defines some of the terms and concepts used in the attached tables (Tables 2 and 3) and explains how they are calculated.

Variables that are calculated directly from information supplied by clients[21]

Total project expenditure is usually provided by the client, and includes all direct expenditures associated with the project.

There are no jobs, GDP or output associated with the production of goods and services that are imported into the province. Therefore an estimate of the value of imported goods and services is deducted from project direct spending to determine the value of **project expenditure in British Columbia.**

Estimates of wages, salaries and other components of GDP provided by the client are reported in **project direct GDP at basic prices.**

About Project Direct GDP Estimates

It should be noted that project direct GDP figures are derived from information provided by clients. These figures are usually project-specific, but they are not always based on complete information. For example, it is often possible to get good data on wages and salaries associated with a project or activity. Labour costs are the biggest component of GDP, but other variables which ought to be included in the estimate (such as investment income, operating surplus, or depreciation) are not always known. When the GDP figures generated by the BCIOM are based on partial information, they may understate the project's direct contribution to GDP.

Project direct employment is derived based on the project's wage bill and estimates of average annual wages in the industry.

Household income is calculated based on project direct wages, benefits and mixed income.

[20] BC Stats (2012).
[21] "Client" refers to those who have contracted BC Stats to run the BCIOM (i.e. Resort Development Branch).

Variables that are estimated using model information

Commodity taxes less subsidies is calculated using information on average sales and other tax rates associated with each good or service purchased by the project.

Project expenditure in British Columbia is traced back to the producing industries in order to determine the **direct British Columbian supply**. Because industries do not "produce" taxes, wages or other components of GDP, the direct British Columbian supply only includes the value of goods and services produced by British Columbian industries. Direct project spending on wages, salaries, operating surplus and taxes are excluded from this measure.

An estimate of **corporate and personal income taxes** associated with these project direct expenditures is calculated using information on average tax rates from the model.

BCIOM impact estimates

The model is shocked using the direct British Columbian supply calculated from the information provided by the client. This is used to determine the total economic impact of the project on the British Columbia economy, which is reported in terms of direct, indirect and induced impacts.

The direct impact measures the change in economic activity required to satisfy the initial change in demand. The ***direct output impact*** is equal to the direct British Columbian supply– the change in the economic activity of the industries producing the goods and services purchased by the project.

The ***direct GDP impact*** is the GDP generated as a result of the activities of the industries that produce the goods and services used by the project.

The ***direct employment impact*** shows total employment in these industries, and the ***direct household income impact*** is a measure of the wages, salaries, benefits and other income earned by these workers.

The ***direct tax revenue impact*** includes personal, corporation, sales and other taxes generated as a result of the activities of the industries that supply the goods and services used by the project.

The allocation of tax revenues to federal, provincial and local governments is based on model averages.

Induced effects

The induced effect, which measures the impact associated with expenditures by workers, includes purchases of a variety of goods and services, including housing.

Appendix 2: Input-Output Model Background

Background on the British Columbia Input-Output Model (BCIOM) [22]

Input-output analysis is based on statistical information about the flow of goods and services among various sectors of the economy. This information, presented in the form of tables, provides a comprehensive and detailed representation of the economy for a given year. An input-output model is essentially a database showing the relationship between commodity usage and industry output. It consists of three components:

- a table showing which commodities–both goods and services–are consumed by each industry in the process of production (the input matrix)
- a table showing which commodities are produced by each industry (the output matrix)
- a table showing which commodities are available for consumption by final users (the final demand matrix).

These data are combined into a single model of the economy which can be solved to determine how much additional production is generated by a change in the demand for one or more commodities or by a change in the output of an industry. Changing the usage or production of a commodity or group of commodities is often referred to as shocking the model. The known relationship between goods and services in the economy is used to generate an estimate of the economic impact of such a change.

If a change in demand is met by increasing or decreasing imports from other jurisdictions, there is no net effect on domestic production. All of the benefits or costs associated with employment generation or loss, and other economic effects, will occur outside the region. Therefore, it is important to identify whether or not a change in the demand for a good or service is met inside or outside a region.

Assumptions and Caveats

From an IO perspective, commodities made in British Columbia have a much bigger impact than those imported into the province. The analysis presented here is based on using default import ratios for most commodities: i.e., assuming they are purchased locally, but allowing for the fact that they may have been manufactured elsewhere.

All tax data were generated using the model structure, and are based on averages for an industry or commodity.

The precision of the figures in the tables should not be taken as an indication of their accuracy. Economic modelling is an imprecise science and the estimates in this report are probably no better than +/- 10%.

[22] BC Stats (2012).

The British Columbia Input-Output Model

The BCIOM can be viewed as a snapshot of the British Columbia economy. It is derived from inter-provincial input-output tables developed by Statistics Canada and includes details on 727 commodities, 300 industries, 170 "final demand" categories, and a set of computer algorithms to do the calculations required for the solution of the model. It can be used to predict how an increase or a decrease in demand for the products of one industry will have an impact on other industries and therefore on the entire economy.

Limitations and caveats associated with input-output analysis

Input-output analysis is based on various assumptions about the economy and the inter-relationships between industries. These assumptions are listed below:

Input-output models are linear. They assume that a given change in the demand for a commodity or for the outputs of a given industry will translate into a proportional change in production.

Input-output models do not take into account the amount of time required for changes to happen. Economic adjustments resulting from a change in demand are assumed to happen immediately.

It is assumed that there are no capacity constraints and that an increase in the demand for labour will result in an increase in employment (rather than simply re-deploying workers).

It is assumed that consumers spend an average of 80% of their personal income on goods and services. The remaining 20% of personal income is consumed by taxes, or goes into savings.

The BCIOM is based on a "snapshot" of the British Columbia economy in 2006. It is assumed that relationships between industries are relatively stable over time, so that the 2006 structure of the economy continues to be applicable today. However, it should be noted that employment estimates have been adjusted to reflect wage levels for the year of the expenditures in each case.

The BCIOM does not distinguish between regional effects. It will not, for example, differentiate between the economic impact of a plant located in one region of the province and a similar plant elsewhere in British Columbia.