Study of the British Columbia Agriculture Sector

Prepared for the BC Agriculture Council and the Investment Agriculture Foundation

September 2020

Prepared by:
MNP LLP

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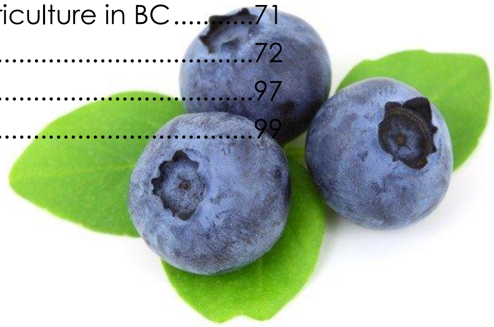


1. EXECUTIVE SUMMARY

Background and Study Purpose

The British Columbia agriculture sector ("the Sector") has been an important piece of BC's identity for more than a century. With over 200 primary commodities grown, harvested and raised in the province, the Sector is one of the most diverse in Canada.[1]

In March 2020, the BC Agriculture Council and its member organizations, in collaboration with the Investment Agriculture Foundation, embarked on a project entitled *Cultivating Prosperity in British Columbia* ("Cultivating Prosperity in BC") to lay the foundation for the development of a new vision for the Sector.

In support of the work under the project Cultivating Prosperity in BC, the BC Agriculture Council, in collaboration with the Investment Agriculture Foundation, engaged MNP LLP ("MNP") to conduct a study of the Sector. The purpose for the study was to provide baseline data and qualitative information on the Sector to help guide future consultations with Sector representatives for the identification and development of a new vision for the Sector.

Overview of the Sector

In recent years there has been sustained growth in the total farm cash receipts of the Sector. Between 2015 and 2018, the total farm cash receipts of the Sector grew approximately 4 percent annually, while between 2018 and 2019 total farm cash receipts grew by approximately 12 percent. Cannabis, which was legalized for recreational use in October 2018, accounted for approximately 73 percent of the growth in farm cash receipts in 2019.

Table A summarizes some of the key statistics of the Sector.

Table A: Key Sector Statistics
• In 2016, there are approximately 17,528 farms across the province.[2] • In 2019, the Sector generated total farm cash receipts of \$3.8 billion. Crops accounted for approximately 56 percent of farm cash receipts and livestock and livestock products accounted for the remaining 44 percent. [3] • In 2019, BC exported approximately \$3.2 billion worth of agriculture and agri-food products. [4,5] • In 2019, the Sector generated an estimated 35,100 direct jobs within the province.[6]

[1] Government of British Columbia, Agriculture & Seafood. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood
[2] Statistics Canada. Farms Classified by Farm Type. Table 32-10-0403-01.
[3] Statistics Canada. Farm Cash Receipts. Available here: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3437
[4] Export figures include Fruits and Nuts, Vegetables, Vegetable Oils, Bread, Pastry, Prepared Cereals, Pasta, Meat and Prepared Meat Products, and Other.
[5] Export figures include Fruits and Nuts, Vegetables, Vegetable Oils, Bread, Pastry, Prepared Cereals, Pasta, Meat and Prepared Meat Products, and Other.
[6] Direct employment includes both permanent and seasonal employees.

Economic Impacts of the Sector

The Sector is a major contributor to the provincial economy. Table B summarizes the estimated economic impacts generated in 2019 by the Sector.

Table B: Economic Impacts of the Sector in 2019

	Output ($ millions)	GDP ($ millions)	Employment (FTEs)[7,8]	Government Taxes ($ millions)
Direct	$4,640	$1,870	35,100	$400
Indirect and Induced	$3,850	$2,030	19,900	$550
Total	**$8,490**	**$3,900**	**55,000**	**$950**

The following are comparisons of the Sector's impacts with other important industries in BC:

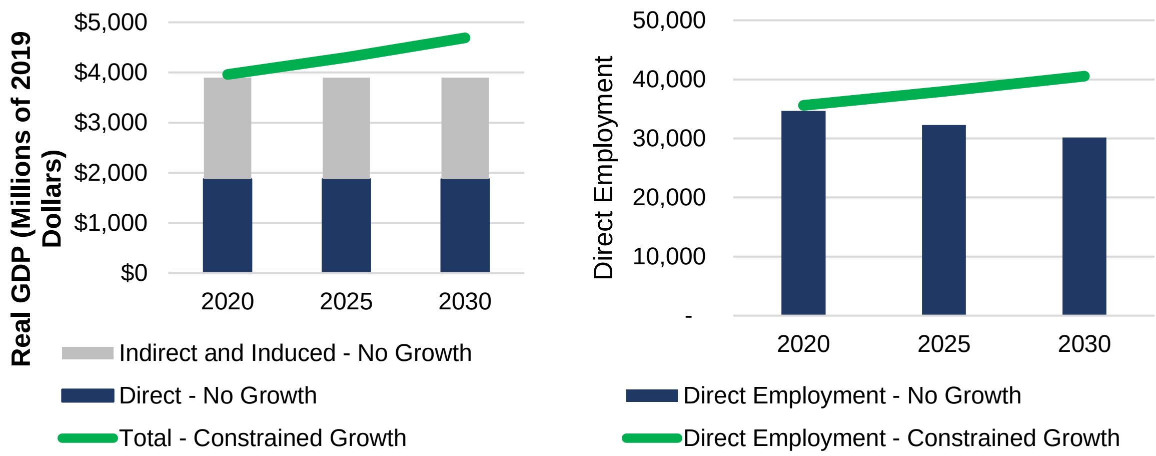
- **Mining Industry.** The direct employment supported by the Sector (35,100 FTEs) in 2019 was roughly three to four times that generated by the BC mining industry (10,196 FTEs) in 2017.[9,10]
- **High End Television Series.** The total output created by the Sector (8,490 million) was equivalent to the total output that would be created from approximately 95 high-end television productions in BC.[11]
- **Vancouver International Airport.** The total output created by the Sector ($8.5 billion) was equivalent to 0.4 times direct output supported by the operations of Vancouver International Airport as well as tourism and cargo facilitated by the airport ($20.2 billion).[12]

Projections of Economic Impacts of the Sector

Figure A shows the range of projected economic impacts of the Sector between 2020 and 2030 in terms of real GDP and employment. Real GDP was projected to grow by up to 20 percent while the change in direct employment was projected to grow by up to 15 percent if capacity constraints do not have a significant impact on production.

[7] According to the 2016 Census of Agriculture, direct employment of the BC agriculture sector totalled 35,255 in 2016.
[8] Direct employment includes both permanent and seasonal employees of the Sector.
[9] PWC, 50 Years On - The Mining Industry in British Columbia 2017, Available here: https://www.pwc.com/ca/en/mining/publications/p386537_release5_en-v2.pdf
[10] Direct employment includes both permanent and seasonal employees.
[11] Motion Picture Association, Economic Impacts of Once Upon A time, Available here: https://www.mpa-canada.org/wp-content/uploads/2016/02/Economic-Impacts-of-Once-Upon-a-Time.pdf
[12] Vancouver International Airport, Economic Impact, Available here: https://www.yvr.ca/en/airport-improvement-fee/economic-impact

Figure A: Projected Real GDP and Direct Employment 2020-2030



SWOT Analysis

Table C includes a summary of the strengths, weaknesses, opportunities, and threats facing the Sector.

Table C: SWOT Analysis

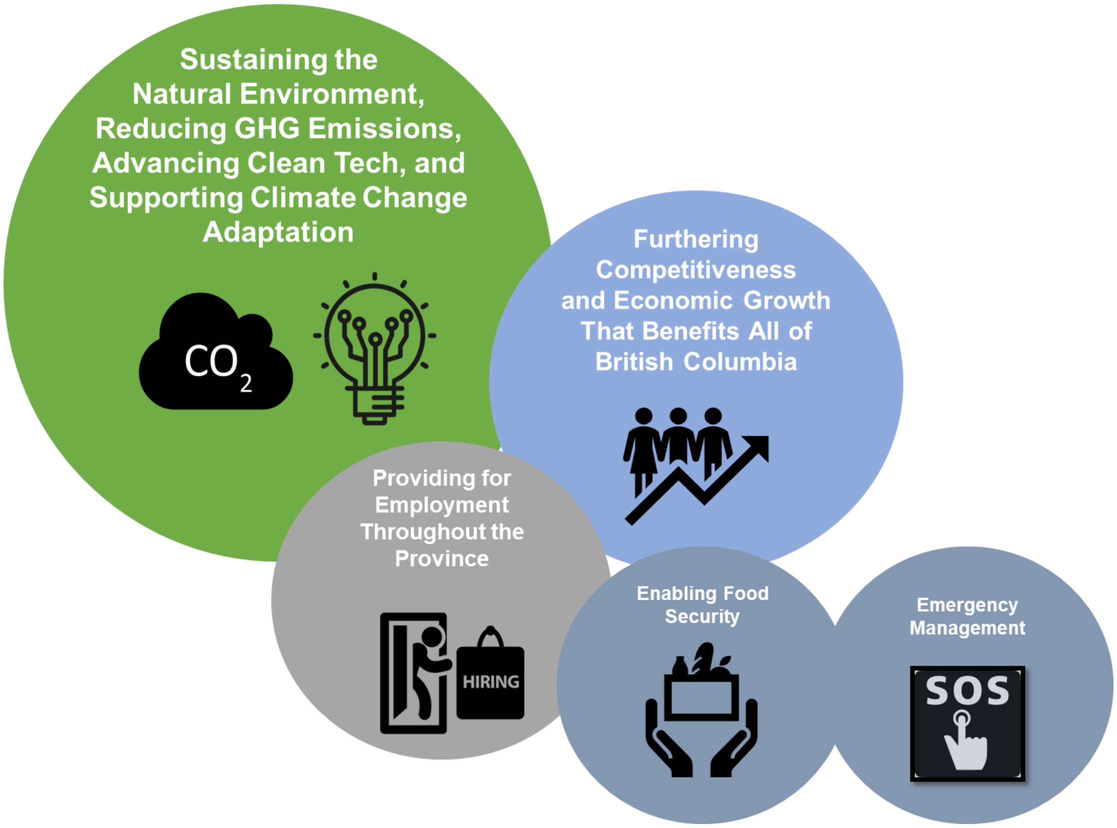
Strengths	Weaknesses
• Diverse production and production methods. • Reputation for safe, high-quality products. • Favourable growing conditions. • Proximity and access to international markets. • Access to Agricultural Land Reserve. • Access to water and Crown land. • Presence of strong post-secondary education institutions and applied research facilities.	• Limited arable land base. • Unfulfilled labour needs and gaps in labour attraction and retention. • Regional differences in transportation infrastructure. • Lack of economies of scale.

Opportunities	Threats
• Acceleration of innovation and availability of innovative technology. • Leveraging of existing trade agreements. • Increased demand for local agricultural products. • Increased value-added processing capacity. • Collaboration with Indigenous communities. • Management of natural resources.	• Impacts of climate change. • Impacts of pandemics such as COVID-19 and other events that disrupt access to labour and processing capacity. • Unharmonized regulations. • Increased cost of production relative to revenue gains. • Impacts of natural disasters. • Risk of animal and crop disease. • Increased pressure on margins and consolidation of processors, retailers and distributors. • Changing consumer preferences.

Government Priorities and Solutions Provided by the Sector

MNP conducted a scan of select reports involving provincial and local governments to identify priorities for which the Sector could play a role in their advancement. From this scan, and combining the provincial and regional district findings, the Sector can contribute in a meaningful way to several of these priorities. The priorities that hold the greatest relevance to the Sector, based on the prevalence of mention in the reviewed reports, are illustrated in Figure B below.

Figure B: Government Priorities



Case studies on how the Sector is already contributing to some of the identified government priorities such as emergency management, food security, employment and training, and environmental sustainability, can be found on ***Section 8*** of the report.

2. INTRODUCTION

2.1. Background and Study Purpose

The British Columbia agriculture sector ("the Sector") has been a significant economic contributor and an important piece of BC's identity for more than a century. With over 200 primary commodities grown, harvested and raised in the province, the Sector is one of the most diverse in Canada.[13]

As a result of the COVID-19 pandemic and accompanying public concerns about food security, governments and the public have started to re-evaluate the way they see and value agriculture. This has created an opportunity to build a new vision for the Sector which involves innovative ideas and a shift in perspective. The new vision positions the Sector as part of the solution to many challenges facing our society today, such as food security, environmental sustainability, and emergency preparedness. To that end, in March 2020, the BC Agriculture Council and its member organizations, in collaboration with the Investment Agriculture Foundation, embarked on a project entitled *Cultivating Prosperity in British Columbia* ("Cultivating Prosperity in BC") to lay the foundation for the development of a new vision for the Sector.

In support of the work under the project Cultivating Prosperity in BC, the BC Agriculture Council, in collaboration with the Investment Agriculture Foundation, engaged MNP LLP ("MNP") to conduct a study of the Sector. The scope of the study included:

- An analysis of baseline and projected economic impacts of the Sector quantifying output, GDP, tax revenues and employment.
- An analysis of the strengths, weaknesses, opportunities and threats facing the Sector.
- An environmental scan of provincial and local government priorities along with the identification of priorities that the Sector could help address.
- A review of solutions provided by the Sector to key public issues including food security, emergency management, employment and training, value-added processing and economic recovery.

The purpose for the study was to provide baseline data and qualitative information on the Sector to help guide future consultations with Sector representatives for the identification and development of a new vision for the Sector.

2.2. Our Approach

In preparing this report, MNP carried out the following activities:

- Gathered Sector data and statistics from BC Stats, Statistics Canada, the BC Ministry of Agriculture and other relevant organizations.
- Estimated baseline and projected economic impacts of the Sector using an input-output methodology with multipliers published by Statistics Canada.

[13] Government of British Columbia, Agriculture & Seafood. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood

- Conducted an analysis of the strengths, weaknesses, opportunities and threats facing the Sector.
- Conducted an environmental scan of 29 provincial and municipal reports to identify priorities which the Sector could play a role in advancing.
- Conducted telephone interviews with Sector representatives to gather information on solutions currently provided by the Sector on key public issues, and developed case studies drawing on interview findings.

2.3. Acknowledgments

This report has been prepared with the counsel of a Project Steering Committee comprised of the following members:

- Reg Ens, BC Agriculture Council.
- Elizabeth Schouten, BC Agriculture Council.
- Kevin Boon, BC Cattlemen's Association.
- Anju Gill, BC Blueberry Council.
- Jeremy Dunn, BC Dairy Association.
- Michelle Koski, Investment Agriculture Foundation of BC.
- Natalie Janssens, Investment Agriculture Foundation of BC.

MNP would like to acknowledge the contributions of the members of the Project Steering Committee for their assistance and direction throughout this project.

2.4. Report Limitations

The report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or a substitute for personalized, professional advice.

We have relied upon the completeness, accuracy and fair presentation of all information and data obtained from Sector representatives and public sources. The accuracy and reliability of the findings and opinions expressed in the presentation are conditional upon the completeness, accuracy and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions for business or investment purposes and disclaim any liability to any party who relies upon them as such.

The report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or a substitute for personalized, professional advice.

Our analysis is based upon projections, founded on past events giving an expectation of certain future events. Future events are not guaranteed to follow past patterns and results may vary, even significantly. Accordingly, we express no assurance as to whether the projections underlying the economic and financial analysis will be achieved.

Additionally, the findings and opinions expressed in the presentation constitute judgments as of the date of the presentation and are subject to change without notice. MNP is under no obligation to advise of any change brought to its attention which would alter those findings or opinions.

3. OVERVIEW OF THE SECTOR

3.1. Definition of the Sector

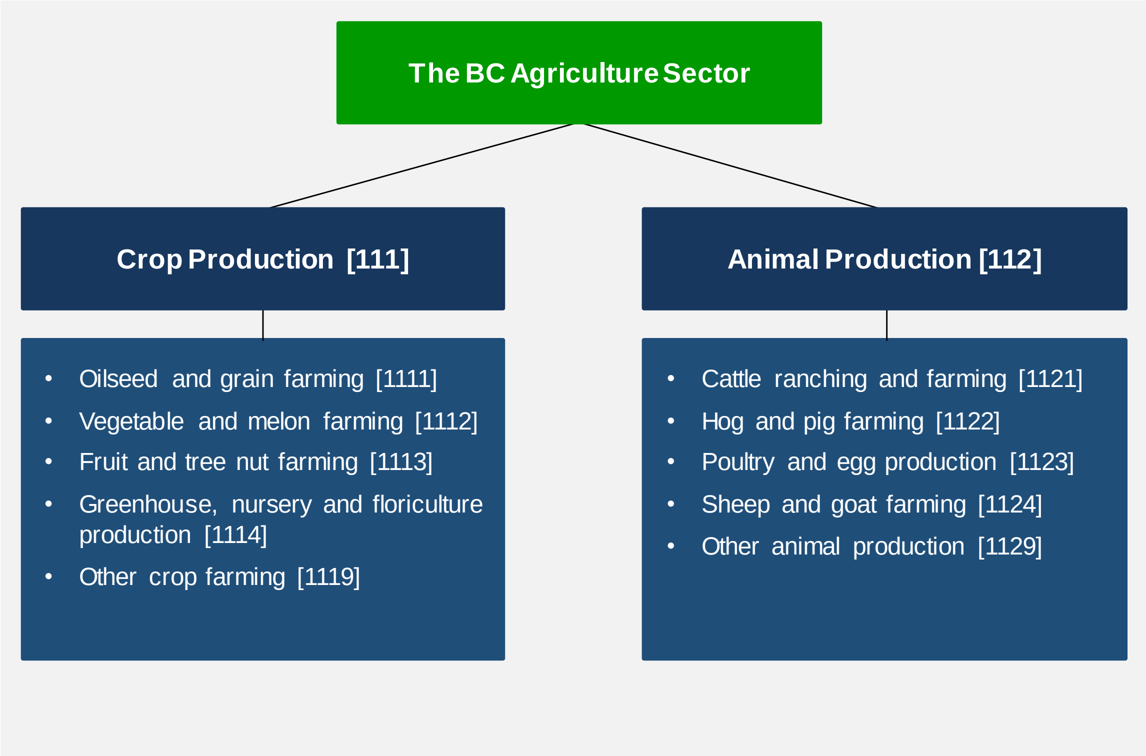
As shown in Figure 1, the Sector is comprised of businesses classified into the following two North American Industry Classification System ("NAICS") Codes:

- Crop production (NAICS 111).
- Animal production (NAICS 112).

For the purpose of this study, the Sector does not include aquaculture production.

For subsector definitions as defined by Statistics Canada, please refer to ***Appendix A***.

Figure 1: Overview of the Sector



Source: Statistics Canada. North American Industry Classification System.

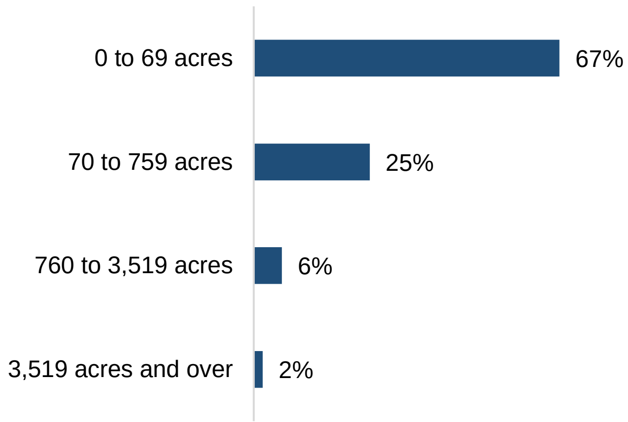
3.2. Overview of the Sector

NUMBER OF FARMS BY SIZE

In 2016, there were approximately 17,528 farms across the province.[14] Of the total number of farms, approximately two-thirds (66 percent) were small farms with less than 69 acres. Figure 2 shows the breakdown of BC farms by farm area.[15]

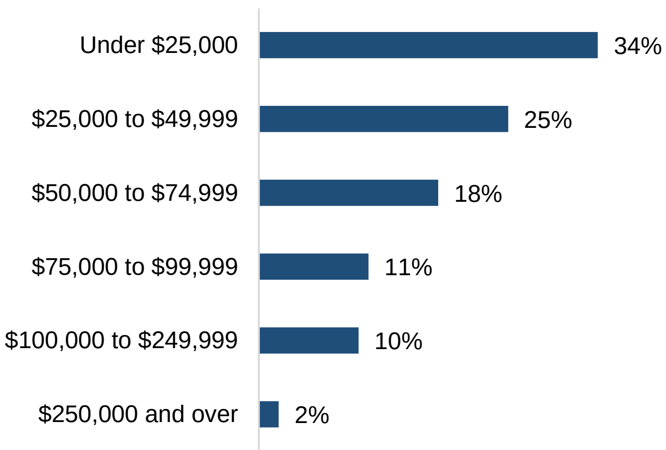
Further, of the total number of farm operators in BC, approximately 59 percent reported incomes of less than $50,000 while only 2 percent reported incomes of $250,000 and over. Figure 3 shows the distribution of BC farm operators by income class.[16]

Figure 2: Number of Farms by Total Farm Area in 2016



Source: Statistics Canada. Farms Classified by Total Farm Area. Table 32-10-0404-01.

Figure 3: Number of Farm Operators by Income Class in 2016



Source: Statistics Canada. Number of Farm Operators Classified by Operator Income Class. Table 32-10-0027-01.

[14] Statistics Canada. Farms Classified by Farm Type. Table 32-10-0403-01.
[15] Statistics Canada, Farms Classified by Total Farm Area. Table 32-10-0404-01.
[16] Statistics Canada, Number of Farm Operators Classified by Operator Income Class. Table 32-10-0027-01.

NUMBER OF FARMS BY REGION

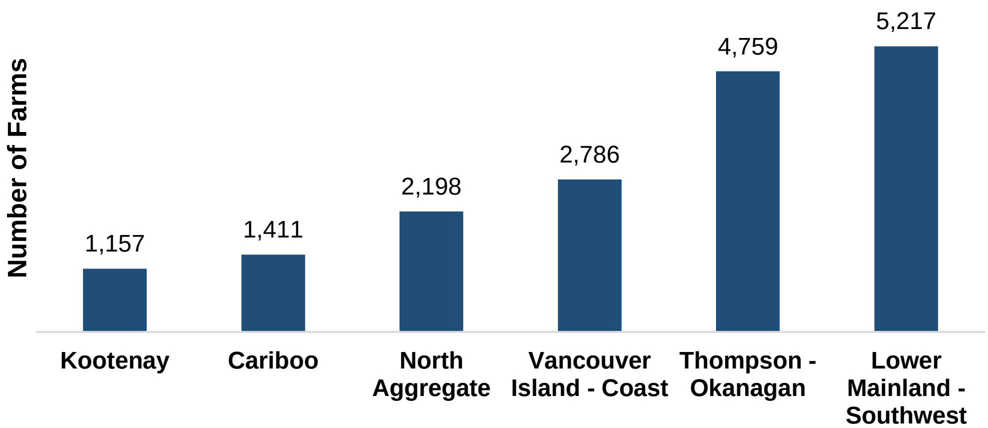
In terms of number of farms by region, the Lower Mainland Southwest and Thompson Okanagan regions together account for approximately 57 percent of BC's farms. Production in both of these regions is relatively diverse and includes milk, eggs, poultry, vegetables, floriculture and nursery products, cannabis, and fruit and tree nuts. The next largest region in terms of number of farms is Vancouver Island which accounts for approximately 16 percent of BC's farms and also produces a wide variety of agriculture products.

The North Aggregate region includes the North Coast, Nechako, and Northeast regions of the province. This region accounts for approximately 12 percent of farms in BC and mainly produces livestock and grain.

The Cariboo region accounts for approximately eight percent of farms in BC, most of which produce cattle and other livestock, while the Kootenay region accounts for the remainder of farms in BC and produces a mix of livestock and vegetables.[17]

Figure 4 shows the number of farms by region in 2016.[18]

Figure 4: Number of Farms in BC by Region in 2016



Source: Statistics Canada. Farms Classified by Farm Type. Table 32-10-0403-01.

[17] Statistics Canada. Farms Classified by Farm Type. Table 32-10-0403-01.
[18] Please note that the number of farms does not reflect the size or value of such farming operations.

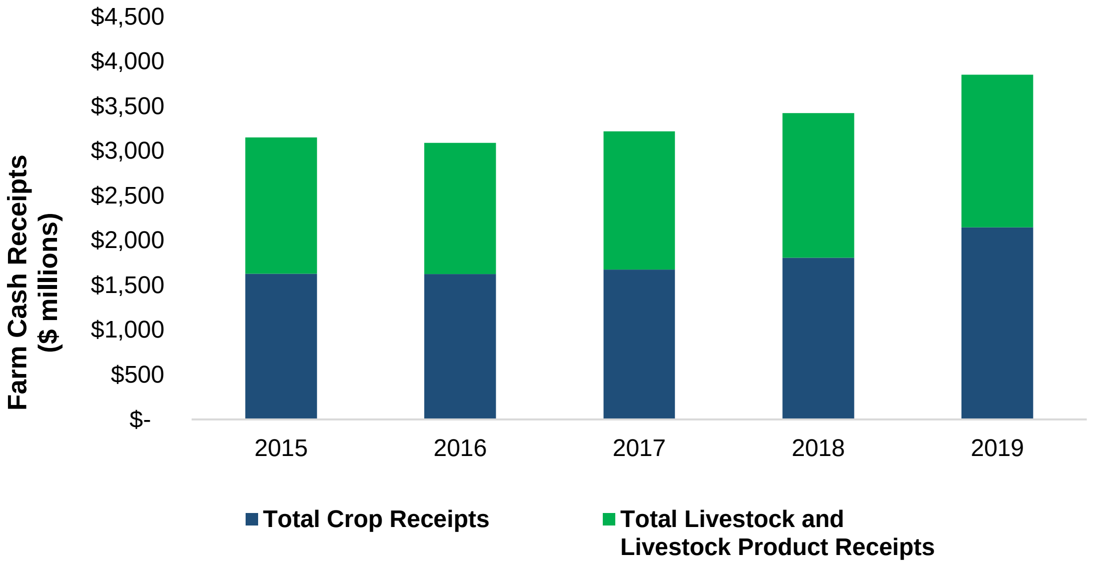
REVENUES

Gross revenue of the Sector is measured by farm cash receipts. Farm cash receipts include all sales outside the Sector as well as farm-to-farm sales across provinces; but exclude inter-farm sales within a province.[19]

Figure 5 shows farm cash receipts in BC between 2015 and 2019. In 2019, total farm cash receipts in BC were estimated at $3.8 billion. Crops accounted for approximately 56 percent of farm cash receipts and livestock and livestock products accounted for the remaining 44 percent.

Between 2015 and 2018 total farm cash receipts grew approximately 4 percent annually, while between 2018 and 2019 total farm cash receipts grew by approximately 12 percent. Cannabis, which was legalized for recreational use in October 2018, accounted for approximately 73 percent of the growth in farm cash receipts in 2019.[20]

Figure 5: Farm Cash Receipts in BC, 2015 to 2019



Source: Statistics Canada. Farm Cash Receipts. Table 32-10-0045-0.

[19] Statistics Canada. Farm Cash Receipts. Available here: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3437
[20] Ibid.

Table 1 outlines the value and share of BC farm cash receipts by commodity category.[21] The top four commodity categories in terms of farms cash receipts in 2019 were fresh fruit, vegetables and potatoes, floriculture and nursery products, and sod, milk from bovine, and poultry.

Table 1: Value and Share of BC Farm Cash Receipts by Commodity Category in 2019

Total Farm Cash Receipts [22]	Value in 2019 ($ millions)	Share of Total Farm Cash Receipts
	$3,848	100%
Crop Receipts[23,24 ,25 *]**	**$2,146**	**56%**
Total fresh fruit, vegetables and potatoes	$1,128	29%
Floriculture and nursery products, and sod	$477	12%
Cannabis seeds, vegetative plants, and flowering tops[26]	$362	9%
Miscellaneous crops	$95	2%
Grains (canola, wheat, oats, barley)[27]	$83	2%
Livestock and Livestock Products Receipts	**$1,702**	**44%**
Milk from bovine	$683	18%
Poultry	$478	12%
Cattle and calves	$272	7%
Eggs in shell	$169	4%
Miscellaneous livestock and livestock products	$59	2%
Hogs, lambs, and sheep	$42	1%

Source: Statistics Canada. Farm Cash Receipts. Table 32-10-0045-01.

[21] Statistics Canada. Farm Cash Receipts. Table 32-10-0045-01.
[22] Total direct payments which include the following: crop insurance payments, Private Hail Insurance, AgriInvest, Agri-Stablity and other payments, are excluded from the table above.
[23] Farm cash receipts for the following crops were not available: durum wheat, rye, flaxseed, soybeans, corn for grain, unstemmed leaf tobacco, mustard seeds, sunflower seeds, lentils, canary seeds, dry peas, dry peas, chickpeas, maple syrup and other products.
[24] Farm cash receipts for the following crops were suppressed by Statistics Canada in 2018: nursery products (except tree and shrub seeds) and sod. However, farm cash receipts for these products are reported under "Floriculture and nursery products, and sod"
[25] Due to rounding, the sum of crop receipts may not equal total crop receipts.
[26] Includes cannabis leaves.
[27] Grains (canola, wheat, oats, barley) includes liquidation of deferred grain receipts.

EXPORTS

Agriculture products from BC are sold to buyers around the world. As shown in Table 2, in 2019 exports of BC's agriculture and agri-food products totalled $3.2 billion,[28] an 8.5 percent increase from 2018.

Major exports for BC in 2019 included vegetables, fruit and nuts.[29] The United States is the largest export market for BC agriculture and food products, accounting for over 78 percent of exports. Asian markets including China, Japan and South Korea accounted for 16 percent of exports, while the rest of the world accounted for the remaining four percent.[30]

The American export market accounts for the majority of BC's fruit and nuts, vegetables, and vegetable oils exports, while most of BC's meat and prepared meat products are exported to Japan and China.[31]

Table 2: BC Agriculture and Agri-food Exports by Destination in 2019

Export Market	Value of Exports 2019 ($ millions)	Percent Change 2018/2019
United States	$2,533	9.7%
China	$157	-17.3%
Japan	$117	14.9%
South Korea	$96	40.9%
European Union	$38	9.2%
Other Asian Markets[32]	$163	-3.8%
Rest of the World	$140	-8.6
Total	**$3,244**	**8.5%**

Source: BC Stats. BC Origin Exports to All Countries.

[28] Export figures include Fruits and Nuts, Vegetables, Vegetable Oils, Bread, Pastry, Prepared Cereals, Pasta, Meat and Prepared Meat Products, and Other.
[29] Export figures for fruits and nuts were consolidated as one commodity by BC Stats and accounts for approximately 13.5 percent of all exports in 2019.
[30] Government of BC. Trade Data. May 2020 Available here: https://www2.gov.bc.ca/gov/content/data/statistics/business-industry-trade/trade/trade-data
[31] Ibid.
[32] Other Asian Markets include Hong Kong, Asean, Philippines, Malaysia, Indonesia, and Singapore.

4. ECONOMIC IMPACTS OF THE SECTOR

4.1. Economic Impact Analysis Overview

The goal of an economic impact study is to quantify the economic contributions that an industry, project or organization makes to a region. In general, economic impacts are viewed as consisting of well-established, quantitative measures of economic activity. The most commonly used of these measures are output, GDP, employment and government tax revenue:

- **Output** is the total gross value of goods and services produced by a given organization, industry or project, measured by the price paid to the producer. This is the broadest measure of economic activity.
  - *Example: A beverage manufacturer buys apples from an apple producer for $100 and adds value to it by producing apple juice which is then sold for $300. Economic output would total $400 which is the value of all sales in the chain of activity. The value of the apples is therefore counted twice, once as an intermediate good for the beverage manufacturer, and again in the value of the juice.*
- **Gross Domestic Product ("GDP")**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. Thus, GDP is equivalent to the unduplicated value of goods and services produced.
  - *Example: A beverage manufacturer buys apples from an apple producer for $100 and adds value to it by producing juice which is then sold for $300. GDP or value added would total only $300 (as opposed to $400 economic output). This is because value added subtracts the sale of the purchased apples (intermediate input) of $100 from the total sales price of $400, resulting in value added of $300.*
- **Employment** is the number of additional jobs created. Employment is measured in terms of full-time equivalents ("FTEs").
- **Government Tax Revenues** are the total amount of tax revenues generated for different levels of government. Please note that because tax revenues can change due to modifications in tax policy, the tax revenue impacts in this report are estimates only and subject to change. They should be viewed as approximate in nature.

Economic impacts may be estimated at the direct, indirect and induced levels.

- **Direct** impacts are changes that occur in "front-end" businesses that would initially receive expenditures and operating revenue as a direct consequence of the operations and activities of a facility.
- **Indirect** impacts arise from changes in activity for suppliers of the "front-end" businesses.
- **Induced** impacts arise from shifts in spending on goods and services as a consequence of changes to the payroll of the directly and indirectly affected businesses.

MNP's estimates of the economic impact of the Sector were developed following an input-output modelling approach. Input-output modeling is a widely-used method, which facilitates comparisons between reported results for different projects, organizations or industries. For more information on the methodology, please see ***Appendix B.***

4.2. Economic Impacts of the Sector in 2019

In 2019, the Sector's output both for crop and livestock and livestock product production was estimated at $4.6 billion. Table 3 presents estimates of the value of the direct output of the Sector in 2019.[33]

Table 3: Direct Output Estimates of the Sector, 2019

	Direct Output ($ millions)
Crop Production	$2,810
Livestock and Livestock Product Production	$1,830
Total	**$4,640**

Table 4 presents the estimated economic impacts generated in 2019 by the Sector based on the value of the Sector's total estimated output. In summary, the Sector was estimated to have generated the following economic impacts in BC:

- Approximately $8.5 billion in total output, consisting of direct output of $4.6 billion, and indirect and induced output of $3.9 billion.
- Approximately $3.9 billion in total GDP, consisting of direct GDP of $1.9 billion, and indirect and induced GDP of $2.0 billion.
- Approximately 55,000 total FTE positions, consisting of direct employment of 35,100 FTEs, and indirect and induced employment of 19,900 FTEs.
- Approximately $0.9 billion in total federal, provincial, and municipal tax revenues, consisting of direct tax revenue of $0.4 billion, and indirect and induced tax revenues of $0.5 billion.

Table 4: Economic Impacts of the Sector in 2019

	Output ($ millions)	GDP ($ millions)	Employment (FTEs)[34,35]	Government Taxes ($ millions)
Direct	$4,640	$1,870	35,100	$400
Indirect and Induced	$3,850	$2,030	19,900	$550
Total	**$8,490**	**$3,900**	**55,000**	**$950**

[33] Direct output estimates were derived using output data from the Statistics Canada supply and use tables and farm cash receipts. In 2019 total farm cash receipts were $3.8 billion.
[34] According to the 2016 Census of Agriculture, direct employment of the BC agriculture sector totalled 35,255 in 2016.
[35] Direct employment includes both permanent and seasonal employees of the Sector.

4.3. Economic Impacts of the Sector by Region in 2019

Table 5 presents the estimated economic impacts by region in 2019. As shown in the table, the Lower Mainland-Southwest region accounted for close to three-quarters of total output, total GDP, and total tax revenues in 2019. The Thompson-Okanagan accounted for the next largest share of impacts (14 percent), while the other regions each accounted for between two percent and five percent of the economic impacts of the Sector in 2019.

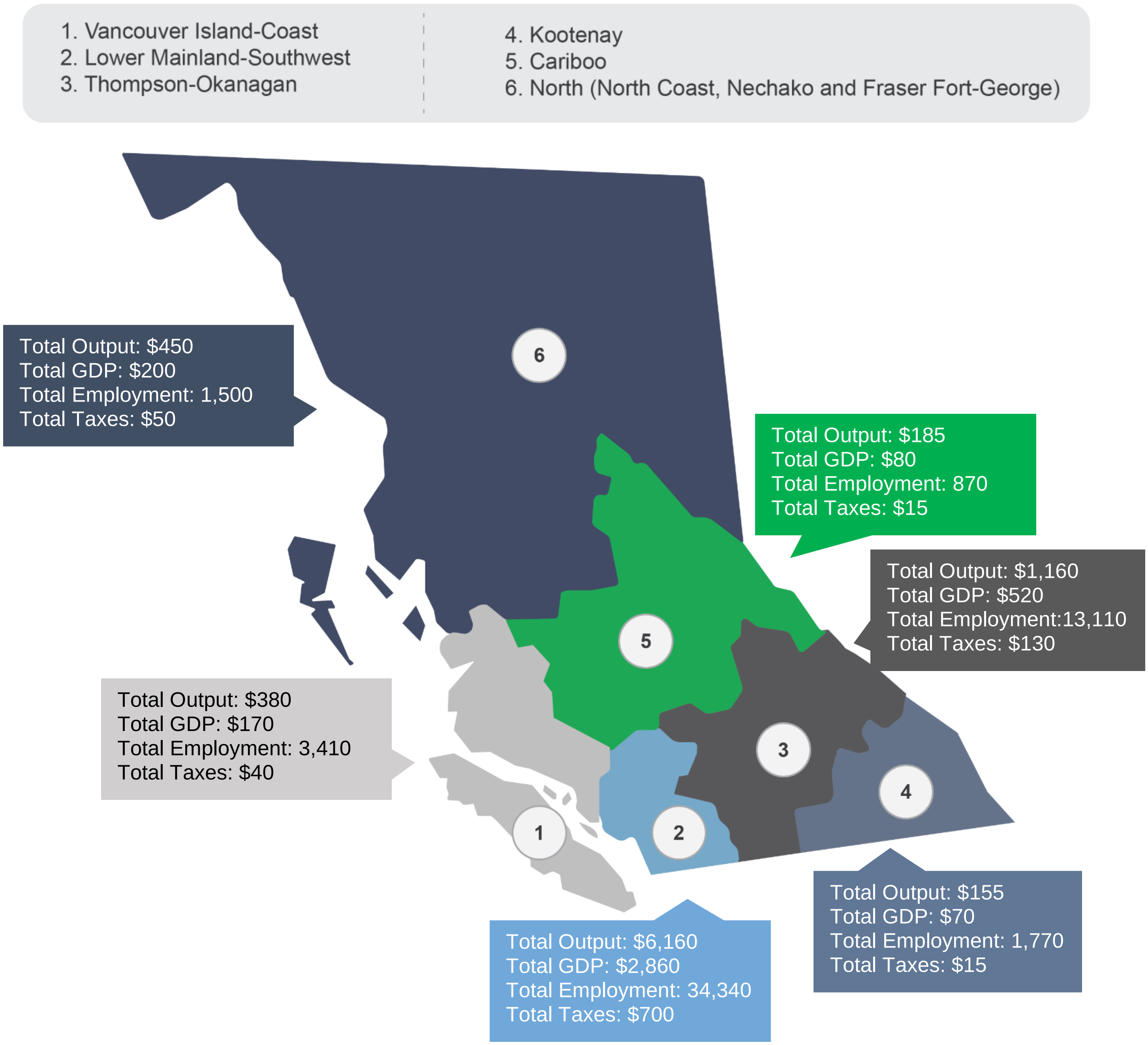
Table 5: Total Economic Impacts of the Sector by Region in 2019

	Total Output ($ million)	Total GDP ($ million)	Employment (FTEs)	Total Taxes ($ million)
Lower Mainland-Southwest	$6,160	$2,860	34,340	$700
Thompson-Okanagan	$1,160	$520	13,110	$130
North[36]	$450	$200	1,500	$50
Vancouver Island-Coast	$380	$170	3,410	$40
Cariboo	$185	$80	870	$15
Kootenay	$155	$70	1,770	$15
Total	**$8,490**	**$3,900**	**55,000**	**$950**

[36] North region includes North Coast, Nechako and Fraser Fort-George.

Figure 6 shows the total economic impacts of the Sector by region across BC in 2019.

Figure 6: Total Economic Impacts of the Sector by Region in 2019



4.4. Linkages with Food and Beverage Processing

The Sector plays an important role in supporting the food and beverage processing industry in BC. In 2019, the food and beverage industry generated over $11.1 billion in direct output in BC.[37] In 2019, the latest period for which the data were available, the Sector accounted for approximately 38 percent of the value of all inputs that were purchased by the BC food and beverage processing industry.[38]

For detailed economic impacts generated by BC's food and beverage processing industry, please refer to ***Appendix C*** of this report.

4.5. Comparison with Other Industries

To provide perspective on the size of the economic impacts of the Sector, it is useful to compare the impacts with those created by other industries. The following are comparisons of the Sector's impacts (as per Table 5) with the following important industries in BC:

- **New Home Construction.** The total employment supported by the Sector (55,000 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 18,000 new homes in BC.[39] This was equivalent to approximately 40 percent of new home starts in BC in 2019.[40]
- **Mining Industry.** The direct employment supported by the Sector (35,100 FTEs) in 2019 was roughly three to four times that generated by the BC mining industry (10,196 FTEs) in 2017.[41]
- **High End Television Series.** The total output generated by the Sector ($8.5 billion) was equivalent to the total output that would be created from approximately 95 high-end television productions in BC.[42] Vancouver, where most of the movie and television production in BC takes place, is home to approximately 65 movies and 55 television series annually, making Vancouver the third largest film and television production centre in North America.[43]
- **Vancouver International Airport:** The total output created by the Sector ($8.5 billion) was equivalent to 0.4 times direct output supported by the operations of Vancouver International Airport as well as tourism and cargo facilitated by the airport ($20.2 billion).[44] Vancouver International Airport is Canada's second busiest airport and serves as a gateway between North America and

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[37] Direct output estimates were derived using output data from the Statistics Canada supply and use tables and sales of manufactured goods in 2019. In 2019 total estimated output for the BC food and beverage industry was estimated at $11.1 billion.
[38] Statistics Canada. Supply and Use Tables, 2016.
[39]Canadian Home Builders' Association, Economic Impacts of New Home Construction – British Columbia 2018, Available here: https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf
[40] In 2019 there were 43879 new home starts in BC. (Source: BC Stats, British Columbia Housing Starts for Urban Areas and Communities)
[41] PWC, 50 Years On - The Mining Industry in British Columbia 2017, Available here: https://www.pwc.com/ca/en/mining/publications/p386537_release5_en-v2.pdf
[42] Motion Picture Association, Economic Impacts of Once Upon A time, Available here: https://www.mpa-canada.org/wp-content/uploads/2016/02/Economic-Impacts-of-Once-Upon-a-Time.pdf
[43] Film & Television Production, Vancouver Economic Commission, Available here: https://www.vancouvereconomic.com/film-television/
[44] Vancouver International Airport, Economic Impact, Available here: https://www.yvr.ca/en/airport-improvement-fee/economic-impact

the Asia Pacific region. In 2018, YVR handled 25.9 million passengers and 338,000 tonnes of cargo. [45]

Comparisons with Regional Industries

- **New Home Construction in Lower Mainland-Southwest.** The total employment supported by the Sector in the Lower Mainland-Southwest region (34,340 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 12,500 new homes in Chilliwack.[46]
- **New Home Construction in the Thompson-Okanagan.** The total employment supported by the Sector in the Thompson-Okanagan region (13,110 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 4,600 new homes in Kelowna.[47]
- **Creative Sector in the Thompson-Okanagan.** The total employment supported by the Sector in Thompson-Okanagan (13,110 FTEs) was roughly thrice of that generated by the creative sector in Kelowna (3,900 FTE).[48] The creative sector in Kelowna is comprised of all self-employed individuals, profit, non-profit and public enterprises including incorporated and unincorporated businesses that produce, create, distribute and/or conserve cultural and artistic goods and services. The creative sector is comprised of 11 sub-subsectors including arts instruction and education; art galleries and dealers; commercial arts; cultural facilities; events and festivals; literary arts; performing arts; service and material providers; societies and organizations; visual arts; and film and new media.[49]

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[45] Vancouver International Airport, FAQ -Fast Facts, Available here: https://www.yvr.ca/en/airport-improvement-fee/faq
[46] Canadian Home Builders' Association, Economic Impacts of New Home Construction – Chilliwack 2018, Available here: https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20Chilliwack%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf
[47] Canadian Home Builders' Association, Economic Impacts of New Home Construction – Kelowna 2018, Available here: https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20Kelowna%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf
[48] Kelowna Creative Sector Economic Impact Assessment, July 2019, Available here: https://www.kelowna.ca/sites/files/1/docs/community/Culture/kelowna_creative_sector_economic_impact_study_-_web_version.pdf
[49] Ibid.

5. PROJECTIONS OF ECONOMIC IMPACTS OF THE SECTOR

5.1. Projections of Economic Impacts

To illustrate the potential economic contributions of the Sector between 2020 and 2030 given the current policy environment, MNP developed projections of growth in the value of direct output based on three scenarios and estimated the economic impacts associated with each scenario. The scenarios were developed in consultation with BCAC and considered growth in production and growth in prices. A key consideration in projecting growth in production was capacity constraints with respect to land and labour. It is important to note that policy changes that alleviate capacity constraints could increase growth in the Sector.

The three scenarios were as follows:

- **Constrained Growth** – In this scenario capacity constraints limit growth rates to be similar to those observed between 2014 and 2018 for livestock and crops excluding cannabis. Cannabis production is constant at its 2019 level.
- **Lower Growth** – In this scenario capacity constraints reduce the growth rate of crops excluding cannabis by two-thirds, while livestock production grows at an annual rate similar to that observed between 2014 and 2018 and cannabis production is constant at its 2019 level.
- **No Growth** – In this scenario capacity constraints are such that there is no growth in production from 2019 levels and all growth in the value is attributable to price growth.

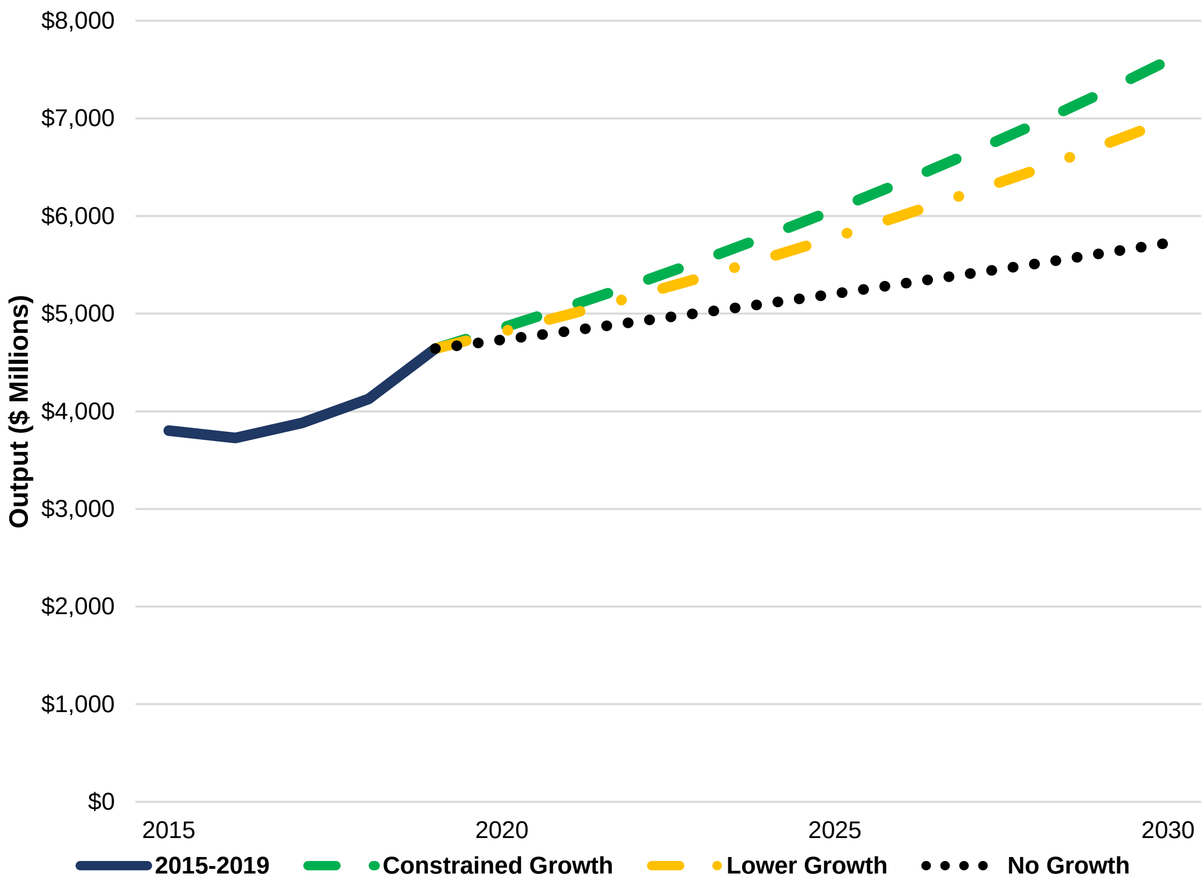
In all three scenarios prices grow by approximately 1.9 percent annually, the average annual growth rate in food prices reported in Statistics Canada’s consumer price index between 2014 and 2018. In addition, changes in technology (e.g. increased use of robotics) and improvements in efficiency were accounted for by assuming labour productivity in crop and animal production grows at rates similar to those observed between 2014 and 2018.

OUTPUT

Figure 7 shows the total direct output of the Sector between 2015 and 2030 for the three scenarios.

In the Constrained Growth scenario the value of total output was projected to grow by approximately 64 percent, while in the Lower Growth scenario the value of total output was projected to grow by approximately 50 percent and in the No Growth scenario the value of total output was projected to grow by approximately 23 percent.

Figure 7: Value of Total Direct Output of the Sector Between 2015 and 2030

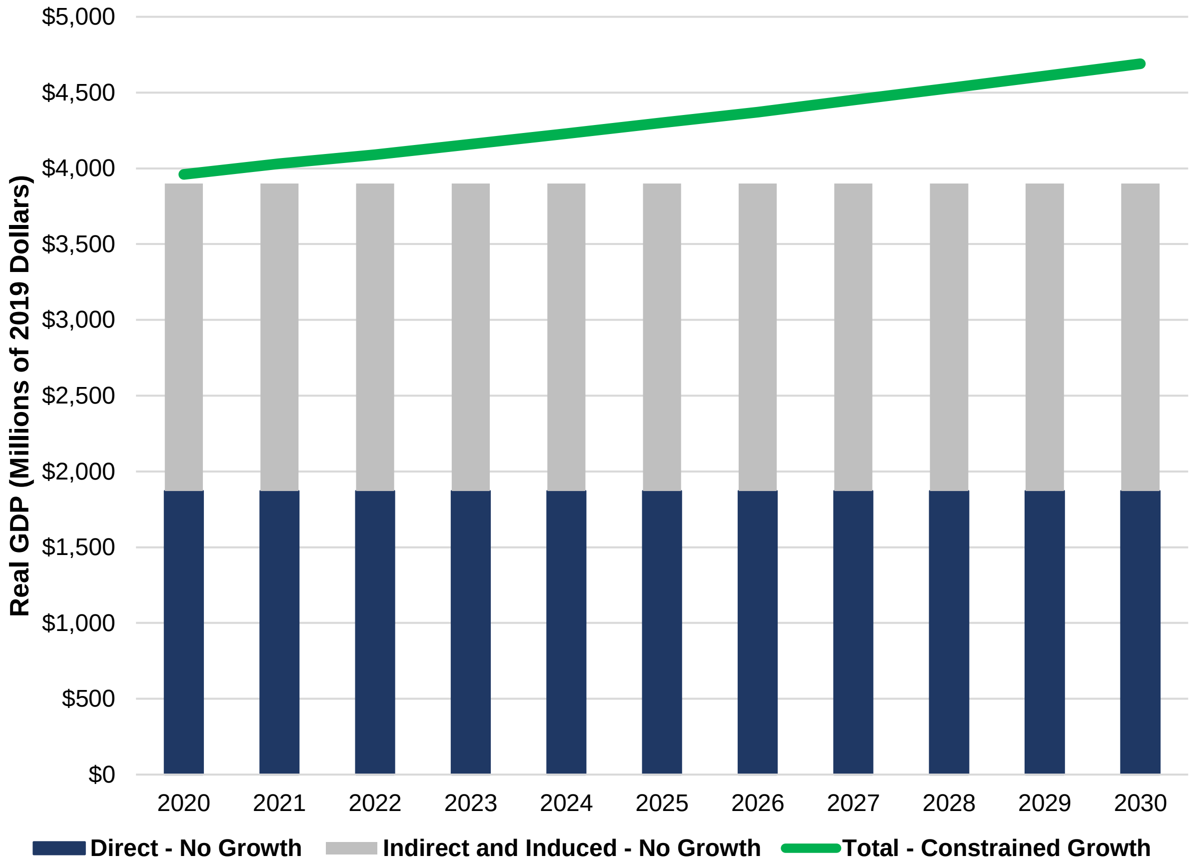


The Constrained Growth scenario has the highest level of potential growth of the three scenarios and the No Growth scenario has the lowest potential growth. To illustrate the range of the potential economic contribution of the Sector over the projection period we estimated Real GDP and Direct Employment for the Constrained Growth scenario and the No Growth Scenario.

REAL GDP

Figure 8 shows the range of projected Real GDP. Real GDP was projected to grow by up to 20 percent over the period (Constrained Growth scenario).

Figure 8: Range of Projected Growth in Total Real GDP Between 2020 and 2030

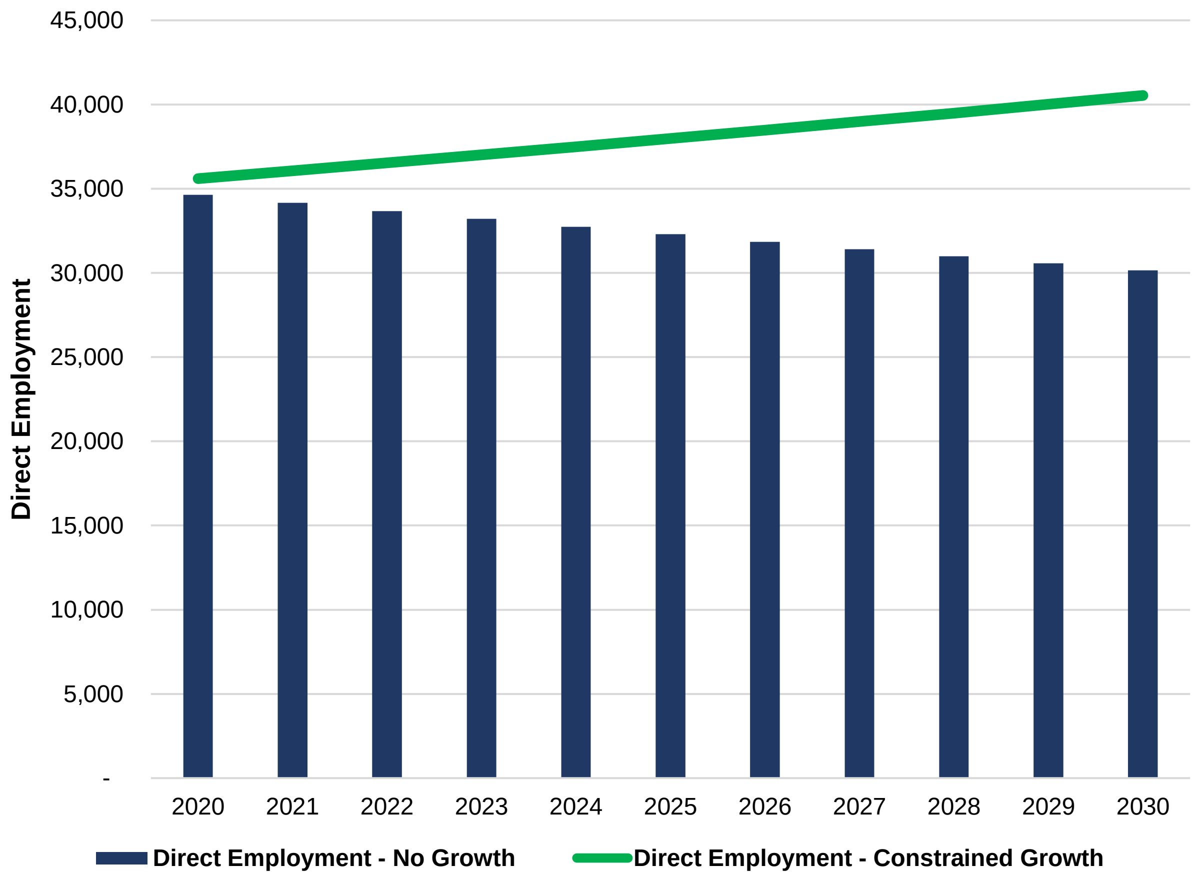


DIRECT EMPLOYMENT

Direct employment was estimated based on an annual growth in labour productivity in crop production of 0.8 percent and annual growth in labour productivity in livestock production of 2.6 percent.[50]

As shown in Figure 9 employment growth was projected to range between -14 percent (No Growth scenario) and 15 percent (Constrained Growth scenario) over the period. The decline in employment in the No Growth scenario reflects improvements in productivity arising from changes in technology and economies of scale in production.

Figure 9: Range of Projected Direct Employment Between 2020 and 2030



[50] Growth in labour productivity was based on the average annual growth in labour productivity in each subsector between 2014 and 2018 reported in Statistics Canada, Table 36-10-0480-01 Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts.

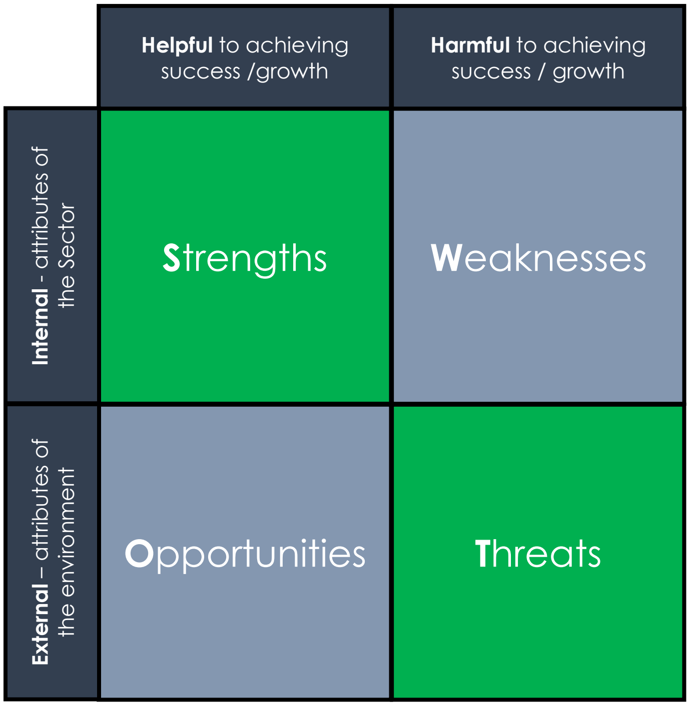
6. SWOT ANALYSIS

This section of the report looks at key strengths, weaknesses, opportunities, and threats ("SWOT") facing the Sector. The purpose of the SWOT was to identify which strengths and opportunities the Sector can build on and which areas of weaknesses and threats the Sector can emphasize.

The following sections describe:

- **Strengths.** Internal attributes of the Sector that could be helpful to achieving success / growth.
- **Weaknesses.** Internal attributes of the Sector that could be harmful to achieving success / growth.
- **Opportunities.** External conditions that could be helpful to the Sector's success / growth.
- **Threats.** External conditions that could be harmful to the Sector's success / growth.

Figure 9: SWOT Analysis



The section was informed by interviews with members of the Project Steering Committee as well as secondary reports published by the public and private sectors.

Strengths

1. **Diverse production and production methods.** BC is home to Canada's most diverse agriculture sector, producing over 200 agriculture commodities.[51] Beyond primary agriculture products, the Sector utilizes various production methods to produce high-value, specialty agricultural goods.[52,53] By offering a large assortment of products to domestic and export markets, the Sector caters to all preferences and diets while supporting BC's biodiversity. Not only is this a key strength as it relates to product offerings, but studies have shown that agricultural diversity can improve resiliency of the agricultural system as a whole and help to mitigate effects of climate variability and extreme

[51] Ministry of Agriculture. "2018/19-2020/21 Service Plan". February 2018. Available here: https://www.bcbudget.gov.bc.ca/2018/sp/pdf/ministry/agri.pdf
[52] B.C. Food Security Task Force. "The Future of B.C.'s Food System". 2020. Available here: https://engage.gov.bc.ca/app/uploads/sites/121/2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[53] Government of Brtisih Columbia. "Crop Production". Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/crop-production

weather events.[54] However, production diversity can also hinder producers from specialization within their subsectors and achieving economies of scale.

2. **Reputation for safe, high-quality products.** BC has earned a reputation as a producer of safe and high-quality agriculture products, internationally and domestically.[55] This reputation is a foundational strength for the Sector, as maintaining high standards of food safety and quality is necessary to provide protection for consumers and to facilitate trade.[56] This reputation is further supported by the establishment and promotion of a provincial wide brand, Buy BC, which aims to increase market share, product sales and consumer awareness of BC agri-food products in the domestic market.[57]

3. **Favourable growing conditions.** There are eight major agricultural regions across BC, each of which has its own growing conditions suitable for producing a variety of crops and livestock.[58] With wet and dry climates, mountainous and flat ranges, a wide range of soil types and varying levels of rainfall, BC is able to produce an assortment of agricultural products for local and international markets throughout the year. In some regions, the varied topography may also pose some challenges for producers in terms of grazing area, ease of irrigation, and ability to use cultivation equipment.[59] With widespread agricultural production across the province, the Sector has helped drive economic development in all regions, including rural communities.

4. **Proximity and access to international markets.** Demand from global markets is an important driver of the Sector, with exports of BC's farm and post-farm food products valued at over $3.2 billion in 2019.[60] BC's main markets for agrifood are the US and Asia. Duty-free access to the US and proximity to Asia are key competitive advantages, allowing the Sector to capitalize on growing international demand for BC agricultural products.[61] Proximity to key export areas also facilitates product testing in certain markets, which helps producers gauge interest and viability prior to the roll-out of new product offerings.

5. **Access to Agricultural Land Reserve ("ALR").** The ALR, a provincial designation where agriculture is the priority use, comprises five percent of BC's total land base and protects approximately 4.6 million hectares of agriculturally suitable land across the province.[62,63] Access to

[54] Lin, B. "Resilience in Agriculture through Crop Diversification: Adaptive Management for Environmental Change". BioScience, Volume 61, Issue 3. March 2011.
[55] Ministry of Agriculture. "2018/19-2020/21 Service Plan". February 2018. Available here: https://www.bcbudget.gov.bc.ca/2018/sp/pdf/ministry/agri.pdf
[56] Whitehead, A. Ensuring food quality and safety FAO technical assistance". Available here: http://www.fao.org/3/w9474t/w9474t03.htm
[57] Investment Agriculture Foundation, Buy BC Partnership Program. Available here: https://iafbc.ca/wp-content/uploads/2019/09/Buy-BC-Program-Guide-FINAL-formatted-1.pdf
[58] Government of British Columbia. "Agricultural Regions". Accessed on May 25, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-regions
[59] Provincial Agricultural Land Commission. "Agricultural Land". Accessed on June 1, 2020. Available here: https://www.alc.gov.bc.ca/alc/content/alr-maps/agricultural-land
[60] Government of British Columbia. "Annual B.C. exports". Accessed on May 25, 2020. Available here: https://www2.gov.bc.ca/assets/gov/data/statistics/business-industry-trade/trade/exp_annual_bc_exports.xlsx
[61] Trade and Invest British Columbia. "Agrifood". Accessed on May 25, 2020. Available here: https://www.britishcolumbia.ca/invest/industry-sectors/agrifood/
[62] Provincial Agricultural Land Commission. "Permitted Uses in the ALR". Available here: https://www.alc.gov.bc.ca/alc/content/alr-maps/living-in-the-alr/permitted-uses-in-the-alr
[63] Government of British Columbia. "Agricultural Land Reserve". Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/agricultural-land-reserve/the-agricultural-land-reserve

ALR is an important driver of growth in the Sector, as it ensures a stable land base for agricultural producers. However, competing land uses, especially in urban agricultural regions, can compromise the availability of the ALR for agriculture to accommodate other non-agricultural uses (e.g. residential, commercial and industrial purposes). In particular, population growth and urbanization can lead to the erosion of the ALR in large centres.[64]

6. **Access to water and Crown land.** The success of the Sector is largely dependent on its access to natural resources, including water and provincially-owned Crown land, among others. In BC, 94 percent of the total land base is Crown land which agricultural producers can apply to use for the cultivation and production of crops, hay cutting and grazing.[65,66] Similarly, all water in the province is owned by the Crown on behalf of British Columbians, with a share reserved specifically for agricultural lands.[67] Access to, and appropriate management of Crown land and water for agricultural purposes is crucial to the development and growth of the Sector, and to food security in BC.

7. **Presence of strong post-secondary education institutions and applied research facilities.** BC is known for quality research and educational institutions that offer agricultural programs, such as the following:[68]

   - University of British Columbia, Faculty of Agriculture.
   - University of the Fraser Valley ("UFV"), Faculty of Agriculture.
   - Kwantlen Polytechnic University ("KPU"), Sustainable Agriculture and Food Systems program.
   - Thompson River University, Applied Sustainable Ranching program.
   - Simon Fraser University, School of Resource and Environmental Management and Department of Biological Sciences.

   BC is also home to applied research facilities focusing on agriculture, such as the Agassiz Research and Development Centre, Summerland Research and Development Centre, Food and Agriculture Institute at UFV and the Institute for Sustainable Food Systems at KPU. The presence of these educational institutions and research facilities helps develop the local workforce for the Sector and establishes BC's position in the field of agriculture education and research. As a result, the educational infrastructure has the potential to positively impact productivity and labour availability, as well as attract inward investment to the province.

[64] Campbell, C. "Forever Farmland: Reshaping the Agricultural Land Reserve for the 21st Century". 2006. Available here: https://davidsuzuki.org/wp-content/uploads/2019/02/forever-farmland-reshaping-agricultural-land-reserve-21st-century.pdf
[65] Government of British Columbia. "Working on the Land Base." Accessed on May 31, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/natural-resource-use
[66] Government of British Columbia. "Land Use – Agriculture". Accessed on May 31, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/crown-land-water/crown-land/crown-land-uses/agriculture
[67] Government of British Columbia. "Land Use – Agriculture". Accessed on May 31, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/crown-land-water/crown-land/crown-land-uses/agriculture
[68] Government of British Columbia. "Starting a New Farm". Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/business-market-development/agrifood-business-management/starting-a-new-farm

Weaknesses

1. **Limited arable land base.** Scarcity of arable land is a fundamental weakness, impacting capacity and growth of the Sector. Although up to 15 percent of BC land is suitable for agriculture purposes, less than five percent is considered suitable for growing crops and only one percent is classified as prime, Class 1 farmland.[69] Furthermore, the Sector faces competition from other industries in securing land needed for current and future operations. Not only is land limited, but most is also located within or close to urban areas, resulting in higher land prices and operations in densely populated zones.[70] With only so much land available for animal and crop production, land limitations also have important implications for nutrient management.
2. **Unfulfilled labour needs and gaps in labour attraction and retention.** The Sector is a significant employment generator in BC and shortages of skilled and unskilled labour are a key challenge for BC producers. The availability of domestic workers coupled with difficulties in securing foreign workers may lead to dampened labour productivity and lower competitiveness against other jurisdictions. A survey of BC agriculture businesses found that 65 percent would describe the shortage of qualified labour as a serious concern.[71] According to the Canadian Agricultural Human Resource Council, the Sector faces one of the largest labour gaps, relative to demand, in Canada.[72] The Canadian Agricultural Human Resource Council reports four main factors impacting the ability of agriculture producers to attract and retain workers. These include seasonality, rural locations of operations, competition for labour with other sectors and physical nature of work.[73] With agricultural jobs typically viewed as seasonal, low-skilled, or lower-paying, they are generally less desirable than other employment opportunities. The Sector's reliance on temporary foreign workers ("TFWs") can further compound labour availability, with over 21 percent of BC agriculture jobs filled by TFWs in 2018.[74] As a result of rising demand for workers and only stable growth of the domestic workforce, the Sector is expected to need over 11,000 foreign workers by 2025 to fill vacancies in the agriculture sector.[75] Although disruptions to the availability of TFWs as a result of border restrictions due to COVID-19 may be partially offset by changes to the composition of the local labour force in the short-term, availability of workers remain a key concern across the Sector.

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[69] Crawford, E. and Beveridge, R. "Strengthening BC's Agriculture Sector in the Face of Climate Change". May 2013. Available here: https://pics.uvic.ca/sites/default/files/uploads/publications/Strengthening%20BC%27s%20Agriculture%20Sector_0.pdf
[70] Ibid.
[71] Canadian Federation of Independent Business. "Growing B.C. Farming and Protecting Farmland". November 2019. Available here: https://engage.gov.bc.ca/app/uploads/sites/551/2020/01/Canadian-Federation-of-Independent-Business-CFIB.pdf
[72] Canadian Agricultural Human Resource Council. "British Columbia Agricultural Labour Market Forecast to 2025". 2015. Available here: https://cahrc-ccrha.ca/sites/default/files/files/Labour-Employment/factsheet_BC_E.pdf
[73] Canadian Agricultural Human Resource Council. "How Labour Challenges Will Shape the Future of Agriculture: Agriculture Forecast to 2029". August 2019. Available here: https://cahrc-ccrha.ca/sites/default/files/CAHRC-National-Report-FINAL-August-19-2019.pdf
[74] Statistics Canada. "COVID-19 Disruptions and Agriculture: Temporary Foreign Workers". April 17, 2020. Accessed on May 25, 2020. Available here: https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00002-eng.htm
[75] Canadian Agricultural Human Resource Council. "British Columbia Agricultural Labour Market Forecast to 2025". 2015. Available here: https://cahrc-ccrha.ca/sites/default/files/files/Labour-Employment/factsheet_BC_E.pdf

3. **Regional differences in transportation infrastructure.** The divergence in ease of mobility of agricultural goods across the province reveals a weakness in the Sector's supply chain. The network and accessibility of roads, highways and railways on which the Sector relies to transport their products varies greatly across agricultural regions. Agriculture producers located in central areas such as the Lower Mainland / South Coast generally have access to **larger urban markets** and are close to the US border, seaports or airports.,[76] although congestion in these areas tends to drive up business costs. Conversely, producers in rural or isolated locations such as the Kootenay or Peace regions, may struggle to get their products to consumers and major transport hubs.

4. **Lack of economies of scale.** Most farms in BC are small in terms of acreage and constraints related to processing restrain large herds and flocks. As a result, the Sector faces challenges in achieving economies of scale. According to the 2016 Census of Agriculture, close to 70 percent of farms in BC were less than 70 acres in size, and 31 percent less were less than 10 acres.[77] Additionally, while diversity in production is one of the Sector's main strengths, it may also prevent some small producers from achieving economies of scale among many commodities. With fewer opportunities for specialization among small farms, producers may choose to forgo investments in innovation or other cost-efficient technology, further inhibiting efficiency and productivity of the Sector. In some cases, this leads to increased competition within the Sector itself, hindering opportunities for collaboration and scalability among agricultural producers.

Opportunities

1. **Acceleration of innovation and availability of innovative technology.** Through continued research, development and widespread use of innovation, the Sector can modernize products, practices and processes to its advantage. The rise of agricultural technology ("agritech") presents a unique opportunity for the Sector to improve efficiency, competitiveness and profitability.[78] Although there are clusters of innovative producers within the Sector already, such as in the dairy and greenhouse subsectors, there is an opportunity for further innovation in the Sector. With over 150 agritech companies located in BC and various financial commitments to support innovation from provincial and federal governments,[79] the Sector is well positioned to integrate new technologies into its operations. This can be supported through focused adoption efforts across the Sector (e.g. robotics) and through commitments by BC agritech producers to demonstrate and deploy technologies locally.

2. **Leveraging of existing trade agreements.** BC is an active partner in several domestic and international trade-related initiatives which aim to improve trade conditions for businesses and

[76] Government of British Columbia. Agricultural Regions - South Coast – Overview. Accessed on May 25, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-regions/south-coast
[77] Statistics Canada. Table 32-10-0404-01 Farms classified by total farm area. Accessed on June 3, 2020. Available here: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210040401&pickMembers%5B0%5D=1.2010
[78] B.C. Food Security Task Force. "The Future of B.C.'s Food System". 2020. Available here: https://engage.gov.bc.ca/app/uploads/sites/121/2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[79] Ibid.

investors.[80] This includes agreements with some of BC's largest trading partners, including the US, Europe, South Korea, and other Asia-Pacific countries. Such agreements allow the Sector to pursue new market access opportunities through the reduction or elimination of tariffs and other negotiated measures. It is important to note, however, that the impact of trade agreements may vary significantly by export market and commodity. For example, under the Canada-Korea Free Trade Agreement ("CKFTA"), which came into force on January 1, 2015, certain agricultural and agri-food products received immediate duty-free access (e.g. grains, special crops, select meat and animal products) while tariffs for other products are eliminated gradually over a number of years (e.g. blueberries).[81,82] Also, even after some of these trade agreements are signed, other non-tariff barriers exist, which may impede the Sector in accessing such markets. Therefore, consideration of impacts across all agricultural commodities as well as non-tariff barriers is necessary to leverage existing trade agreements properly.

3. **Increased demand for local agricultural products.** According to a report published by Agriculture and Agri-Food Canada, Canadians are increasingly subscribing to the buy local philosophy due to concerns over imported food and targeted programs by industry and government.[83] In BC, the Grow BC, Feed BC, and Buy BC initiatives aim to support local food production by expanding the domestic market for BC food and beverage products.[84] Additionally, because food imports and exports are threatened by impacts of COVID-19 on supply chains, locally-produced agricultural products are and will continue to be in higher demand.[85] In some cases, BC farmers have used this as an opportunity to diversify their product offerings or seek out new distribution channels (e.g., direct to consumer) to meet demand from the local market.[86] With consumers placing higher value on local agricultural products, there is an opportunity for the Sector to further leverage this trend to their advantage.

4. **Increased value-added processing capacity.** The Sector is supported by a strong food and beverage processing industry with over 2,900 establishments across BC.[87] However, as some Sector production is exported to other provinces or countries for processing only to be re-imported for sale to the local market, BC farms have an opportunity to increase processing capacity within the Sector as well as attract investments in value-added processing capacity.

5. **Collaboration with Indigenous communities.** There are opportunities to strengthen the relationships between the Sector, governments and Indigenous communities to the benefit of all parties and to facilitate decisions related to the management of land and other natural resources. According to a report published by the Business Council of British Columbia, several areas need to be addressed in order to maximize collective economic opportunities among industry,

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[80] Government of British Columbia. Trade Agreement & Policy. Accessed on May 25, 2020. Available here : https://www2.gov.bc.ca/gov/content/employment-business/international-investment-and-trade/trade-agreement-policy
[81] Foreign Affairs and International Trade Canada. "Canada-Korea Free Trade Agreement". 2014. Available here: https://www.international.gc.ca/trade-commerce/assets/pdfs/agreements-accords/ckfta-fas-saf-eng.pdf
[82] Ibid.
[83] Agriculture and Agri-Food Canada, "An Overview of the Canadian Agriculture and Agri-Food System." 2016.
[84] Government of British Columbia. "Grow BC, Feed BC, Buy BC". Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/growbc-feedbc-buybc
[85] The Globe and Mail. "B.C. farmers retool their offerings to sell more locally". April 17, 2020. Accessed June 1, 2020. Available here: https://www.theglobeandmail.com/canada/british-columbia/article-bc-farmers-retool-their-offerings-to-sell-more-locally/
[86] Ibid.
[87] Ministry of Agriculture – Corporate Statistics & Research Unit. "Sector Snapshot 2018: B.C. Food and Beverage Processing". July 2019.

government and Indigenous communities.[88] These areas include issues related to capacity and resourcing, transparency and information sharing, delegation of consultation, and building of more robust agreements between industry and Indigenous communities.[89] The report notes that while engagement and agreements can be simplified, deeper economic relationships are needed and are attainable through collaboration between all parties. Overall, by developing relationships with Indigenous communities, there are opportunities for increased investment, collaboration and resource management in the Sector.

6. **Management of natural resources.** Although the access to water and Crown land is a key strength of the Sector, improvements to the management of natural resources could help spur growth and productivity among agriculture producers. The Sector faces competing water and land use from public and private transportation and water infrastructure, residential use, and from other industries.[90,91] This often makes it challenging for the Sector to secure the resources needed to expand its operations. To address issues of water shortages, including movement of flood flows through the US to the detriment of BC agricultural producers, there is an opportunity to strengthen transboundary water management.[92] Efficient and sustainable management of water and land across the province can help to maintain food security, as well as mitigate impacts of climate change.[93]

Threats

1. **Impacts of climate change.** While there may be opportunities to gain market share due to impacts of climate change in competing agricultural jurisdictions (e.g. California), the uncertainty surrounding the effects poses a major risk to the Sector. Beyond the increased risks associated with disease and natural disasters mentioned above, climate change can impact precipitation levels and patterns that would affect agricultural production in the province through changes in the availability and suitability of land and water .[94] While producers in the Sector can adapt to mitigate these impacts, the effects of climate change are largely unknown and will likely impact food security and self-sufficiency in BC.[95]

[88] Business Council of British Columbia. “The State of Industry-First Nations Relations in B.C. – Part II: Recommendations”. Available here: https://bcbc.com/dist/assets/publications/the-state-of-industry-first-nations-relations-in-b-c-part-ii-recommendations/FN_EngagementSeries_No2_FINAL.pdf
[89] Ibid.
[90] Government of British Columbia. “Crown Land Uses.” Available here: https://www2.gov.bc.ca/gov/content/industry/crown-land-water/crown-land/crown-land-uses
[91] Government of British Columbia. “Water Use.” Available here : https://www2.gov.bc.ca/gov/content/industry/crown-land-water/crown-land/water-use
[92] Global Water Futures, University of Saskatchewan. “Water Security for Canadians: Solutions for Canada’s Emerging Water Crisis”. 2019. Available here: https://gwf.usask.ca/documents/meetings/water-security-for-canada/WaterSecurityForCanada_April-25-2019-2pg1.pdf
[93] British Columbia Agriculture & Food Climate Action Initative. “BC Farm Practices & Climate Change Adaptation – Water Storage”. Available here: https://www.cattlemen.bc.ca/docs/farmpractices-waterstorage.pdf
[94] Government of British Columbia. “Adapting to Climate Change”. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/climate-action/adapting-to-climate-change
[95] Powell, L. J. et al. “Agriculture’s Connection to Health: A summary of the evidence relevant to British Columbia”. April 2016. Available here: http://www.bccdc.ca/pop-public-health/Documents/AgConnectiontoHealth_FullReport_April2016.pdf

2. **Impacts of pandemics such as COVID-19 and other events that disrupt access to labour and processing capacity.** As in most other industries, the COVID-19 pandemic presents considerable threats to production volumes of the Sector through impacts on labour availability and processing capacity. Since the Sector is heavily dependent on TFWs, travel restrictions and self-isolation requirements have intensified worker shortages, with the BC agriculture industry facing a shortfall of 6,000 to 8,000 seasonal agriculture labourers.[96] On the processing side, outbreaks of COVID-19 at various BC poultry facilities have temporarily halted or slowed processing activity.[97] Overall, these impacts negatively affect agricultural production and food security in the province.

3. **Unharmonized regulations.** Various areas of agricultural production are managed by federal, provincial and local government bodies, and as such, producers are subject to a range of regulations that are often unharmonized. Inconsistent and burdensome regulations and red tape pose a threat to productivity, competitiveness and innovation of the Sector. A survey of small- and medium-sized farms in BC found that 73 percent of respondents considered government regulation as a high priority concern for their operations.[98] Furthermore, as political uncertainty is considered to have meaningful impacts on business and investment activities,[99] agricultural producers are threatened by regulatory ambiguity with each federal, provincial and municipal general election. To support existing producers, attract new businesses, and encourage investment, improvements can be made to improve the regulatory climate in the Sector.

4. **Increased cost of production relative to revenue gains.** Agriculture producers incur a wide range of operating expenses such as employee wages and room and board, fuel, property taxes, irrigation costs, and machinery repairs. Over the period 2015 to 2019, operating expenses for farms in BC have increased by approximately 25 percent while farm cash receipts have only increased by 23 percent.[100] While some price inflation as a result of economic and market conditions is to be expected, increases in non-recoverable costs continue to impact farm profitability. So long as increases in expenses continue to outpace cash receipts, the rising cost of production will remain a threat to the growth of the Sector.

5. **Impacts of natural disasters.** Natural disasters, such as floods, earthquakes and wildfires, pose a considerable threat to agricultural assets, infrastructure and production.[101] Although the BC Ministry of Agriculture has a legislative requirement for emergency management plans in the event of an emergency or disaster,[102] damages and losses can be devastating to farmers. According to analyses conducted by the Food and Agriculture Organization of the United Nations, the crop and livestock subsectors bear the largest financial losses due to natural hazards.[103] The likelihood of

[96] CBC. “B.C. agriculture sector bracing for 8,000 worker shortfall this year”. May 28, 2020. Accessed June 1, 2020. Available here: https://www.cbc.ca/news/canada/british-columbia/b-c-agriculture-industry-bracing-for-8-000-worker-shortfall-this-year-1.5588769
[97] CBC. “Workers at 2 more B.C. poultry-processing plants test positive for COVID-19”. April 29, 2020. Accessed June 1, 2020. Available here: https://www.cbc.ca/news/canada/british-columbia/worker-positive-covid-poultry-plant-1.5549116
[98] Canadian Federation of Independent Business. “Growing B.C. Farming and Protecting Farmland”. November 2019. Available here: https://engage.gov.bc.ca/app/uploads/sites/551/2020/01/Canadian-Federation-of-Independent-Business-CFIB.pdf
[99] Julio, B. and Yook, Y. “Political Uncertainty and Corporate Investment Cycles”. February 2012.
[100] Statistics Canada. Table 32-10-0052-01 Net farm income (x1,000). Accessed May 25, 2020. Available here: https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3210005201
[101] Food and Agriculture Organization of the United Nations. “The Impact of Natural Hazards and Disasters on Agriculture and Food Security and Nutrition”. May 2015. Available here: http://www.fao.org/3/a-i4434e.pdf
[102] Government of British Columbia. “Emergency Management for Agriculture”. Accessed on May 25, 2020. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/business-market-development/emergency-management
[103] Food and Agriculture Organization of the United Nations. “The Impact of Natural Hazards and Disasters on Agriculture and Food Security and Nutrition”. May 2015. Available here: http://www.fao.org/3/a-i4434e.pdf

these negative impacts is expected to rise as climate change changes the frequency, duration and intensity of many natural disasters.[104]

6. **Risk of animal and crop disease.** The risk of disease among plants, crops and livestock is a threat not only to agriculture production and exports but also to public health, biodiversity and food security. While recent occurrences of plant and animal disease in Canada have shown that the industry is capable of responding to and recovering from agricultural health emergencies, there have been material losses in productivity, income and market access.[105] For example, the most recent outbreak of avian influenza in 2014/15, affected 14 poultry farms in BC and led to the death of approximately 240,000 birds.[106] Not only did the outbreak curb poultry production across the province, concerns over food safety caused some of BC's main export markets including Japan, South Korea, Taiwan and Hong Kong to ban the import of chicks, poultry and poultry products from BC.[107] In addition, climatic changes impacting precipitation and temperatures may further increase the prevalence of diseases and associated risks.[108]

7. **Increased pressure on margins and consolidation of processors, retailers and distributors.** According to a report by Agriculture and Agri-Food Canada, there has been a trend toward retail and distribution consolidation in BC with several major food retailers and distributors dominating the provincial marketplace.[109] Along with the merging of some food and beverage processors, consolidation across the value chain poses a risk to small- and medium-sized agricultural producers. As a result, producers who do not have the capacity to supply the market at a large scale may face pressures to lower costs and a deterioration of bargaining power, ultimately impacting their margins.

8. **Changing consumer preferences.** Demand for agricultural products can be influenced by special interest or activism groups and movements, and marketing campaigns by large corporations. Biased or unfounded claims made by organizations regarding food production and animal care and handling practices can manipulate consumer preferences in a way that significantly threatens agricultural production. For example, despite the fact that there have been no documented harmful effects from consuming animals treated with hormones in Canada,[110] fast food chain AandW committed to serving beef raised without the use of hormones or steroids in 2013.[111] At the time, there were not enough Canadian producers to supply this demand and AandW began importing beef from the US, Australia and New Zealand.[112,113] As it takes some time for producers to shift

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[104] Government of Canada. "Canada's Changing Climate." Accessed on May 25, 2020. Available here: https://www.canada.ca/en/environment-climate-change/news/2019/04/canadas-changing-climate.html
[105] Government of Canada. "A Plant and Animal Health Strategy for Canada". July 2017. Available here: https://www.inspection.gc.ca/about-cfia/transparency/consultations-and-engagement/partnerships-pahs/draft-for-consultation-purposes/eng/1490390513931/1490390586446?chap=0
[106] GenomeBC. "BC research improves ability to detect and predict avian flu outbreaks". June 12, 2018. Available here: https://www.genomebc.ca/bc-research-improves-ability-to-detect-and-predict-avian-flu-outbreaks/
[107] CTV. "Tests confirm avian influenza strain at B.C. farms as H5N2". December 4, 2014. Available here: https://www.ctvnews.ca/health/tests-confirm-avian-influenza-strain-at-b-c-farms-as-h5n2-1.2132260
[108] Powell, L. J. et al. "Agriculture's Connection to Health: A summary of the evidence relevant to British Columbia". April 2016. Available here: http://www.bccdc.ca/pop-public-health/Documents/AgConnectiontoHealth_FullReport_April2016.pdf
[109] Agriculture and Agri-Food Canada. "An Overview of the Canadian Agriculture and Agri-Food System." 2016.
[110] Canadian Animal Health Institute. "Hormones". Accessed on June 1, 2020. Available here: https://www.cahi-icsa.ca/hormones
[111] CBC. "Ranchers have a beef with new A&W hamburger campaign". November 14, 2013. Accessed June 1, 2020. Available here: https://www.cbc.ca/news/canada/edmonton/ranchers-have-a-beef-with-new-a-w-hamburger-campaign-1.2426659
[112] CBC. "Ranchers have a beef with new A&W hamburger campaign". November 14, 2013. Accessed June 1, 2020. Available here: https://www.cbc.ca/news/canada/edmonton/ranchers-have-a-beef-with-new-a-w-hamburger-campaign-1.2426659
[113] A&W Canada. "Our Food". Accessed on June 1, 2020. Available here: https://web.aw.ca/en/our-values/our-food/beef

processes to adapt to changes in demand, these types of campaigns compromise production in the short-term and could raise prices in the long-term.[114] Where changing consumer preferences lead to major alterations in products and agricultural processes, there may also be significant impacts on the environment through increases in the overall carbon footprint of the Sector.

[114] CBC. “Ranchers have a beef with new A&W hamburger campaign”. November 14, 2013. Accessed June 1, 2020. Available here: https://www.cbc.ca/news/canada/edmonton/ranchers-have-a-beef-with-new-a-w-hamburger-campaign-1.2426659

7. GOVERNMENT PRIORITIES AND ROLE FOR THE SECTOR

7.1. Scan of Government Priorities

MNP conducted a scan of select reports involving provincial and local governments to identify priorities for which the Sector could play a role in their advancement. More specifically, the scan of government priorities covers 29 reports published by the provincial government (12) and regional districts (17) within BC. A full list of the reports included in the scan is provided in ***Appendix D***.

Please note that while the sample of reports reviewed is not exhaustive, it provides a snapshot of government priorities that could be considered by the Sector. Also, please note that the sample reports reviewed as part of the scan were published between the years of 2013 and early 2020. As such, any government priorities related to addressing the impacts of Covid-19 pandemic were excluded from this analysis. While several government priorities have shifted to support the response to the Covid-19, many of the identified priorities that could be advanced by the Sector continue to be relevant at present. These priorities include economic development, employment, food security, and emergency management.

Table 6 summarizes the provincial and regional district reports reviewed as part of this study by common government priority themes.

Table 6: Review of Provincial and Regional by Themes

Government Priorities								
	Themes of Priorities							
	Environment	Economic Growth/Development	Employment and the Labour Market	Food Security	Emergency Management	Economic Diversification	Value Chain Stability	Other[115]
Provincial Government Reports	7	2	3	4	0	0	2	5
Regional Government Reports	14	12	10	7	11	7	3	4
Total	21	14	13	11	11	7	5	9

[115] Other priorities included education/apprenticeships, competitiveness, international brand strategy, poverty reduction, infrastructure needs assessment, community development, recreation, tourism and heritage.

Analysis of Provincial Government Reports

From the review of the 12 provincial government reports as part of the scan, the following priorities for which the Sector might play a role were identified.

- **Environment.** Seven reports included priorities focused on the environment and climate change, notably the reduction of greenhouse gas emissions, the adoption of clean technology, and the implementation of a climate adaptation strategy.
- **Economic Growth and Development.** Two reports included priorities that focused on economic growth and development with specific reference to supporting competitiveness across all sectors of the economy, revenues to fund public services, and shared benefits throughout the province.
- **Employment and the Labour Market.** Three reports included priorities that focused on employment growth, with a focus on fair and safe working conditions for all BC residents as well as innovation and job growth in rural BC.
- **Food Security.** Four reports included priorities that focused on the theme of food security with supporting recommendations put forward by the Food Security Task Force to identify new ways to use technology to maximise BC's rich agricultural lands as well as initiatives that bring more farmland into production and support young farmers with gaining access to land.
- **Food Value Chain Stability.** Three reports included priorities that focused on supporting food value chain stability. Associated with this was linking food production with new technologies, enabling in turn an increase in exports and access to world markets. In addition, reference was made to implementing initiatives such as Feed BC that help increase the use of BC grown and processed foods in hospitals, schools, and other government facilities across the province.

Analysis of Regional Government Reports

From the review of the 17 regional district reports as part of the scan, the following priorities where the Sector might play a role were identified.

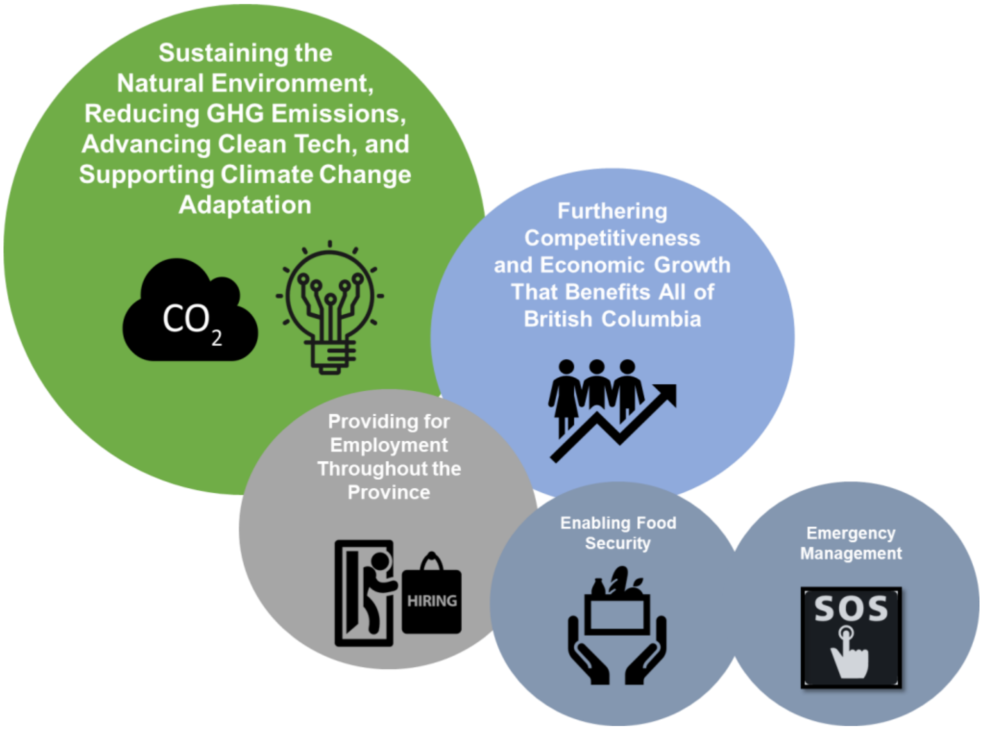
- **Environment.** Fourteen regional district reports included priorities that focused on the environment. Specifically, these reports made reference to protecting the environment, managing air quality, managing waste, enhancing water conservation and sustainability, supporting climate change adaptation, and reducing GHG emissions. Several reports also included priorities to support the preservation and productivity of agricultural lands as well as the stewardship of natural resources in the province.
- **Economic Growth and Development.** Twelve regional district reports included priorities that focused on economic growth and development. Associated with this was economic growth that builds on the strengths of the regions along with enhancing the enabling infrastructure and services to attract and retain residents, skilled labour, and businesses. In several reports, the Sector is recognised as being an important economic engine for these regions.
- **Employment and the Labour Market.** Ten reports included priorities in the area of employment and the labour market. Specific focal points were supporting local businesses and increasing the regional job base. Also, several reports had priorities that aimed to support a diverse and balanced economic base of good quality employment and high paying jobs.
- **Food Security.** Seven reports included priorities that focused on food security. Specifically, reports included priorities that aim to promote food security by supporting the production and procurement

of BC food products and a healthy local diet. Several reports had priorities that aimed to support food security through the preservation of agricultural land for agricultural purposes.

- **Economic Diversification.** Seven reports included priorities that focused on regional economic diversification. For example, the development of a wider variety of sectors and types of work within the regions with particular reference to a viable and diverse agricultural industry as well as ensuring that lands are zoned appropriately to capitalize on a range of industry opportunities. Some reports noted that economic diversification is a priority to ensure the protection of the economy against factors such as wildfires losses, the mountain pine beetle, and other environmental factors.
- **Emergency Management.** Eleven reports included priorities that focused on emergency management, ranging from prevention along with preparation for emergencies such wildfires and flooding events. Several regions had priorities that aimed to enhance emergency planning and response capacity within their regions.
- **Food Value Chain Stability.** Two regions included priorities focused on food value chain stability. For example, supporting more sustainable and efficient movement of goods by developing and maintaining an efficient along with safe inter-regional transportation system.

From this scan, and combining the provincial and regional district findings, the Sector can contribute in a meaningful way to several of these priorities. The priorities that hold the greatest relevance to the Sector, based on the prevalence of mention in the reviewed reports, is illustrated on Figure 10.[116]

Figure 10: Potential Role of the Sector



[116] While the scan focused on priorities that the Sector could play a role in advancing, the priority of competitiveness was mentioned in only a small subset of reports. The priority of competitiveness is linked with other important priorities that the Sector could contribute such as employment and economic recovery.

A detailed description of how the Sector is already contributing to some of the identified government priorities such as emergency management, food security, employment and training, and environmental sustainability, can be found on ***Section 8*** of this report.

The textboxes below include examples of initiatives that have been implemented in other jurisdictions to help support their agriculture sectors in further contributing to important priorities such as climate change and food security.

INCENTIVES TO ACHIEVE ENVIRONMENTAL COMPLIANCE

The European Commission's Climate Agricultural Policy (CAP) aims to mitigate environmental and climate issues through incentive schemes for farmers. For example, through cross-compliance, income support is directly linked to farmers' adherence to basic standards related to food safety, animal and plant health, animal welfare and maintenance of agricultural land. In particular, direct payments have been linked to compliance of greening measures (i.e., sustainable land use), requiring farmers to diversify crops, maintain permanent grassland and dedicate some arable land to ecological purposes. Overall, these initiatives contribute to climate change mitigation by encouraging sustainable farming practices.

Sources:
European Commission. "Preserving our soil to protect our food". Available here: https://ec.europa.eu/info/news/preserving-our-soil-protect-our-food-2018-dec-05_en
European Commission: "Greening". Available here:https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/income-support/greening_en
European Commission. "Cross-compliance". Available here: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/income-support/cross-compliance_en

SUPPORT TO INCREASE THE ADOPTION OF INNOVATIVE TECHNOLOGY

Peru's Serviagro program provides small to medium-sized farmers with the information and training needed to disseminate new technologies and best practices. More specifically, the Serviagro program has two main areas of focus:

- The provision of technical assistance, training, and agriculture extension services.
- The provision of information and consulting services to assist with technology transfer.

The purpose of the Serviagro program is to improve the production capacity and competitiveness of Peruvian farms while reducing the country's dependency on agricultural imports. The program has been rolled out nationwide and is expected to benefit half a million farmers across Peru.

Sources:
Government of Peru, Ministry of Agriculture and Irrigation, "Lanzamiento de Plan Agro Próspero por el Ministerio de Agricultura y Riego en Junin". Available here: https://www.agrorural.gob.pe/lanzamiento-de-plan-agro-prospero-por-el-ministerio-de-agricultura-y-riego-en-junin/
Inter-American Development Bank. "Agricultural Support Policies in Latin America and the Caribbean 2018 Review". Available here: https://publications.iadb.org/en/agricultural-support-policies-latin-america-and-caribbean-2018-review
Andina (Agencia Peruana de Noticias). "Peru Government launches agricultural platform to modernize fields". Available here: https://andina.pe/ingles/noticia-peru-govt-launches-agricultural-platform-to-modernize-fields-650639.aspx

TOOLS TO ENHANCE NUTRIENT MANAGEMENT

To help farmers optimize plant and animal growth, the government of New Zealand has invested in nutrient management research to develop *OverseerFM*. *OverseerFM* is an online software that helps farmers calculate and examine farm-scale nutrient losses and greenhouse gas emissions. It is the only tool that can be used to model an individual farm using easily-obtainable information, with the output being used to set appropriate and meaningful regulations. *OverseerFM* is jointly owned by the Ministry for Primary Industries, the Fertiliser Association of New Zealand and AgResearch Limited.

Sources:
Government of New Zealand. "Makeover for OVERSEER". Available here: https://www.mpi.govt.nz/news-and-resources/media-releases/makeover-for-overseer/
OverseerFM. "Our Story". Available here: https://www.overseer.org.nz/our-story

RESEARCH AND SUPPORT TO PROPEL SUSTAINABLE AGRICULTURE

The Netherlands is considered a world leader in sustainable agriculture due to its expertise in research, development and innovation. One example is Duijvestijn Tomaten, a family-run tomato grower that has used geothermal energy to heat its greenhouses since 2011. The company uses virtually no fossil fuels and is able to grow its products using 60 percent less energy than traditional methods. The Netherlands is also home to Wageningen University and Research Centre, which has been named the best global university for agricultural sciences. As a result, the Netherlands has more than 4,000 agri-food companies and continues to be a global leader in agricultural sustainability.

Sources:
Duijvestijn Tomaten. "About us". Available here: https://duijvestijntomaten.nl/en/about-us/
Invest in Holland. "Agri/food". Available here: https://investinholland.com/wp-content/uploads/2019/10/NFIA_Agrifood_Brochure_2019_A4.pdf
Invest in Holland. "The Future of Farming: Why the World Should Admire the Dutch Approach to Agriculture". Available here : https://investinholland.com/news/the-future-of-farming-why-the-world-should-admire-the-dutch-approach-to-agriculture
World Economic Forum. "These Dutch tomatoes can teach the world about sustainable agriculture". Available here: https://www.weforum.org/agenda/2019/11/netherlands-dutch-farming-agriculture-sustainable/

8. SOLUTIONS PROVIDED BY THE SECTOR

In addition to creating economic impacts, the Sector provides solutions and contributions to key public sector issues in BC, as indicated in Figure 11.

Figure 11: Solutions and Contributions of the Sector to Key Public Issues

8.1. Case Studies

The following pages contain case studies that describe some of the solutions/contributions that the Sector provides to some key public sector issues along with some of the challenges that it faces in playing a bigger role in addressing these issues. Information used to prepare the case studies was obtained through secondary research and interviews with subject matter experts and Sector stakeholders. For more information on the interviews conducted please refer to ***Appendix E***.

CASE STUDY

Economic Recovery

Key Message:

The Sector is resilient and capable of weathering economic downturns, but it needs secure access to employees and employment programs to succeed.

Backdrop

The negative economic implications associated with COVID-19 are unprecedented. According to the outlook from the Organization for Economic Cooperation and Development, global GDP is anticipated to decline by eight percent in 2020. Canada, between February 2020 and May 2020, lost approximately 2.7 million jobs or 14 percent of all jobs in the country. British Columbia, due to its reliance on hard-hit sectors such as accommodation and food services, had the second most affected labour market – losing approximately 353,000 jobs between February and May 2020. [117]

In response to the economic downturn caused by COVID-19, the Province of BC established the Economic Recovery Task Force. Its purpose is to monitor pandemic-related support programs and to provide solutions for long-term economic recovery.[118] Calls to action for BC's approach to economic recovery, as submitted to the Economic Recovery Task Force by the BC Federation of Labour, include building "long-term resilience in our communities" and ensuring "security and robust standards across every employment sector" for workers.[119] These priorities present opportunities for the Sector to contribute to economic recovery, particularly in rural communities across the province.

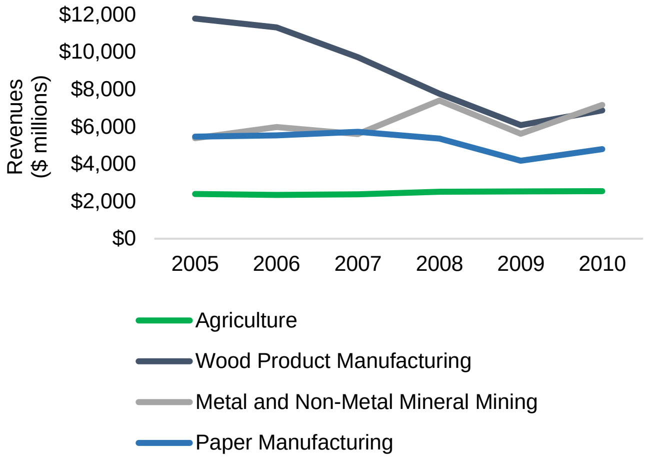
BC Agriculture Sector's Contributions to Economic Recovery

The Sector can play a major role in helping the province weather and recover from the pandemic-induced economic downturn due to both its inherent recession-resilience and its important role in fostering economic development in rural communities.

Typically, the Sector is more stable during times of economic instability compared to other sectors. This is because the demand for food is less impacted as it is considered a necessity. This resilience is evident when comparing revenues between industries in past economic recessions. For example, the "Great Recession" was one of the worst economic downturns in recent years, spanning 2007–2009 after the bursting of the US housing bubble and subsequent global financial crisis.[120] In Canada, the recession lasted seven months over the 2008 and 2009 period.

[117] Business Council of British Columbia, The 2020 Shutdown: How Deep is the Economic Hole? June 2020. Available here: https://bcbc.com/reports-and-research/the-2020-shutdown-how-deep-is-the-economic-hole
[118] BC Gov News, Premier's task force to support B.C. economy during, after COVID-19. April 2, 2020. Available here: https://news.gov.bc.ca/releases/2020PREM0046-000618.
[119] BC Federation of Labour, Rebuilding our Economy for All. May 2020. Available here: https://bcfed.ca/sites/default/files/attachments/ERT%20submission_0519.pdf
[120] Investopedia, The Great Recession. April 2020. Available here: https://www.investopedia.com/terms/g/great-recession.asp

Figure 12: Total Revenues for Major Industries in BC, 2005–2010



Sources: Statistics Canada, Table 16-10-0038-01. Manufacturing industries, principal statistic by industry classification. Statistics Canada. Selected Econimic Statistics for BC. 2019.

As shown on Figure 12, between 2007 and 2009, the Sector experienced a steady revenue growth (six percent) - enabling it to maintain its same level of employment - while other major industries in the province such as wood manufacturing and paper manufacturing experienced a significant decline in revenues (37 percent and 27 percent, respectively) and employment (declining approximately 16,000 and 5,000 persons in the two-year period, respectively).[121] The revenues of the mining industry stayed relatively stable during the same period.[122]

By remaining stable through past economic recessions, the Sector has proven to be an integral component of the economy and an important contributor to employment and GDP growth[123] even as other major industries experience slumps. In the current COVID-19 crisis, the Sector is again shown to support the provincial labour market. For example, employment levels in the Sector decreased by approximately two percent in the second quarter of 2020 compared to the same period in 2019, while overall employment levels in BC decreased by 14 percent over the same period.[124]

Furthermore, the Sector has proven to lessen the negative impacts of economic downturns, particularly in rural communities.[125] In many rural areas, farming is the fabric of society and the main economic activity, playing an essential role in rural development.[126] Farms both directly support local suppliers and service providers through their spending on local feed stores, equipment dealers, repair shops, veterinarians, and transportation services, and indirectly, by supporting retail, tourism, service, and hospitality industries.[127]

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[121] BC Stats, Annual Averages, Employment by detailed industry. Available here: https://www2.gov.bc.ca/gov/content/data/statistics/employment-labour/labour-market-statistics
[122] BC Stats, Selected Economic Statistics for BC. April 2020. Available here: https://www2.gov.bc.ca/gov/content/data/statistics/economy/other-economic-statistics
[123] Real Agriculture, Agriculture's Role in the Economic Recovery. June 2020. Available here: https://www.realagriculture.com/2020/06 /agricultures-role-in-the-economic-recovery/#:~:text=The%20agriculture%20sector%20could%20be,our%20value%2Dadded%20processing%20services.&text=Agriculture%20has%20proven%20that%20it,to%20jobs%20and%20the%20GDP.
[124] Statistics Canada. Table 14-10-0091-01. Available here: https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1410009101
[125] The Breakthrough Institute, Economic Recovery for Rural Communities and Agricultural Sustainability. April 2020. Available here: https://thebreakthrough.org/articles/rural-recovery
[126] European Commission, Agriculture's Contribution to Rural Development. July 2000. Available here: https://www.iatp.org/sites/default/files/Agricultures_Contribution_to_Rural_Development.htm#:~:text=Agriculture%27s%20Contribution%20to%20Rural%20Development&text=1.,is%20the%20main%20economic%20activity.&text=Agriculture%20also%20plays%20an%20important,is%20of%20less%20economic%20significance.
[127] BC Cattlemen's Association, Economic Impact Report. May 2013.

Challenges Faced by, and Ways to Increase Contributions of, the Sector

While its stability and its role in rural communities make the Sector well positioned to support BC's post–COVID-19 economic recovery, it faces several challenges, most notably regarding the availability of workers and environmental sustainability going forward.

Even before COVID-19, one of the major challenges facing the Sector was labour attraction and retention. This is due to many factors, including unattractive fieldwork, labour intensity, seasonality, limited opportunity for advancement, long hours, and remote work locations.[128] The border restrictions and health and safety regulations as a result of COVID-19 have compounded these labour issues. Although disruptions to the availability of temporary foreign workers may be partially mitigated by the absorption of unemployment in other industries, employment in the Sector may not fill the gap for people that are accustomed to receiving higher wages. According to the president of Sollio Cooperative, one of the largest agri-food cooperatives in Canada, initiatives that can support economic recovery while addressing the labour shortage problem, is to value farming trades and foster regional immigration.[129] Other possible actions for improving the availability of workers in the Sector, as noted in the Agriculture Forecast to 2029 report of the Canadian Agriculture Human Resource Council, include supporting recreation and infrastructure development programs in rural areas to make them more attractive places to live and providing additional training opportunities for potential workers.[130]

As the federal and provincial governments shift their focus from COVID-19 emergency response to the task of supporting long-term economic recovery, a more in-depth look into sustainable local food systems could be among the priorities. According to MNP's interview findings, increasing awareness of buying local and having proper support in place for local food producers not only to provide employment opportunities in a manner that helps the province transition to a more resilient economy and ecologically sound future, but[131] it can also help farmers potentially increase their capacity to include food processing and on-site packaging. This, in turn, could further support employment and GDP growth in the province.

[128] Canadian Agriculture Human Resource Council, Agriculture Forecast to 2029. September, 2019. Available here: https://cahrc-ccrha.ca/sites/default/files/CAHRC-National-Report-FINAL-August-19-2019.pdf
[129] Real Agriculture, 5 Ways Agriculture Will Drive the Economic Recovery. July 10, 2020. Available here: https://www.realagriculture.com/2020/07/5-ways-agriculture-will-drive-the-economic-recovery/
[130] Canadian Agriculture Human Resource Council, Agriculture Forecast to 2029. September, 2019. Available here: https://cahrc-ccrha.ca/sites/default/files/CAHRC-National-Report-FINAL-August-19-2019.pdf
[131] West Coast Environmental Law, Fast Support for Slow Food: Could COVID-19 Economic Recovery Measures Strengthen Local Food Systems in BC? May 2020. Available here: https://www.wcel.org/blog/fast-support-slow-food-could-covid-19-economic-recovery-measures-strengthen-local-food-systems

CASE STUDY

Emergency Management

Key Message:

BC farmers are well-organized and well-positioned to help mitigate provincial emergencies, specifically through proper management of Crown land and natural resources.

Backdrop

In BC emergency management encompasses mitigation, preparation, response and recovery.[132] The province's lead coordinating agency, responsible for all emergency management activities, is Emergency Management BC ("EMBC"). Emergency management activities by the EMBC are done in collaboration with local governments, First Nations communities, federal departments, the Sector, non-government organizations, and volunteers.[133] To support more effective management of emergencies in BC, EMBC is currently working on modernizing the Emergency Program Act ("EPA"). The new Act will incorporate international best practices, reflect the lessons learned from the unprecedented flood and wildfire seasons in 2017 and 2018, place a greater emphasis on up-front disaster risk reduction. The new legislation is expected to be introduced in the fall 2020 legislative session.[134]

Emergency management is an important public health issue and is critical to keeping British Columbians safe, especially during provincial states of emergency such as the COVID-19 pandemic. Through the pandemic, and in collaboration with the Sector partners, the BC Ministry of Agriculture has been providing guidance to businesses in the Sector to continue safe operations under recommended precautions in order to continue providing essential services to British Columbians.[135]

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132 Province of British Columbia, Emergency Preparedness, Response & Recovery. Available here: https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery

133 Ibid.

134 Province of British Columbia, Emergency Program Act Modernization, October 28, 2019. Available here: https://engage.gov.bc.ca/govtogetherbc/consultation/emergency-program-act-modernization/

135 BC Ministry of Agriculture, Questions and Answers: Essential Services in the COVID-19 Pandemic: What does it mean for B.C.'s agriculture and seafood industry? Available here: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/covid-19/q_and_a_on_covid_19_essential_services_for_agriculture_and_seafood_industry.pdf

The Sector's Contributions to Emergency Management

There are numerous other ways in which the Sector supports, and provides solutions to emergencies in BC. These include contributions related to flood prevention and management, wildfire prevention, and disease outbreak management.

Flood Prevention and Management

Flooding is a common occurrence in BC and is caused by factors such as intense rainfall, flash flood, freshet, high tides and strong waves, and ice jams.[136] Its existence can result in power outages, mudslides/landslides, well and groundwater contamination and damage to infrastructure and property. It often compromises the safety of animals and people.

Since agricultural land is often on or near flood plains, damages and losses due to flooding can be devastating to crop and livestock farmers. However, it is not just the Sector that is at risk; flooding also poses risks to energy security and transportation security. According to the government, if a large share of of the Fraser Valley region were to flood as a result of climate change enabled spring runoffs, the Lower Mainland's food security, transportation links and power outages would be at risk.[137]

Representatives in the Sector and members at the municipal level and of the industry, have done extensive work in the areas of flood mitigation, preparedness and recovery.[138] Examples include:

- Sector representatives in the Fraser Valley Regional District have done significant work related to diking and flood-proofing the Fraser River.[139]
- The Sector is working alongside the Minister of State for Emergency Preparedness in devising a long term plan to address land use management and diking in Nicomen Island.[140]
- The Sector helps identify trigger levels for livestock relocation in various sub areas of the Fraser Valley and prepares proactive strategies for livestock relocation plans. For example, some cattle ranchers have a plan and the industry has cattle liners in place so that the cattle can be evacuated to a predetermined site when flood risk is high. There is a high level of preparedness to help minimize the risk of abandoned livestock during a state of emergency and reduce congestion on the roads as people are scrambling to evacuate. However, it should be noted that more work is needed to build trust between farmers and government to ensure these plans are put into action at an appropriate time.[141] In the past, there have been occasions when farms evacuated due to flood

[136] Government of BC, Integrated Flood Hazard Management. Available here: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/integrated-flood-hazard-management
[137] Business in Vancouver, Floods could cover 42% of Fraser Valley in natural disaster triggered by climate change: government. February 19, 2019. https://biv.com/article/2019/02/floods-could-cover-42-fraser-valley-natural-disaster-triggered-climate-change?utm_source=My+First+Campaign&utm_campaign=BC+Food+Security+Gateway+Gleaner+%7C+January+9%2C+2019&utm_medium=email&fbclid=IwAR0JJw8L4b978vMgmN17xXaEvQ957Ania7VIvjQOG2JnBB-wORgDA8cC4qA
[138] Climate Action Initiative, BC Agriculture & Food, Farm -Level Flood Mitigation, Preparedness & Recovery Toolkit. Available here: https://www.bcagclimateaction.ca/news/rfp2018-fv-floodmitigationtoolkit/
[139] Climate Action Initiative, BC Agriculture & Food, Farm -Level Flood Mitigation, Preparedness & Recovery Toolkit. Available here: https://www.bcagclimateaction.ca/news/rfp2018-fv-floodmitigationtoolkit/
[140] Fraser Valley Regional District, $10.5 Million Investment to Improve Nicomen Island Dyking System. March 2017. Available here: https://www.fvrd.ca/EN/meta/news/news-archives/2017-archives/-10.5-million-investment-to-improve-nicomen-island-diking-system.html
[141] Ibid.

warnings, only to have no flood actually occur. The high cost of such false alarms has caused some farmers to argue that they will not evacuate again.

Wildfire Prevention

The 2017 and 2018, wildfire seasons in BC were the most damaging in the history of the province.[142,143] Of the 2,117 wildfires in 2018 that consumed over 1.3 million hectares of land (surpassing the previously held record of 1.2 million hectares in 2017),[144] at least 1,460 were caused by lighting.[145]

Using cattle and livestock grazing minimizes the growth of annual and perennial grasses, reducing the amount of fine fuels and ultimately reducing the risk of wildfires on Crown land as a result of lightning. As part of ongoing efforts to keep communities safe from wildfire, the BC Government has been working with local governments, the ranching sector, and Indigenous communities to develop an initiative that uses grazing livestock to reduce the threat of wildfires.[146] Although targeted grazing does not entirely remove all wildfire fuel management challenges, it is a low carbon, cost-effective method to employ all while raising high-quality grass- and range-fed beef.[147]

A 2012 study of the BC beef cattle industry described the effects of livestock grazing on fuel accumulations, continuity, gaps and heights in shrub-grassland rangelands.[148] The study noted that livestock grazing has the potential to affect fire characteristics.[149] More specifically, "wildfires in moderately grazed sagebrush rangelands have decreased severity, continuity and size of the burn, compared to long-term non-grazed sagebrush rangelands."

Disease Outbreak Management

While recent occurrences of plant and animal disease in Canada have shown that the Sector can respond to, and recover from, agricultural health emergencies, there have been material losses in productivity, income and market access as a result of livestock disease outbreaks.[150]

Transmissible livestock and poultry diseases have, in the past, caused significant impacts on producers, livestock, and the economy in addition to posing a threat to human health.[151] For example, as a result of the 2004 avian influenza outbreak in the Fraser Valley, approximately 17 million birds in 125 poultry

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[142] Ministry of Forests, Lands, Natural Resource Operations and Rural Development Kamloops, BC., 2017 Wildfires – Opportunities to Minimize Rural Impacts. September 2018. Available here: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/2017-wildfires-opportunities-to-minimize-rural-impacts.pdf
[143] CBC, 2018 Now Worst Fire Season on Record as BC Extends State of Emergency. August 2018. Available here: https://www.cbc. ca/news/canada/british-columbia/state-emergency-bc-wildfires-1.4803546
[144] Government of BC, Wildfire Season Summary. Available here: https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history/wildfire-season-summary
[145] Ibid.
[146] BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, BC Livestock Join the Wildfire Fight. May 2019. Available here: https://news.gov.bc.ca/releases/2019FLNR0153-001067#:~:text=%E2%80%9CUsing%20cattle%20and%20livestock%20grazing,Resource%20Operations%20and%20Rural%20Development.
[147] Ibid.
[148] MNP, Economic Impact Analysis of British Columbia's Beef Cattle Industry, 2012. Available here: https://www.cattlemen.bc.ca/docs/mnp_final_economic_impact_report_-_march_12_2013.pdf
[149] Davies et al. Effects of Long-Term Livestock Grazing on Fuel Characteristics in Rangelands: An Example From the Sagebrush Steppe. Rangeland Ecology and Management 63:662–669. November 2010 http://oregonstate.edu/dept/EOARC/sites/default/files/672.pdf
[150] Government of Canada, A Plant and Animal Health Strategy for Canada. July 2017. Available here: https://www.inspection.gc.ca/about-cfia/transparency/consultations-and-engagement/partnerships-pahs/draft-for-consultation purposes/eng/1490390513931/1490390586446?chap=0
[151] Government of BC, Emergency Management for Agriculture. Available here: https://www2.gov.bc.ca/gov/content/industry/agricultur e -seafood/business-market-development/emergency-management

operations were euthanized resulting in total economic impacts exceeding $380 million.[152] A decade later, the avian influenza affected 14 poultry farms in BC and led to the death of approximately 240,000 birds.[153]

Following the 2004 avian influenza outbreak, the BC poultry subsector in collaboration with the BC Ministry of Agriculture and the Canadian Food Inspection Agency organized a forum entitled *"Avian Influenza – Lessons Learned and Moving Forward."*[154] The forum shared experiences and helped in developing the interface between animal and human health, biosecurity, enhanced emergency management, and industry and community economic recovery. Through Growing Forward 2, the BC Ministry of Agriculture also commissioned an *Emergency Management Guide for Poultry Farms*, which includes a template for creating a Farm Emergency Plan to enable poultry farmers to record their plans for managing emergencies before, during and after the occurrence.[155]

Furthermore, the poultry subsector has contributed to extensive plans and manuals including the *Foreign Animal Disease Emergency Support Plan* and the *Emergency Management Plans*.[156] Additionally, the BC poultry subsector has increased its preparedness by providing Avian Influenza Readiness Kits to help expedite 24-hour protocol in the event that an outbreak has been identified and a rapid shutdown is required to prevent the spreading of the disease. These kits were made available regionally to improve timeliness in the event of an outbreak.[157] BC's innovative Biological Health Treatment on barn composting paved the way for other jurisdictions that have now adopted this approach.[158]

Challenges Faced by the Sector in Increasing its Contributions to Emergency Management

Emergencies and natural disasters like floods, droughts, wildfires, and disease outbreaks can occur without warning but have devastating consequences on the Sector. Due to the Sector's dependence on access to water, quality soil, and transportation networks, a large share of agricultural land and livestock operating facilities in BC are often close to each other and urban centres. This increases the potential damage from the spreading of disease in the event of an outbreak. Thus, producers need to have strategies in place to mitigate such risks proactively.

Furthermore, the challenges related to climate change increase the potential for flooding and wildfires. As such, the Sector has been working with government partners to address issues related to climate change that are linked to emergency management. The BC Agriculture and Food Climate Action Initiative, for example, was established in 2008 through a partnership of the BC Agriculture Council and the Investment Agriculture Foundation. The CAI aims to enable a proactive and pan-agriculture approach to climate change issues through collaboration with Sector organizations, local governments, government agencies, and other

[152] House of Commons Canada, From a Management Crisis, To Becoming Better Crisis Managers: The 2004 Avian Influenza Outbreak in British Columbia. April 2005. Available here: https://www.ourcommons.ca/Content/Committee/381/AGRI/Reports/RP1770579/agrir p03/agrirp03_printed-e.pdf
[153] GenomeBC, BC research improves ability to detect and predict avian flu outbreaks. June 12, 2018. Available here: https://www.geno mebc.ca/bc-research-improves-ability-to-detect-and-predict-avian-flu-outbreaks/
[154] GenomeBC, BC research improves ability to detect and predict avian flu outbreaks. June 12, 2018. Available here: https://www.geno mebc.ca/bc-research-improves-ability-to-detect-and-predict-avian-flu-outbreaks/
[155] Risk Reduction Strategies and Smart Risk Control, Inc., Emergency Management Guide for Poultry Farms. Available here: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/farm-management/emergency-management/factsheets/900600-6_bc_poultry_producers_em_guide.pdf
[156] MNP Interview Findings.
[157] MNP Interview Findings.
[158] MNP Interview Findings.

partners. The initiative has since issued several reports and initiated further work aimed at addressing both broad, regional-level issues and farm-level issues.[159]

[159] Climate Action Initiative, About Us. Available here: https://www.bcagclimateaction.ca/overview/about-us/

CASE STUDY

Food Security

Key Message:

The Sector produces many foods year-round that are consumed within the province and contribute to local food security. It also provides support to food insecure households through various food diversion programs and food banks.

Backdrop

Food security is a key public health issue in BC and is one of the Ministry of Health's core public health programs under the province's Guiding Framework for Public Health. The BC Ministry of Health considers food insecurity to be a lack of accessibility to "sufficient, safe and nutritious food for an active and healthy life."[1]

Despite having one of the highest average income levels in Canada, approximately 12 percent of BC's households experienced some level of food insecurity in 2011.[160] For most Canadians, food security issues are not due to shortage of supply or pricing but are typically associated with the high cost of living and lack of affordable housing. This holds particularly in BC, where 43 percent of households spend over 30 percent of their income on rent and utilities.[161]

The COVID-19 pandemic drew further attention to food security related issues in BC, and globally, by disrupting the food system and highlighting vulnerabilities in its food supply chain (e.g., limited labour working in the fields, closures and reductions in the capacity of food processing establishments).[162] Such disruptions highlighted the importance of investing in the Sector to ensure access to sufficient, safe and nutritious food for British Columbians. While COVID-19 created disruptions in the food systems, food supply chain players such as food processors and retailers were able to adjust and make changes in their processes to ensure adequate food supply. For example, retailers limited the number of staple items, such as eggs and milk, purchased per household to ensure a more equitable distribution.

While the Sector is well positioned to adapt to the present-day crisis and to play a larger role in addressing these public issues, how food is produced and procured will require change given the lessons learned from COVID-19.

[160] Provincial Health Services Authority, Priority Health Equity Indicators for British Columbia. August 2016. Available here: http://www.bccdc.ca/pop-public-health/Documents/Household%20food%20insecurity%20in%20BC_full%20report.pdf
[161] Canadian Rental Housing Index. Available here: http://www.rentalhousingindex.ca/en/#comp_csd
[162] University of Calgary: School of Public Policy, Canada's Food Security During the COIVD-19 Pandemic. June 2020. Available here: https://www.policyschool.ca/wp-content/uploads/2020/06/Food-Security-Holland.pdf

The Sector's Contributions to Food Security

There are several ways in which the Sector's is uniquely positioned and has contributed to solutions in the area of food security. BC has Canada's most diverse agricultural landscape and, as highlighted by Dr. Lenore Newman,[163] an Associate Professor of Geography and Environment and Canada Research Chair in Food Security and Environment at the University of the Fraser Valley, includes over 200 primary agriculture products. With nearly 3,000 food processing companies producing over $10 billion in annual sales, it is also a leading jurisdiction in food processing and is known for high-quality products. BC also has over 150 companies that are leading the way in the development and production of agritech solutions to aid with increasing production in a more efficient and effective manner.[164]

The Sector has shown continuous support to efforts related to food security such as the BC School Fruit and Vegetable Nutritional Program ("BCSFVNP"), Julie Dickson[165], Managing Director of Corporate Services and Public Affairs at Save-On-Foods, noted that the Sector in collaboration with government support through the BCSFVNP "has been delivering locally grown fruit and vegetables to children [for 15 years]." The program supports BC farmers and BC grown produce and works with schools, producers, suppliers, and distributors to provide fresh fruits and vegetables 12 times in the school year to over 586,277 students.[166] Julie notes that "the model [to provide solutions/contributions in the area of food security in BC already] exists."

Most recently, having seen a disruption in food supply chains due to COVID-19, the BC government also put several initiatives in place to combat food insecurity. Such efforts include *Second Harvest* and *FoodMesh*, which connect businesses and food producers with a network of local social service agencies to recover nutritious food and deliver them to the hungry.[167,168] BC's dairy industry donated 40,000 litres of milk to local charities through the *FoodMesh* and its network of organizations.[169] In the future, there are opportunities to harness existing collaborations between the Sector and other sectors to address food security in the province.

Challenges Faced by, and Ways to Increase Contributions of, the Sector

In 2019, the BC government initiated the Food Security Task Force ("Task Force"), which was mandated to develop recommendations that support food security and the Sector's economic growth.[170] The Task Force sought feedback from over 500 individuals across and outside of BC, including representatives from the Sector, business community and academia.

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[163] Director of the Food and Agriculture Institute at the University of Fraser Valley, Canada Research Chair in Food Security at Fraser Valley University, and member of the Task Force
[164] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[165] Director, Public Affairs and Corporate Services, Save-on-Foods.
[166] BC Agriculture in the Classroom Foundation, BC School Fruit & Vegetable Nutritional Program. Available here: https://www.bcaitc.ca/bc-school-fruit-vegetable-nutritional-program
[167] Food Mesh, Our Story. Available here: https://foodmesh.ca/about/#ourstory
[168] Second Harvest Food Rescue. Available here: https://secondharvest.ca/what-we-do/food-rescue-delivery/
[169] Second Harvest Food Rescue. Available here: https://secondharvest.ca/what-we-do/food-rescue-delivery/
[170] Government of BC, Food Security Task Force – Results. Available here : https://engage.gov.bc.ca/govtogetherbc/impact/food-security-task-force-results/

Findings from the Task Force's Report, *The Future of BC's Food System*, suggest that BC and the Sector, like many other jurisdictions globally, face several challenges that perpetuate the issue of food security. Challenges noted included limited land availability, inadequate infrastructure, labour shortages, limited food and beverage processing capacity, increasing population demands, climate change which comes with shifting growing patterns, and globalization which increasingly poses competition for domestic producers.

The Task Force concluded that agritech development is key to increasing the competitiveness, efficiency and profitability of the Sector while at the same time allowing the Sector to increase its contributions in the area of food security. Within its four overarching recommendations, the Task Force suggests that:

- **BC farmers and agritech companies consider exporting intellectual property in the form of technology solutions to jurisdictions all over the globe.** Geographically, the mountainous region of BC is at an agricultural disadvantage due to a lack of farm land. In BC, less than five percent of total provincial land is arable and suitable for farming.[171] As a result, conventional farming and small scale agritourism production is limited. Innovations in the agritech sector have the potential to provide key solutions to address the lack of farm land and may ensure that fresh fruits and vegetables can be produced and accessible for all regions in BC.[172] Based on the achievements of the Netherlands, agritech innovations bring immense potential for BC: while possessing less than half of BC's potential arable land[173,174] the Netherlands has become the second-largest exporter of agricultural products by value in the world.[175] This is mainly due to its effective use of technology.
- **Investments be made in agritech innovations such as indoor growing and vertical growing.** Such innovations would enable rural/remote communities to potentially grow nutritious produce year-round and minimize the carbon footprint associated with transportation of food.[176] CubicFarm Systems Corp. is a BC based company that has been successful in developing and deploying technology to produce high-quality, predictable crop yields.[177]

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[171] Ministry of Agriculture, The Importance of Agriculture and Agri-Food to British Columbia. April 2004. Available here: https://foodsec urecanada.org/sites/foodsecurecanada.org/files/importanceofag_BC.pdf
[172] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[173] Provincial Agricultural Land Commission, ALR & Maps. Available here: https://www.alc.gov.bc.ca/alc/content/alr-maps.
[174] The World Bank, Agricultural land (sq. km). Available here: https://data.worldbank.org/indicator/AG.LND.AGRI.K2?locations=NL
[175] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[176] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[177] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf

Environmental Sustainability

Key Message:

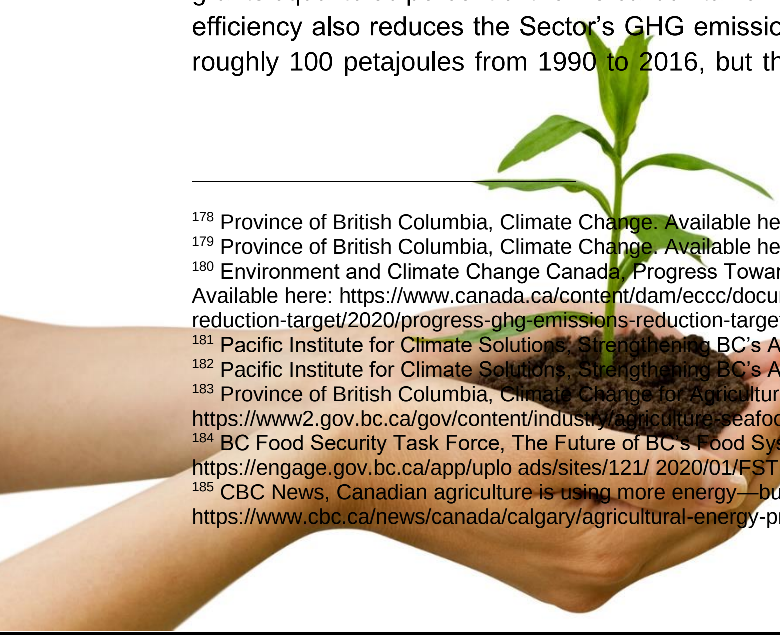
The Sector adopts a number of practices to conserve energy, preserve soil and manage crop inputs more closely. As new technologies emerge, BC farmers need support to access the tools and resources to help further advance their efforts in the area of environmental sustainability.

Backdrop

In BC, timely, effective action to ensure environmental sustainability is critical to protecting our communities, health, and environment.[178] The BC government envisions new buildings and new vehicles producing no greenhouse gas ("GHG") emissions at all, and has set targets towards that goal. For example, BC has committed to reducing GHG emissions to 40 percent below 2007 levels by 2030,[179] contributing to Canada's national goal of reducing GHG emissions by 30 percent below 2005 levels by 2030, agreed to as part of the Paris Agreement.[180] In addition to climate change, BC has environmental concerns regarding erosion, water management, and the overall sustainability of farmland.

Environmental changes increasingly impact the Sector, as increasing temperatures, precipitation, and extremes may create more hazardous conditions for livestock, increased winterkill of grasses, greater nutrient leaching, more complex management due to weather unpredictability, and other challenges to effective agriculture practices.[181] Changing hydrology patterns, including unpredictability and sea level rise, may increase drought and flooding risk—often in the same area—cause interruption of supply lines, increase salination, and increase risk of storm surge.[182]

The Sector accounts for approximately three percent of BC's total GHG emissions.[183] Accordingly, the Sector seeks to adapt innovations and methods to reduce environmental impacts and GHG emissions while keeping up with agricultural production to support a rapidly growing population.[184] Some of these innovations include utilizing emissions as supports for crops (e.g., some operators prefer to use natural gas to heat their greenhouses as the carbon dioxide helps the plants grow). Greenhouses are offered relief grants equal to 80 percent of the BC carbon tax on the eligible gases used in the greenhouses.[185] Increasing efficiency also reduces the Sector's GHG emissions: Canadian agricultural energy demand increased by roughly 100 petajoules from 1990 to 2016, but the amount of energy consumed per dollar (adjusted for



[178] Province of British Columbia, Climate Change. Available here: https://www2.gov.bc.ca/gov/content/environment/climate-change
[179] Province of British Columbia, Climate Change. Available here: https://www2.gov.bc.ca/gov/content/environment/climate-change
[180] Environment and Climate Change Canada, Progress Towards Canada's Greenhouse Gas Emissions Reduction Target. 2020. Available here: https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/progress-towards-canada-greenhouse-gas-reduction-target/2020/progress-ghg-emissions-reduction-target.pdf
[181] Pacific Institute for Climate Solutions, Strengthening BC's Agriculture Sector in the Face of Climate Change. May 2013.
[182] Pacific Institute for Climate Solutions, Strengthening BC's Agriculture Sector in the Face of Climate Change. May 2013.
[183] Province of British Columbia, Climate Change for Agriculture. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/climate-action
[184] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uplo ads/sites/121/ 2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[185] CBC News, Canadian agriculture is using more energy—but more efficiently, too. June 24, 2019. Available here: https://www.cbc.ca/news/canada/calgary/agricultural-energy-productivity-gains-1.5186950

inflation) of output fell 17 percent.[186] Overall, the Sector is in a unique position because it has the potential to provide further greenhouse gas mitigation opportunities by exploring changes to certain farming practices.[187]

The Sector's Contributions to Environmental Sustainability

There are many ways in which the Sector is uniquely positioned and has contributed to solutions in the area of environmental sustainability. For example, many methods are being implemented on an ongoing basis, including improving livestock and manure management (e.g., regionally appropriate forages, high-quality feed, methane combustion), and soil conservation (e.g., crop rotations, reduction of bare fallow, establishment of agroforestry systems).[188] Additionally, key contributions to environmental sustainability that will be examined in more detail include biogas production cycles, water management, planting cover crops, balancing nutrients, and avoiding soil compaction.

The Sector has made strides toward environmental sustainability by beginning to use businesses to implement anaerobic food waste digestion. Instead of traditional composting, anaerobic digestion utilizes microorganisms to break down organic matter and transform it into biogas, which is then purified and can be used for electricity, fuel, and thermal energy.[189] Successful applications of anaerobic digestion using agricultural waste in BC include Delta's Seabreeze Dairy Farm and Abbotsford's Fraser Valley Biogas.[190] Seabreeze Dairy Farm collaborates with CHFour Biogas in Coquitlam to utilize anaerobic digestion to convert manure from dairy cows and organic waste from the Metro Vancouver area into biogas, which is then purified into renewable natural gas and sold to Fortis BC.[191] Byproducts of this conversion include hygienic bedding for the farm's cows and a nutrient-rich digestate that becomes fertilizer for growing crops to feed the cows, creating a sustainable loop of food, waste, and energy.[192] Similarly, Fraser Valley Biogas converts agricultural waste and commercial food processing waste into renewable natural gas and uses the operation's byproducts as a nutrient-rich fertilizer for use on the region's farms.[193] Seabreeze Dairy and Fraser Valley Biogas have a combined annual production of 45,000 gigajoules of renewable natural gas, enough to heat approximately 1,500 homes for a year.[194]

The Sector has also made contributions in the area of water management. Crownland water sources provide critical resources for both livestock water and irrigation, making them crucial components in BC's agriculture.[195] Both watering and irrigation requirements will increase with hotter, drier, and longer summers, and some water sources are at risk of drying up.[196] In response, the Sector is developing and implementing methods to manage and use water more effectively, including the proper maintenance and

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[186] CBC News, Canadian agriculture is using more energy—but more efficiently, too. June 24, 2019. Available here: https://www.cbc.ca/news/canada/calgary/agricultural-energy-productivity-gains-1.5186950
[187] MNP Interview Findings.
[188] Province of British Columbia, Reducing Agricultural Greenhouse Gases. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/climate-action/reducing-agricultural-ghgs
[189] Rubicon, Trends in the Anaerobic Digestion of Food Waste. June 2019 – Available here: https://www.rubicon.com/blog/anaerobic-digestion-food-waste/
[190] FortisBC, Meet our Renewable Natural Gas suppliers. Available here: https://www.fortisbc.com/services/sustainable-energy-options/renewable-natural-gas/meet-our-renewable-natural-gas-suppliers#tab-2
[191] Ibid.
[192] Ibid.
[193] Ibid.
[194] Ibid.
[195] BC Agriculture & Food Climate Action Initiative, Climate Change Adaptation Programming for BC Agriculture. 2013.
[196] BC Agriculture & Food Climate Action Initiative, Climate Change Adaptation Programming for BC Agriculture. 2013.

management of water dams, modern irrigation techniques, and geographical information system ("GIS") mapping.

Mr. Andrew Petersen, Water Management Specialist with the BC Ministry of Agriculture, noted the importance of the management of water dams to fight climate change and increase water use efficiency. Mr. Petersen suggested that once water is stored in dams, that water will always be available for irrigation purposes and can also support fish stock.[197] A large share of all active dams in BC (approximately 900 dams) are managed and maintained by BC cattle ranchers. Mr. Petersen also suggested how the implementation of irrigation technologies such as pivot circles (a method of crop irrigation in which equipment rotates around a pivot and waters crops with sprinklers) or GIS mapping to monitor field hydration requirements could result in crops requiring approximately 15 to 25 percent less water.[198] Though, some of these systems can be prohibitively expensive for some individual farms to implement.

Other benefits of BC dams include supplying domestic water purposes for rural properties in BC, providing a diverse range of habitats to support wildlife across BC, preventing floods when water is held back during spring melt or other changes in water flow, suppressing wildfires in rural areas as well as carbon sequestration and drought mitigation.

In some areas, the Sector collaborates with other organizations to contribute to environmental sustainability. On the lower Fraser River Delta, for instance, farmers work with the Delta Farmland and Wildlife Trust to plant winter cover crops, with both parties sharing the costs of the planting. Farmers benefit because the cover crops protect the soil from erosion during heavy winter rains and increase organic matter in the soil, thereby improving its structure. Some cover crops, such as clover, have the added benefit of fixing nitrogen. Environmentally, the cover crops reduce soil run-off from erosion and provide feeding habitat for waterfowl and shorebirds.[199]

Nutrient balancing is another way the Sector further enhances its contributions to environmental sustainability. While this task requires considering numerous factors, including nutrients supplied from air and water (carbon, hydrogen, oxygen), macronutrients (e.g., nitrogen, potassium, calcium), and micronutrients (e.g., zinc, copper, iron),[200] its main focus is to supply crops with nutrients at the appropriate rate, time, and method to produce an economically optimal crop and to minimize the risk of pollution by loss of nutrients via runoff, leaching, and emissions to the air.[201] In BC, nutrient management has been promoted by the BC Environmental Farm Plan Program, and a total of 147 nutrient plans were completed in the program between 2009 and 2012.[202] The Climate Action Initiative reports "farms that adopt nutrient management principles and planning are likely to have greater resilience, and be better positioned to deal with climate change effects on crop nutrients."[203]

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[197] MNP Interview Findings.
[198] Ibid.
[199] Delta Farmland & Wildlife Trust, Winter Cover Crop Stewardship Program. Available here: https://deltafarmland.ca/our-programs/winter-cover-crop/#:~:text=Cover%20crops%20are%20usually%20planted,nitrogen%2C%20an%20important%20plant%20nutrient.
[200] BC Agriculture & Food Climate Action Initiative, Nutrient Management. Available here: https://www.bcagclimateaction.ca/wp/wp-content/media/FarmPractices-NutrientManagement.pdf
[201] Growing Forward, Nutrient Management Reference Guide. November 2010. Available here: http://ardcorp.ca/wp-content/uploads/2017/11/nutrientmgmt_refguide.pdf
[202] BC Agriculture & Food Climate Action Initiative, Nutrient Management. Available here: https://www.bcagclimateaction.ca/wp/wp-content/media/FarmPractices-NutrientManagement.pdf
[203] BC Agriculture & Food Climate Action Initiative, Nutrient Management. Available here: https://www.bcagclimateaction.ca/wp/wp-content/media/FarmPractices-NutrientManagement.pdf

Avoiding soil compaction is another key method by which the Sector contributes to environmental sustainability. When soil becomes too compact, penetration into the soil by tillage implements and crop roots is restricted, and movement of air and water are reduced. This leads to reduced yields overall. Human-caused soil compaction tends to result from untimely or excessive tillage, repeated tillage at the same depth, excessive or untimely use of vehicles, lack of organic material, and insufficient drainage.[204] To combat this, farmers in BC may make use of cover crops, avoid excessive application of pesticides, and avoid traffic use in fields during heavy rains when practicable.[205]

Challenges Faced by, and Ways to Increase Contributions of, the Sector

As outlined above, the Sector has shown leadership in certain areas of environmental sustainability. It also has numerous opportunities to build on its existing success, such as with water stewardship, and to expand into new areas, such as carbon sequestration.

As described, irrigation systems and water storage dams provide long-term financial and environmental gain for the agriculture sector in BC. However, they are expensive to implement and may require further intelligent and innovative water management to improve efficiency.[206] Additionally, dams are often privately owned and maintained by local farms and ranchers. Tourists and local explorers often camp, fish, and swim in these water reservoirs. While some ranchers support this use—to a point—it creates liability issues for dam owners.[207] Currently, only an estimated 18 percent of BC's agricultural land is irrigated; therefore, the potential for further irrigation exists but will require more water to be stored.[208]

The Sector has further opportunities to expand its application of nutrient management planning and balancing. Despite some adoption in recent years, nutrient management planning is not widely utilized by the Sector. Further adoption is challenged by the complexity of the subject and the need for outside expertise and support.[209] Over the next ten years, the BC government will be implementing regulations regarding nutrient management plans, and certain farms will be required to develop them.[210]

The Sector also has great potential to implement farm practices that allow the direct removal of carbon from the atmosphere. Agricultural soil, by nature, can store large amounts of carbon through a process known as carbon sequestration.[211] Through photosynthesis, plants naturally absorb carbon dioxide from the atmosphere and draw it down into the soil, improving the quality of that soil.[212] Soils with higher carbon levels result in better crop yields, reduce soil erosion, and increase plant nutrient retention and biological diversity,[213] reducing the need for chemical pesticides and fertilizers.

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[204] BC Ministry of Agriculture, Soil Factsheet. December 2015.
[205] Ibid.
[206] BC Agriculture & Food Climate Action Initiative, Climate Change Adaptation Programming for BC Agriculture. 2013.
[207] BC Agriculture & Food Climate Action Initiative, Climate Change Adaptation Programming for BC Agriculture. 2013.
[208] Ibid.
[209] Climate Action Initiative, Nutrient Management. Available here: https://www.bcagclimateaction.ca/wp/wp-content/media/FarmPractices-NutrientManagement.pdf
[210] BC Government, Nutrient Management Plans. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/nutrient-management-plans
[211] Earth Institute, Columbia University, Can Soil Help Combat Climate Change? February 2018. Available here: https://blogs.ei.columbia.edu/2018/02/21/can-soil-help-combat-climate-change/
[212] Ministry of Agriculture, The Importance of Agriculture and Agri-Food to British Columbia. April 2004. Available here: https://foodsecurecanada.org/sites/foodsecurecanada.org/files/importanceofag_BC.pdf
[213] Minasny, Budiman, et al. Advances in Agronomy. Elsevier, 2013

Mr. Karn Manhas, CEO of Terramera, a global agritech company based in BC, believes the Sector could explore changes to traditional farming practices to increase plant uptake and soil storage of carbon.[214] Initial studies suggest that even small increases in soil organic carbon can boost farm productivity, providing benefits to farmers as well as the environment. However, the Sector's ability to incorporate carbon sequestration practices are limited by some challenges, including current lack of equipment, lack of education regarding best practices, and limited data—much of the available data surrounding carbon sequestration is still anecdotal. To achieve confidence in carbon data and determine best practices, the province will need to increase awareness on the topic and support local farms in implementing changes to their traditional practices.

To accurately measure the effects of carbon sequestration, a benchmark must be established for quantification of carbon levels before, during, and after certain agricultural practices.[215] Currently, such models do not exist and will require further research and experimentation. BC is in a unique position to be at the forefront of piloting a large-scale project since a portion of its 4.6 million hectares of Agricultural Land Reserve ("ALR") remains unused. Some of this ALR is not usable in its current state due to poor soil levels and flooding; however, through testing different methods of regenerative farming, BC could more fully utilize ALR lands to develop metrics related to farming practices and their correlation to carbon levels in the soil.[216]

[214] Minasny, Budiman, et al. Advances in Agronomy. Elsevier, 2013.
[215] Ibid.
[216] Ibid.

CASE STUDY

Employment and Training

Key Message:

There are many jobs available in the Sector, yet the labour gap continues to grow. As technology adoption increases, more higher skilled employment opportunities are created. Further work is required to improve the attraction and retention of employees in the Sector.

Backdrop

The Sector is a key driver of the provincial economy and has consistently been a significant employer for the province. In 2019, the Sector provided employment for over 35,000 people.[217] The Canadian Agricultural Human Resource Council estimates that the Sector and its related support activities will continue to see a growth in demand for agricultural workers in BC, reaching 51,500 in 2029, including Canadians employed, temporary foreign workers employed and unfilled vacancies.[218]

Contributions of the Sector to Employment and Training

The Sector contributes to employment and training opportunities across every region in the province providing significant contributions in rural areas.

In a 2013 economic impact study of the BC beef cattle industry, municipalities interviewed for the study noted that the Sector (in this case, the cattle industry subsector) generates significant employment and training opportunities in local communities. Specifically, they noted that the Sector contributed through local forage clubs, cattle farms, and family-run operations.

Furthermore, the Sector helps rural municipalities maintain their economy and employment base. For instance, after the mill closure in Quesnel, a city with a population of 12,000, the city prioritized diversifying its economy to lessen the impacts of the forestry sector's decline by growing its agriculture and tourism sectors.[219]

The Sector also provides important contributions in the area of education and training. For instance, BC has a number of training and educational programs to encourage youth and others to enter the Sector. The

[217] This does not include approximately 10,600 temporary foreign workers.
[218] Canadian Agricultural Human Resource Council. How Labour Challenges Will Shape the Future of Agriculture: Agriculture Forecast to 2029. August 2019. Available here: https://cahrc-ccrha.ca/sites/default/files/CAHRC-National-Report-FINAL-August-19-2019.pdf
[219] CBC News, "We've been here before": the fight to survive B.C.'s rising mill closures. July 8, 2019. Available here: https://www.cbc.ca/news/canada/british-columbia/we-ve-been-here-before-the-fight-to-survive-b-c-s-rising-mill-closures-1.5195016

following list highlights some of the educational institutions in BC that offer courses and programs related to agriculture and food science: [220]

- BCIT, Integrated Resource Management Program
- Camosun College, Horticulture Program
- Capilano University, Horticulture, Fish Culture Program
- East Kootenay Community College, Horticulture Program
- Kwantlen Polytechnic University, Horticulture Program
- Okanagan College, Horticulture, Agriculture General Program
- Simon Fraser University, Pest Management, Resource and Environmental Management Program
- University of the Fraser Valley, Horticulture, Pest Management, Agriculture General Program
- University of British Columbia, Agriculture Programs
- University of Northern BC, Biology Program
- University of Victoria, Biology Program

The Sector also supports existing educational programs to encourage entry into the Sector and provide relevant training. BC Dairy, for example, through its Dairy Industry Research and Education Committee, offers four annual scholarship awards of $2,500 to students studying agriculture or related subjects including animal or food science, sustainability, business management, marketing, and animal health and welfare at any accredited post-secondary institution.[221] The BC beef cattle industry, through the BC Cattlemen's Association ("BCCA"), also awards two annual Gung Loy Jim Scholarships to students from rural areas in BC where cattle are raised to further their education in their desired field. The BCCA also administers several bursaries, grants and scholarships on behalf of the ranching industry to foster post secondary education in ranching communities across the province. Furthermore, the Sector supports organizations such as BC Young Farmers, which encourages young farmers in BC to expand their knowledge through educational events and workshops, information, and educational support. [222]

Challenges Faced by, and Ways to Increase Contributions by the Sector

Despite these diverse opportunities for training and supports for students, the Sector faces many labour market challenges that threaten its growth potential. Labour challenges in the Sector include growing labour gaps as well as hiring challenges due to seasonal fluctuations in employment, non-typical working hours (e.g., split shifts, early mornings), negative perceptions regarding the physically demanding nature of the

[220] BC Agriculture in the Classroom Foundation, Careers in Agriculture. Available here: https://www.bcaitc.ca/resources/careers-agriculture

[221] BC Dairy Association, Dairy Industry Research and Education Committee (DIREC). Available here: https://bcdairy.ca/dairyfarmers/initiatives/direc

[222] BC Young Farmers, Young and New Entrant Skill Development Program 2019/2020. Available here: http://www.bcyf.ca/events/

work, and limited labour pools in rural areas where many agricultural operations are based.[223] Labour shortages in the Sector can also be attributed to relatively low skill requirements (and subsequent low wages) for certain positions and an overall trend of fewer young people selecting agriculture as their career.[224] A number of actions have been suggested to mitigate these challenges and increase the Sector's contributions to BC's employment and training.

As the Sector continues to evolve and embrace innovation and technology, a unique opportunity is created to attract a new pool of employees. The rapid rise of innovations related to agritech are currently providing employment for a range of skilled professionals in the areas of information technology, automation and robotics.[225] Additionally, the development of the agritech industry in BC has the potential to provide employment for people throughout the province as the emerging technology will need to be developed and tested across a diversity of landscapes and crops. This was supported by the findings from the BC government's Food Security Task Force, which, during its consultations, learned that there is notable interest in developing and testing high-tech agricultural innovations.By increasing the proportion of technology-based jobs, the Sector may address many of the factors contributing to its labour gap.

One of the BC government's initiatives to address the Sector's labour market challenges is the new B.C. Farm, Fish and Food Job Connector.[226] This tool is intended to improve British Columbians' accessibility to learning about jobs and careers in the Sector while also providing a one-stop-shop to assist farmers, seafood businesses and food processors with their hiring and planning needs. The tool also offers businesses information and guidance for adapting their recruitment and human resource management practices in response to COVID-19.

The Sector has also made efforts to find innovative solutions to recruitment and retention challenges. Creative solutions by Canada's agricultural employers have included, increasing flexible work hours and conditions, emphasizing nonmonetary benefits of working in the Sector, coordinating with offsetting seasonal employers to address seasonality in demand, and recruiting from non-traditional labour pools. [227]

Nonetheless, more is needed to address the Sector's many unique labour market challenges. The Agricultural and Agri-Food Labour Task Force ("LTF"), established by the Agriculture and Agri-Food ("AAFC") Value Chain Roundtables in 2012, published the *Workforce Action Plan* based on year-long consultation with industry stakeholders. The *Workforce Action Plan* outlined the need for increasing both

[223] Canadian Agricultural Human Resource Council. How Labour Challenges Will Shape the Future of Agriculture in British Columbia: Agriculture Forecast to 2029. Available here: https://cahrc-ccrha.ca/sites/default/files/CAHRC-National-Report-FINAL-August-19-2019.pdf
[224] MNP Interview Findings.
[225] MNP Interview Findings.
[226] Government of BC, B.C. Farm, Fish and Food Job Connector, Available here: https://bcagjobs.gov.bc.ca/
[227] MNP Interview Findings.

domestic and foreign labour supplies to address the Sector's labour shortages. The Plan outlines the following key steps to supporting this aim:

- Increasing the supply of workers by improving access to foreign workers, attracting more domestic workers, and increasing awareness of agriculture careers.
- Improving the skills of workers by enhancing worker knowledge and skills, aligning training resources with workplace needs, and by making best-practice human resource management tools and techniques more widely available.

According to Debra Hauer of the Canadian Agricultural Human Resource Council, areas where the Sector can play a larger role in support of initiatives related to employment and training in BC include:

- Providing platforms for virtual learning and training to allow for flexibility.
- Focusing on human resource management and building a culture with best practices in recruitment and training.
- Seizing opportunities to further the development of agritech, robotics, and automated systems.

Also, despite the diverse training opportunities, some argue that the Sector's format of educational programs is "out-dated," and in need of review.[228] For instance, given that agriculture is seasonal, perhaps programs could be implemented that allow students to work in the sector for a period and attend classes when not working.[229]

[228] MNP Interview Findings.
[229] MNP Interview Findings.

CASE STUDY

Food Value Chain Stability

Key Message:

Collaborative food value chain relationships are important to allow flexibility and foster adaptation to ensure a steady supply of healthy food to British Columbians.

Backdrop

The BC food value chain relies on numerous links in its chain to function, including agricultural input suppliers, farmers, primary and secondary food processors, transportation companies, distributors, food service companies, and retailers. COVID-19 pressures created a number of challenges that threatened the stability of the BC food value chain. This was because with physical distancing and associated lockdowns, patterns of consumer spending on food dramatically changed. As a result of social distancing measures, consumers stocked up on groceries while forgoing their spending on food from restaurants, coffee venues and fast-food retail chains. This created a series of imbalances and uncertainties across all components of the food value chain, from farmers to consumer-end channels.[230] Yet, regardless of these market fluctuations influenced by COVID-19, there was no food shortage in BC as the Sector, along with its partners across the food value chain, worked collaboratively and adapted to these changes quickly.

Contributions of the Sector to Value Chain Stability

The Sector plays an important role in contributing to the stability of the food value chain through its collaboration with other components of the value chain, and its ability to quickly adapt to disruptions such as those caused by the COVID-19 pandemic.

An example of collaboration between the Sector and other components of the food value chain is demonstrated through the activity of animal by-products rendering that occurs in the province. Animal by-products from poultry and meat slaughterhouses, packing plants, and fish processors and processes, are refined further, in a process known as reduction, by companies such as West Coast Reduction (“WCR”).[231] The rendering process creates high value protein meals that are used as ingredients for animal feed manufacturing and oils, and to make renewable diesel and oleochemical derivatives. WCR, based in Vancouver, works with several poultry and meat processors to purchase and collect ruminant by-products

[230] McKinsey & Company, Disruption and Implications From COVID-19. Available here: https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/us-food-supply-chain-disruptions-and-implications-from-covid-19#
[231] MNP Interview Findings.

originating within a 50-km radius. WCR's Vancouver operations process approximately 220,000 tonnes of animal by-products each year.[232] According to Mr. Ridley Bestwick, Chief Financial Officer at WCR, the Sector, animal processing and rendering complement each other. Without rendering, meat processors would have to dispose of their animal by-products in landfills, adding disposal and transportation costs and having a negative impact on the environment. As well, the feasibility of rendering is dependent on the availability of animal by-products. [233]

Another example of food value chain adaptability and collaboration was demonstrated between the BC dairy and the retail sectors.[234,235] At the beginning of the implementation of social distancing events, BC farmers had difficulty getting their milk into the supply chain and grocery stores. This was a result of a number of factors, including shortages in transportation services, a shift in processing and packaging capacity, a decline in food service sales, and uneven distribution to retail stores. As such, for a short period of time, there was an excess of milk; as a result, BC farmers worked in collaboration with major grocery retailers to donate 10,000 four-litre jugs of milk to local food banks. [236] Despite these challenges, dairy farmers were quick to adapt and resumed a steady production of milk in the province.

Vitalus Nutrition Inc ("Vitalus"), a BC-based dairy products manufacturer, noted that as a processor they also experienced a two-week period in which milk supply was difficult to source. However, Mr. Phil Vanderpol, President and CEO of Vitalus, noted that BC farmers were fast to adapt to the volatile demand and supply quickly normalized.[237] Mr. Vanderpol noted that once grocery store sales settled and consumers alleviated their desire to panic-buy, the supply chain stabilized quickly. The success was due in part to the large number of dairy producers and processors in BC. This means that any issues on a single farm or processing facility or transportation network did not disrupt large amounts of supply.

Challenges to, and Ways to Increase the Contribution of, the Sector

The Sector faces a number of challenges that hinder its ability to contribute to the stability of the food value chain. One of those challenges is the availability of labour as BC farmers require assistance from a sizable number of workers in the fields during planting and harvest seasons. The pandemic makes it challenging to access labour both domestic and TFWs due to movement restrictions and the risk of exposure to the virus. Due to the uncertainties that COVID-19 presents both on the labour front and in other aspects of their operations, some farms may feel uncertain about whether to continue investing in production or scale back. This may present a risk to the Sector and the stability of the food value chain as a whole as short-term reductions in agriculture production could cause long-term disruptions to the supply of base goods.[238]

Another example of a challenge, particularly faced by the beef production subsector, is its reliance on consolidated meat processing that takes place outside of the province. A COVID-19 outbreak resulted in the temporary closure of one of the major beef processing plants in Alberta, which processes approximately

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[232] West Coast Reduction, Economic Impact Study of West Coast Reduction Ltd., July 2017.
[233] MNP Interview Findings.
[234] Vancouver Sun, BC Farms Dumping Milk Because Of Problems Getting It to The Store. April 7, 2020. Available here: https://vancouversun.com/news/local-news/covid-19-b-c-farms-dumping-milk-because-of-problems-getting-it-to-the-store
[235] Ibid.
[236] Vancouver Sun, BC Farms Dumping Milk Because Of Problems Getting It to The Store. April 7, 2020. Available here: https://vancouversun.com/news/local-news/covid-19-b-c-farms-dumping-milk-because-of-problems-getting-it-to-the-store
[237] MNP Interview Findings.
[238] Business Vancouver, BC's Food Supply Chain Remains Strong. April 13, 2020. Available here: https://biv.com/article/2020/04/bcs-food-supply-chain-remains-strong-experts-say

45 percent of BC's beef cattle.[239] While the processing plant was able to reopen after approximately two weeks, the closure resulted in a backlog of upward of one million head of cattle. During the closure, the wholesale price of beef reached a record-breaking $470/100 lbs (the previous record was $265/100 lbs).[240] This has spurred calls to revisit how BC conducts meat processing by looking into a more regional approach and less consolidated system that empowers smaller-to-medium sized meat processors across various regions of the province.[241]

As a strategic approach for the Sector, BC farmers and other value chain players could work towards improving their relationships to increase their long-term competitiveness and lessen the impacts of future food supply chain distortions. Stronger food value chain relationships have the potential to enable growth, innovation, and adaptability of the Sector. They also provide benefits to food and beverage processors and food service providers by helping fulfill any potential unmet demand and better adapt to market changes.[242] Along with strong value chain relationships is the idea of remaining aware of the risks involved in greater consolidation in the food value chain, as noted by Woody Siemens, Director, Supply Chain, and Business Development at BC Milk Marketing Board. Mr. Siemens suggested that having a broad base of both BC farmers and food processors helps mitigate the risks of major distortions in the food supply chain as the dependence on a small set of larger players and any impacts that they may face is limited.[243]

Collaborative food value chain relationships can benefit all parties involved, enable co-innovation to utilize each party's unique strengths, and are – ideally – long-term focused with an ability to learn and objectively adapt to changing market factors.[244]

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[239] CBC News, Pandemic Reveals Weak Spots in BC's Meat, Poultry Supply Chains. April 29, 2020. Available here: https://www.cbc.ca/news/canada/british-columbia/meat-supply-chain-covid-19-british-columbia-1.5550194
[240] Ibid.
[241] CBC News, Pandemic Reveals Weak Spots in BC's Meat, Poultry Supply Chains. April 29, 2020. Available here: https://www.cbc.ca/news/canada/british-columbia/meat-supply-chain-covid-19-british-columbia-1.5550194
[242] BC Ministry of Agriculture, Value Chain Coordination Study. March 2019 – Available here: seafood/feedbc/value_chain_coordination_study_-_feed_bc_summary_report.pdf
[243] MNP Interview Findings.
[244] The Canadian Agri-Food Policy Institute, Characterizing the Determinants of Successful Value Chains. February 2012. Available here: http://vcm-international.com/wp-content/uploads/2013/04/Characterizing-the-Determinants-of-Sus-VC-031912.pdf

CASE STUDY

Value-Added Processing

Key Message:

The Sector adds value to many of the goods produced locally with further processing. This in turn increases the Sector's contribution to GDP, employment and taxes. More collaboration is needed to build our processing capacity further.

Backdrop

Value-added food processing (or food and beverage processing) refers to businesses that transform raw ingredients into final or intermediate food or beverage products through the use of labour, materials and/or technology. BC wine is an example of a value-added product: wineries grow grapes, crush them, add additional ingredients to the juices, allow the mixture to ferment, and bottle the finished wine to be sold to end-consumers.

The Sector and the BC food and beverage processing industry are deeply interconnected. The Sector supplies agricultural inputs to a strong base of food and beverage processors who then turn the inputs into value-added products for both domestic and export markets. BC is home to over 2,900 food and beverage processing establishments that produce a wide range of products, including juices, specialty pet foods, frozen fruits and vegetables, smoked meats, and baked goods.[245] In many cases, farmers also conduct on-farm processing and direct farm sales, shortening the supply chain, increasing farm-to-table connections, and helping guarantee the use of BC-grown products in manufacturing.

The Sector's Contributions to Value-Added Processing

The Sector is recognized as one of the most diverse of Canadian agriculture sectors, producing over 200 primary agriculture products.[246] As such, the Sector provides a wealth of local, high-quality agricultural inputs that BC food and beverage processors can use to develop an array of food and beverage products.

BC food and beverage processors recognize the ability to source local agricultural inputs as a key competitive advantage. According to a survey of BC food and beverage processors, approximately two-thirds of survey participants agreed that the ability to access local agricultural inputs was a major strength of the BC food and beverage processing industry.[247] Accordingly, in 2019, BC-produced inputs comprised approximately 38 percent of the total value of inputs purchased by the BC food and beverage processors.[248]

Vitalus Nutrition Inc ("Vitalus"), a producer and exporter of specialty dairy ingredients based in Abbotsford, exemplifies a value-added food processor making best use of inputs produced by the Sector. Vitalus

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[245] Ministry of Agriculture - Corporate Statistics & Research Unit, Sector Snapshot 2018: BC Food and Beverage Processing. July 2019.
[246] BC Food Security Task Force, The Future of BC's Food System. January 2020. Available here: https://engage.gov.bc.ca/app/uploads/sites/121/2020/01/FSTF-Report-2020-The-Future-of-Food.pdf
[247] MNP, Industry Overview and Economic Impacts of the BC Food and Beverage Processing Industry. 2016. Available here: https://www.bcfpa.ca/sites/default/files/bcfpa_-_overview_and_economic_impact_study_-_nov_7_2016_final.pdf
[248] Statistics Canada, Supply and Use Tables Issue Number: 2019001. November 2019.

procures approximately 90 percent of its raw milk from BC's dairy farms.[249] Vitalus has developed an innovative product by separating raw components in fresh milk and converting it to a high-value protein that can be used in a wide variety of nutritional applications such as infant formula.[250] Vitalus leverages the qualities of milk from BC dairy farm milk—it is free from artificial growth hormones and antibiotics and produced using the highest food safety and animal care standards—to market their products at a greater value. Many other companies like Vitalus are able to source agricultural inputs for the manufacturing of high-quality, value-added products.

While many food and beverage processors use significant amounts of BC inputs in their processes, there is potential to expand. James Donaldson, CEO of BC Food and Beverage, noted that the Sector and the BC food and beverage processing industry are working together on initiatives that aim to further expand the utilization of BC agricultural inputs for value-added opportunities. For instance, in April 2020, an online tool called BC Food Connection was launched to help BC food and beverage processors locate and connect with local manufacturing services, co-packers, commercial kitchens, and other complementary facilities.[251][252] According to Mr. Donaldson, this tool is being expanded to facilitate connections between BC farmers. [253] The BC Agriculture Council is also assisting with awareness and outreach for the Sector about the BC Food Connection and its benefits. Additionally, there may be opportunities to collaborate with farmers across the western provinces to source other products that are not produced in BC for value-added processing before being exported.

Challenges Faced by, and Ways to Increase Contributions of, the Sector

Mr. Donaldson indicated that while initiatives are underway to help increase value-added processing in BC, such as the BC Food Hub Network, which aims to foster growth and innovation in the agriculture, seafood, and food processing industry through improved access to facilities, equipment, technology, technical services, and business supports, there is further opportunity to strengthen the coordination and collaboration between farmers, processors, research and academia, and government to enhance product development and commercialization efforts in the province.[254] A potential outcome of such collaborations could be the development of new crop varieties that allow for the creation of innovative value-added products for untapped markets.

Recognizing that many BC farmers do not have the required capital to undertake RandD and continue to be challenged with labour shortages, lack of availability of land, and increased price pressures from retailers, there is an opportunity for farmers not to bear all the risks and instead work in tandem with other food value chain stakeholders to identify and tap into new market opportunities.

[249] MNP Interview Findings.
[250] Vitalus. Available here: https://vitalus.com/dairy-ingredients/milk-protein-supplier/
[251] Food in Canada, A New Online Tool Launches for BC's Food Sector. April 2018. Available here: https://www.foodincanada.com/food-in-canada/new-online-tool-launches-b-c-s-food-sector-139363/
[252] BC Food Connection, Working with a CoPacker. Available here: https://drive.google.com/file/d/1s-PAVfl7kliBqta_ugnoRMY7tCc_qdzO/view
[253] MNP Interview Findings.
[254] BC Ministry of Agriculture, Feed BC: The BC Food Hub Network. Available here: https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/growbc-feedbc-buybc/feed-bc/feed-bc-the-bc-food-hub-network

9. APPENDICES

Appendix A – Subsector Definitions

The following are the Statistics Canada definitions of the subsectors of the Sector:[255]

- **Oilseed and grain farming [NAICS 1111] -** This subsector comprises establishments primarily engaged in growing oilseeds and grains.
- **Vegetable and melon farming [NAICS 1112] -** This subsector comprises establishments primarily engaged in growing vegetables and melons. Establishments primarily engaged in producing vegetable and melon seeds and vegetable and melon bedding plants are also included in this industry.
- **Fruit and tree nut farming [NAICS 1113] -** This subsector comprises establishments primarily engaged in growing fruit and nuts.
- **Greenhouse, nursery and floriculture production [NAICS 1114] -** This subsector comprises establishments primarily engaged in growing crops of any kind under cover, growing nursery crops and growing flowers.
- **Other crop farming [NAICS 1119] -** This subsector comprises establishments, not classified to any other industry group, primarily engaged in growing crops, such as tobacco, peanuts, sugarbeets, cotton, sugar-cane, hay, agave, herbs and spices, mint, hops, and hay and grass seeds. Combination crop farming and the gathering of maple sap are included in this subsector.
- **Cattle ranching and farming [NAICS 1121]** - This subsector comprises establishments primarily engaged in raising, milking and fattening cattle.
- **Hog and pig farming [NAICS 1122]** - This subsector comprises establishments primarily engaged in raising hogs and pigs.
- **Poultry and egg production [NAICS 1123] -** This subsector comprises establishments primarily engaged in breeding, hatching and raising poultry for meat or egg production.
- **Sheep and goat farming [NAICS 1124]** - This subsector comprises establishments primarily engaged in raising sheep and goats, and feeding or fattening lambs.
- **Other animal production [NAICS 1129] -** This subsector comprises establishments, not classified to any other industry group, primarily engaged in raising animals, such as bees, horses and other equines, rabbits and other fur-bearing animals, llamas, deer, worms, crickets, laboratory animals and companion animals, for example dogs, cats, pet birds and other pets. The production of animal products, such as honey and other bee products, are also included. Establishments primarily engaged in raising a combination of animals, with no one predominating, are also included in this subsector.

[255] Statistics Canada. North American Industry Classification System 2012. Available here: http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=118464&CVD=118466&CPV=311&CST=01012012&CLV=2&MLV=5

Appendix B – Study Methodology

ECONOMIC IMPACT METHODOLOGY AND ASSUMPTIONS

MNP's approach to economic impact modelling is based on published Statistics Canada multipliers and input-output modelling. A step-by-step overview of our methodology is provided below.

Step 1: Collected Data and Estimated Direct Output of the Sector

Step 2: Applied Statistics Canada's Input-Output Multipliers to Estimate Economic Impacts

Step 3: Estimated the Economic Impacts by Region

Step 1: Collected Data and Estimated Direct Output of the Sector

To estimate direct output of the Sector, MNP collected data on output and farm cash receipts from Statistics Canada. To ensure inter-farm sales were captured, MNP used 2016 output data from Statistics Canada supply and use tables and growth in farm cash receipts from 2016 to 2019 to estimate Sector output in 2019.

Step 2: Applied Statistics Canada's Input-Output Multipliers to Estimate Economic Impacts

Statistics Canada's input-output multipliers were then applied to the direct output to estimate the economic impacts generated in BC by the Sector. Statistics Canada's input-output multipliers produced estimates of direct, indirect and induced output, GDP, and employment.

Step 3: Estimated the Economic Impacts of the Sector by Region

To illustrate the estimated economic impacts that may be generated within each region, MNP estimated the direct, indirect and induced impacts:

- Using the share of gross farm cash receipts attributable to each region, MNP estimated the direct economic impacts generated in each region. For employment, adjustments were made based on regional employment levels reported by Statistics Canada in the Census of Agriculture and Labour Force Survey.
- Using an expenditure profile of the Sector derived from Statistics Canada's supply and use tables, MNP allocated expenditures to each region. MNP then estimated the indirect and induced impacts that would be generated in each region.

PROJECTIONS METHODOLOGY AND ASSUMPTIONS

MNP's approach to developing the projections is outlined below.

Step 1: Assessed Historical Trends in Production and Prices

Step 2: Identified Scenarios

Step 3: Estimated Direct Output and Direct Employment for each Scenario

Step 4: Estimated Economic Impacts

Step 1: Assessed Historical Trends in Production and Prices

MNP reviewed historical growth in the total value of output and historical growth in food prices reported in Statistics Canada's Consumer Price Index between 2010 and 2019. In undertaking this assessment growth in the value of production net of price growth was estimated as follows:

$\text{Growth in production}_t = [\text{total value}_t / (1+\text{percentage growth in prices}_t)] / \text{total}_{\text{value}(t-1)}$

Step 2: Identified Scenarios

MNP reviewed the historical growth trends with Project Steering Committee and identified the growth assumptions that were used in each scenario. Considerations included in the selection were the availability of land, water and the ability to expand production with existing capacity.

Step 3: Estimated Direct Output and Direct Employment for each Scenario

The value of direct output for each subsector was estimated in each period as follows:

$\text{Direct Output}_t = \text{Output}_{t-1} \times (1+ \text{percentage growth in production}) \times (1 + \text{percentage growth in price})^{(t-2019)}$ *where output in t=0 was the 2019 value*

The value of direct employment for each subsector was estimated in each period as follows:

$\text{Direct Employment}_t = \text{Employment}_{t-1} \times (1+ (\text{growth rate of production excluding price growth} – \text{labour productivity}))$ *where employment in t=0 was the 2019 value*

Step 4: Estimated Economic Impacts

To estimate Real GDP we applied Statistics Canada multipliers to the value of direct output excluding growth due to prices.

Appendix C – Economic Impacts Food and Beverage Processing and Agriculture in BC

Food and beverage processors and agriculture producers create economic impacts through spending on employees and support staff, as well as spending on goods and services (e.g. equipment purchases, operating supplies, transportation expenses).

The table below summarizes the estimated economic impacts generated by the food and beverage processing industry and the Sector in 2019. MNP's estimates of the economic impacts of the BC food and beverage processing industry were developed in collaboration with Statistics Canada, using a Statistics Canada input-output model.

Please note since the Sector is a supplier to the BC food and beverage industry, a portion of the direct impacts of the Sector are implicitly included in the indirect impacts of BC food and beverage industry. To avoid double counting while calculating the total combined impacts, the indirect and induced impacts of the BC food and beverage industry were adjusted for the impacts generated due to their expenditures on agricultural inputs from the Sector.

Estimated Economic Impacts of Food and Beverage Processing and Agriculture in BC in 2019

	Output ($ millions)	GDP ($ millions)	Employment (FTEs)	Government Taxes ($ millions)
Economic Impacts of Food and Beverage Processing				
Direct	$11,130	$3,370	31,000	$770
Indirect and Induced	$5,800	$3,260	23,000	$780
Total	**$16,930**	**$6,630**	**54,000**	**$1,550**
Economic Impacts of Agriculture				
Direct	$4,640	$1,870	35,100	$400
Indirect and Induced	$3,850	$2,030	19,900	$550
Total	**$8,490**	**$3,900**	**55,000**	**$950**
Total Combined Economic Impacts				
Direct	$15,770	$5,240	66,100	$1,160
Indirect and Induced	$9,650	$5,290	42,900	$1,340
Total	**$25,420**	**$10,530**	**109,000**	**$2,500**

Appendix D – Provincial and Regional District Priorities and Reports

The following reports were reviewed as part of the environmental scan.

Provincial Reports

1. Province of British Columbia Strategic Plan 2019/20-2021/22, 2019, British Columbia Ministry of Finance.
2. Ministry of Jobs, Economic Development and Competitiveness Mandate Letter, 2020, Premiers Office.
3. Ministry of Finance Mandate Letter, 2017, Premiers Office.
4. Ministry of Environment and Climate Change Mandate Letter, 2017, Premiers Office.
5. Ministry of Energy Mines and Petroleum Resources Mandate Letter, 2020, Premiers Office.
6. Ministry of Transportation and Infrastructure Mandate Letter, 2017, Premiers Office.
7. Ministry of Social Development and Poverty Reduction Mandate Letter, 2017, Premiers Office.
8. Ministry of Labour Mandate Letter, 2017, Premiers Office.
9. Ministry of Citizens' Services Mandate Letter, 2017, Premiers Office.
10. Ministry of Agriculture Mandate Letter, 2017, Premiers Office.
11. Speech from the Throne, 2020, Parliament of the Province of British Columbia.
12. Emerging Economy Task Force, Final Report March 2020, 2020, Emerging Economy Task Force.

Regional Districts Reports

Fraser Valley

1. Strategic Plan 2014-2018, 2014, Fraser Valley Regional District.
2. Regional Growth Strategy for the Fraser Valley Regional District: Choices for Our Future, 2004, Fraser Valley Regional District.
3. Fraser Valley Regional District and FoodMesh Eat Away at Food Waste, 2018, Fraser Valley Regional District.

Okanagan Similkameen

4. Strategic Plan 2018-2022 Regional District of Okanagan Similkameen, 2018, Regional District of Okanagan Similkameen.
5. South Okanagan Regional Growth Strategy – Bylaw 2421.02, 2016 – Schedule 'A', 2016, Regional District of Okanagan Similkameen.

East Kootenay

6. Regional Sustainability Strategy, 2014, Regional District of East Kootenay.
7. Regional District of East Kootenay Strategic Plan, 2019, Regional District of East Kootenay.

Central Okanagan

8. Regional District of Central Okanagan Regional Growth Strategy "Our Home, Our Future", 2013, Regional District of Central Okanagan.

Thompson-Nicola

9. Thompson-Nicola Regional District Regional Growth Strategy, 2013, Thompson-Nicola Regional District.

Cariboo

10. Williams Lake Fringe Area Official Community Plan, 2013, Cariboo Regional District.

11. Quesnel Fringe Area Official Community Plan, 2014, Quesnel and Cariboo Regional District.

Comox Valley

12. Comox Valley Regional District Strategic Planning Report, 2019, A.M. Habkirk.

Peace River

13. Peace River Regional District Strategic Plan, 2019, Peace River Regional District.

Cowichan Valley

14. Economic Development Cowichan Strategic Plan, 2018, Cowichan Valley Regional District.

15. Cowichan 2050. Regional Collaboration Framework, 2018, Cowichan Valley Regional District.

Metro Vancouver

16. Metro Vancouver 2040, Shaping our Future, 2020, Metro Vancouver.

Nechako

17. Lakes District Economic Diversification and Community Development Strategy, 2018, EcoPlan.

The tables below summarize the identified provincial and regional district priorities where the Sector could play a role in their advancement.

PROVINCIAL PRIORITIES

Provincial Priorities		
Report	**Description and Relevant Priorities**	**Relevant Themes of Priorities Covered**
Province of British Columbia Strategic Plan 2019/20 – 2021/22 Year: 2019 Author: British Columbia Ministry of Finance.	**Description of Report** The Province of British Columbia Strategic Plan 2019/20-2021/22 sets out strategies to make living in BC more affordable; deliver better services for BC residents; reconcile with Indigenous peoples; and invest in a strong, sustainable economy that works for its people. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • CleanBC: Supporting Cleaner Businesses and Communities – reduce fuel consumption by switching medium and heavy-duty vehicles to cleaner fuels supported by the new heavy-duty vehicles efficiency program. • CleanBC: Delivering Low-carbon Goods and Services – the memorandum of understanding (MOU) commits government and business to work towards developing a clean industry strategy. BC aims to be a low-carbon economic leader by implementing new processing and production technologies aimed at reducing the emission of greenhouse gases. • Strengthening BC's Resource Industries – BuyBC program aims to increase brand awareness and sales of BC food, beverage and seafood products. • Strengthening BC's Resource Industries – Enhance BC's food security future and launching a food security task force aimed at bringing more farmland into production. • The Industry Training Authority in BC is working towards making apprenticeship opportunities a priority.	• Environment. • Food Security. • Education/Apprenticeships.
Ministry of Jobs, Economic Development and Competitiveness Mandate Letter, Year: 2020 Author: Premiers Office.	**Description of Report** The Ministry of Jobs, Economic Development and Competitiveness Mandate letter outlines the policy objectives that the Minister will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Provide Cabinet leadership for cross-government initiatives that support competitiveness across all sectors of BC's economy.	• Competitiveness. • Economic Growth. • Food Security. • Environment. • International Brand Strategy. • Employment and Labour Market.

	• Engage with industry associations and major sectors on government's approach to quality economic growth that creates benefits for people. • Support the future of our made-in-BC tech sector through cluster initiatives, anchoring of BC-developed intellectual property, incubating the development and growth of BC agritech. • Ensure that the benefits of technology and innovation are felt around the province by working with rural and northern communities to make strategic investments that support innovation and job growth. • Champion quality economic growth across all sectors of BC's economy with a focus on those that make the greatest contribution to BC's standard of living. • Implement the findings from the upcoming reports of the Food Security Task Force and Emerging Economy Task Force where these contribute to increasing BC's standard of living. • Establish a new international engagement framework for BC's trade and investment representatives in Asia, Europe and the US, configuring their product promotion and investment attraction services to contribute to quality economic growth, distributed across all regions of BC. • Develop an international brand strategy that capitalizes on the low carbon footprint of BC's products and services, including natural resources, clean tech and value-added goods, demonstrating how sourcing BC products is both climate positive and cost competitive. • Review B.C. immigration policy and programs with a focus on strengthening the economic success pathways for newcomers, including through continues work with the Minister of Advanced Education, Skills and Training to improve credential assessments.	
Ministry of Finance Mandate Letter, Year: 2017 Author: Premiers Office.	**Description of Report** The Ministry of Finance Mandate letter outlines the policy objectives that the Minister of Finance will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Increase the carbon tax by $5 per tonne per year beginning April 1, 2018, take measures to expand the tax to fugitive emissions and slash-pile burning, and dedicate additional revenue to rebate cheques for families and investments in climate change solutions.	• Environment.
Ministry of Environment and Climate Change Strategy Mandate Letter, Year: 2017	**Description of Report** The Ministry of Environment and Climate Change Mandate letter outlines the policy objectives that the Minister will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities**	• Environment.

Author: Premiers Office.	Examples of priorities listed where the Sector could play a role in their advancement include: • Implement a comprehensive climate-action strategy that provides a pathway for B.C. to prosper economically while meeting carbon pollution reduction targets, including setting a new legislated 2030 reduction target and establishing separate sectoral reduction targets and plans. • Work with the Minister of Finance to implement an increase of the carbon tax by $5 per tonne per year, beginning April 1, 2018 to meet the federal government's carbon pricing mandate. Take measures to expand the carbon tax to fugitive emissions and slash-pile burning. • Enact an endangered species law and harmonize other laws to ensure they are all working towards the goal of protecting our beautiful province.	
Ministry of Energy Mines and Petroleum Resources, Year: 2020 Author: Premiers Office.	**Description of Report** The Ministry of Energy, Mines and Petroleum Mandate letter outlines the policy objectives that the Minister of Energy, Mines and Petroleum will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Advance programs under CleanBC that will transform our economy by reducing greenhouse gas emissions to meet the province's climate commitments, while supporting affordability for people. • Invest in promising new technologies, clean technology, and climate change solutions through the innovative Clean Energy program. • Develop an international brand strategy that capitalizes on the low carbon footprint of BC's products and services, including natural resources, clean tech and value-added goods, demonstrating how sourcing BC products is both climate positive and cost competitive.	• Environment. • International Brand Strategy.
Ministry of Transportation and Infrastructure Mandate Letter, Year: 2017. Author: Premiers Office.	**Description of Report** The Ministry of Transportation and Infrastructure Mandate letter outlines the policy objectives that the Minister of Transportation and Infrastructure will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Lead planning to address the infrastructure needs of rural and urban British Columbia under the government's comprehensive capital infrastructure plan to build a Better B.C.	• Infrastructure Needs Assessment.
Ministry of Social Development and	**Description of Report**	• Poverty Reduction.

Poverty Reduction Mandate Letter, Year: 2017. Author: Premiers Office.	The Ministry of Social Development and Poverty Reduction Mandate letter outlines the policy objectives that the Minister of Social Development and Poverty Reduction will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Design and implement a province-wide poverty-reduction strategy with legislated targets and timelines.	
Ministry of Labour Mandate Letter, Year: 2017. Author: Premiers Office.	**Description of Report** The Ministry of Labour Mandate letter outlines the policy objectives that the Minister for Labour will work to accomplish, as well as the challenges they will address in their role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Establish a Fair Wage Commission to support the work of implementing the $15-per-hour minimum wage by 2021 and to bring forward recommendations to close the gap between the minimum wage and livable wages. The commission will make its first report within 90 days of its first meeting. • Create a Temporary Foreign Worker registry to help protect vulnerable workers from exploitation and to track the use of temporary workers in our economy. • Update employment standards to reflect the changing nature of workplaces and ensure they are applied evenly and enforced. • Review and develop options with WorkSafe B.C. to increase compliance with employment laws and standards put in place to protect the lives and safety of workers. • Ensure British Columbians have the same rights and protections enjoyed by other Canadians by reviewing the Labour Code to ensure workplaces support a growing, sustainable economy with fair laws for workers and businesses	• Employment and the Labour Market.
Ministry of Citizens' Services Mandate Letter, Year: 2017. Author: Premiers Office.	**Description of Report** The Ministry of Citizens' Services Mandate letter outlines the policy objectives that the Minister for Citizens' Services will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Not applicable.	• Not Applicable.

Ministry of Agriculture Mandate Letter, Year: 2017. Author: Premiers Office.	**Description of Report** The Ministry of Agriculture Mandate letter outlines the policy objectives that the Minister for Agriculture will work to accomplish, as well as the challenges that the Minister will address in its role. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Revitalize the Agriculture Land Reserve and the Agricultural Land Commission. • Establish Grow B.C. to help young farmers access land, and support fruit and nut growers and processors to expand local food production. • Initiate Feed B.C. to increase the use of B.C.-grown and processed foods in hospitals, schools, and other government facilities. • Bring back an enhanced Buy B.C. marketing program to help local producers market their products, and work with local producers to expand market access in the rest of Canada and abroad. • Work with growers, processors, colleges and universities, as well as the Minister of Advanced Education and the Minister of State for Trade, to develop a B.C. Food Innovation Centre to innovate in the processing, packaging and marketing of B.C. food products, linking local food producers with new technology, and expanding exports and access to world markets.	• Environment/Access to Land. • Food Security. • Value Chain Stability.

Speech from the Throne,
 	
Year: 2020
 	
Author: Parliament of the Province of British Columbia.
	Description of Report
	
	The Speech from the Throne addresses the current state of the economy and the standard of living in British Columbia, and outlines strategies to improve the BC economy and make it a more affordable and inclusive place to live.
	
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• A strong, sustainable economy:
	    ○ Good-paying jobs that raise family incomes and everyone's standard of living.
	• Innovation and climate action:
	    ○ The Emerging Economy Task Force is helping BC stay at the forefront of emerging economic developments.
	    ○ The CleanBC initiative is fostering cleaner options for transport and fuelling industry and developing clean-tech and renewable-energy industries. A climate adaptation strategy will make sure B.C. communities are ready for changes in weather and other climate impacts. This government will work with business to promote B.C. industries as competitive suppliers of low-carbon products. By
		• Economic Growth.
		• Employment and Labour market.
		• Environment.
		• Economic Recovery.
		• Food Security.
		• Value Chain Stability.

	positioning B.C. as a supplier of choice, this government will grow markets for B.C. products while reducing global emissions.
	• Strength in natural resources:
	  ○ The government's priority is helping communities that are struggling due to the downturn in the forestry industry: "A wave of mill closures and curtailments driven by changes in global markets, reduced supply, wildfire losses and the mountain pine beetle, has left many people hurting. It could be argued that the previous government did not take adequate steps to address the changes it well knew were coming. This has made the current situation even more difficult for people today. This government's first priority is helping communities that are struggling. There are job placement and skills training opportunities for workers, bridge loans for logging contractors on the coast, and grants for hard-hit communities".
	  ○ The Food Security Task Force has proposed new ways to use technology to maximise BC's rich agricultural land.
	• Planning for growth:
	  ○ This government is promoting quality economic growth that increases wages, generates revenues to fund public services, and shares the benefits of growth broadly throughout the province.	

Emerging Economy Task Force – Final Report March 2020 Year: 2020 By: Emerging Economy Task Force	The report prepared by the Emerging Economy Task Force examined the current state of BC's economy with the goal of providing analysis and advice on emerging trends, that will impact and change business and society over the next 25 years. This analysis was followed by a set of recommendation for government policies to respond to these changes to ensure that BC continues to stay at the forefront of emerging economic development. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: ○ **Recommendation 2**: Foster technology adoption to generate economic, environmental and social benefit. ○ **Recommendation 13:** Enable broader workforce participation to meet labour supply challenges and realize the full economic potential of people in BC. ○ **Recommendation 15:** Support the success of new immigrants in the labour market. ○ **Recommendation 16:** Support an integrated planning approach to future economic, environmental and social trends, with a focus on BC's major economic hubs. ○ **Recommendation 19:** Capitalize on regional competitive advantages by building capacity to identify and promote economic opportunities. ○ **Recommendation 20:** Ensure the security of BC future food supply in the face of climate change impacts.	• Economic Growth (adoption of new technologies to generate economic and environmental benefits). • Employment and Labour Market (enabling workforce participation, supporting migrant workers). • Food Security (mitigating climate change impacts on the BC food supply).

REGIONAL PRIORITIES

<table>
<tr><th colspan="3">Regional Districts Priorities</th></tr>
<tr><th>Report</th><th>Description and Relevant Priorities</th><th>Relevant Themes of Priorities Covered</th></tr>
<tr><td colspan="3">Fraser Valley</td></tr>
<tr><td>Strategic Plan 2014-2018, Fraser Valley Regional District
Year: 2014
By: Fraser Valley Regional District</td><td>Description of Report
This document is the regional district strategic plan from 2014-2018. The plan is structure around five strategic priorities: waste management, air and water quality, flood protection and management, tourism, and outdoor recreation. The District's staff have taken these five strategic priorities and combined them with the services and activities in which the Fraser Valley Regional District is already engaged to establish four overarching strategic areas of focus: support environmental stewardship, foster a strong and diverse economy, support healthy and sustainable communities, and provide responsive and effective public services.
Relevant Priorities
Examples of priorities listed where the Sector could play a role in their advancement include:
Environmental Stewardship
Guiding the region toward Zero Waste as indicated in our Solid Waste Management Plan.
Protecting air quality.
Climate change mitigation and adaptation.
Ecosystem health.
Diverse Economy
Efforts to attract and retain a diverse range of business activities.
Flood protection and management.
Innovative partnerships for tourism and outdoor recreation.
Promotion of the Fraser Valley as a place to live, work, play and visit.
Support for the broader agricultural economy.
Partnerships with post secondary institutions to facilitate initiatives that will contribute to the diversification of the region's economy and ensure a stronger labour force.
Healthy and Sustainable Communities
Regional Growth Strategy.
Regional Parks Strategic Plan.</td><td>Economic Growth and Diversification (support for the agriculture industry, economic diversification, attracting residents).
Emergency Management (flood protection).
Environment (organics diversion, protecting air quality).
Employment and the Labour Market (providing work placements, attracting residents)</td></tr>
</table>

Regional Growth Strategy for the Fraser Valley Regional District: Choices for Our Future Year: 2004 By: Fraser Valley Regional District	**Description of Report** The Choices for Our Future Regional Growth Strategy for the Fraser Valley Regional District was created in 2004 and covers the next 20-30 years. It offers a regional framework for managing growth in order to ensure that the Fraser Valley continues to be a desirable place to live, work, and play. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Support and enhance the agricultural sector. • Manage urban land responsibly. • Develop a network of sustainable communities. • Protect the natural environment and promote environmental stewardship. • Protect and manage rural and recreational lands. • Achieve sustainable economic growth. • Manage water, energy, resources and water responsibly.	• Economic Growth (enhance the agriculture sector, achieve sustainable economic growth). • Environment (protecting the natural environment, protecting and managing recreational lands, and water, energy and resource management). • Employment and the Labour Market.
Fraser Valley Regional District and FoodMesh Eat Away at Food Waste Year: 2018 By: Fraser Valley Regional District	**Description of Report** This program is not part of any strategic plans but is a pilot project occurring across the region to give food a second chance. Foodmesh is an online marketplace that rescues food waste and redirects it to higher uses. FoodMesh connects farmers, restaurants and other food producers with charities and those that can use food, which would otherwise go in the trash. **Relevant Priorities** While this program does not include any priorities for the Fraser Valley, it showcases how agriculture can help in increasing food security in British Columbia.	• Food Security.
Okanagan Similkameen		
Strategic Plan 2018-2022 Regional District of Okanagan Similkameen Year: 2018 By: Regional District of Okanagan Similkameen	**Description of Report** This document highlights the strategic plan for the Okanagan-Similkameen Regional district for 2018-2022. The plan is structured around four key strategic directions: high performing organization, optimize the customer experience, build a sustainable region, and providing governance and oversight in a representative democracy. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • *Build a Sustainable Region*	• Economic Growth (How agriculture can help maintain a sustainable economy). • Environment (how agriculture can operate in an environmentally sustainable way).

	○ To develop an economically sustainable region. ○ To develop an environmentally sustainable region.	
South Okanagan Regional Growth Strategy – Bylaw 2421.02, 2016 – Schedule 'A' Year: 2016 By: Regional District of Okanagan-Similkameen	**Description of Report** The South Okanagan Regional Growth Strategy (RGS) was launched in 2004, adopted in 2010, amended in 2011, and updated in 2016 through a minor update process. The strategy focuses on housing and development, Ecosystems, Natural Areas and Parks, Infrastructure and Transportation, Community Health and Wellbeing, Regional Economic Development, Engagement and Collaboration, and Energy Emissions and Climate Change. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • *Focus development to serviced areas in designated Primary Growth Areas and Rural Growth Areas* ○ Protect the agricultural land base. ○ Recognize the critical links between social, environmental and economic sustainability and infrastructure in effective growth management. • *Protect the health and biodiversity of ecosystems in the South Okanagan.* ○ Coordinate regional biodiversity conservation and management. ○ Support environmental stewardship. ○ Protect regional air quality. ○ Promote and enhance water conservation and sustainability. ○ Reduce solid and liquid waste. • *Support efficient, effective and affordable infrastructure services and an accessible multi-modal transportation network.* ○ Direct development to areas with publicly operated services and infrastructure. ○ Minimize environmental impacts of infrastructure and services. • *Foster healthy, safe communities that provide accessible recreational, educational and cultural opportunities.* ○ Support regional partnerships and collaborate for safe, healthy and active communities. ○ Enhance community wellbeing by supporting diversity. • *Achieve a sustainable, resilient and prosperous South Okanagan regional economy* ○ Coordinate and cooperate to support regional economic diversification. ○ Encourage business development in employment lands. ○ Support local agriculture and related businesses. ○ Support and promote tourism and tourism-related activity. • *Reduce energy emissions and ensure the South Okanagan is prepared for a changing climate.* ○ Plan for climate change adaptation and support ongoing mitigation efforts.	• Economic Growth (diversification of the economy, sustainable economy, support of tourism and tourism activities). • Environment (protecting the environment and air quality, help enhance water conservation and sustainability, support climate change adaptation). • Employment and the Labour Market. • Community Development (community partnerships and collaboration, supporting diversity). • Infrastructure and Transportation (minimizing environmental impacts of infrastructure).

East Kootenay		

Regional Sustainability Strategy
 	
Year: 2014
 	
By: Regional District of East Kootenay
	Description of Report
	
	The Regional Sustainability Strategy (RSS) provides the Regional District of East Kootenay (RDEK) with a wide ranging, long term planning tool. It equips the region with a “sustainability lens” to guide and evaluate operations and decision-making. The plan is built around Transportation, the environment, the Economy, Community planning, Solid Waste, Infrastructure, Agriculture and Food, Climate and Energy, Social Services, and Governance.
	
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• *Transportation*
	  ○ Greenways: The expansion of the system of non-motorized greenways between communities, including rail to trail conversions, is supported; consideration will be given to maintaining these assets through the electoral area park and trail services in conjunction with municipal and other partnerships.
	• *Environment*
	  ○ Ground Water: Improved criteria, more resources and additional partnerships are needed to monitor groundwater aquifer quantity and quality in relation to current demand, future development proposals and climate change.
	  ○ Partnerships: Collaborate with industry, public agencies, Columbia Basin Trust and other non-governmental organizations to advance environmental protection and enhancement programs.
	  ○ Air Quality: Preserve regional air quality through transportation, energy, and related programs.
	• *Economy*
	  ○ Light industry: Increase the number and type of value-added industries to augment the region’s economic pillars (mining, forestry and tourism). Support these opportunities through municipal and RDEK land use regulations, transportation and infrastructure services, workforce training and other business support programs.
	  ○ Diversification: Many opportunities to diversify the regional economy have been identified; among the most frequently cited prospects are:
	    ▪ a) attracting new industry and “head office” administrative jobs to the region – the relatively low cost of living, lifestyle amenities, and airport service are important marketing attributes;
	    ▪ b) accommodating high tech, clean tech, the knowledge sector and nomadic entrepreneurs;
		• Environment (GHG emission reduction, partnerships to manage climate related issues, waste management/reducing waste)
		• Recreation (providing access to public recreational trail adjacent to agriculture lands)
		• Economic Diversification
		• Food Security (supporting regional food processing facilities)
		• Emergency Management (fire and flood protection)

	▪ c) ensuring that appropriately zoned lands and the necessary supporting infrastructure exists to capitalize quickly on development opportunities; ▪ d) allowing home-based business to act as an incubator for new business growth and development. • *Solid Waste* ○ Reduce Waste: Establish targets for waste reduction; b) Develop public incentives for proper waste diversion and disposal; c) Consider implementing product bans at RDEK transfer stations to ensure appropriate disposal by the end user; d) Advocate for improved access to extended producer responsibility programs. • *Agriculture and Food* ○ Processing: Regional food processing facilities, including abattoirs, are supported. ○ ALR Management: a) ALR boundary review processes and delegated decision-making agreements are supported; b) third party access to and use of fallow agricultural lands is supported; c) capable and suitable farm and range lands should be retained whenever possible. ○ Advocacy: The RDEK supports balancing the need for food safety with the removal of federal and provincial impediments to the production, processing and distribution of local food products. ○ Natural Resources: The RDEK supports the agricultural industry's access to the region's relative abundance of water, sun and geothermal energy to support food production. ○ Agricultural Planning: Support for the local food industry and the region's agricultural resources will be provided through the implementation of relevant plans and the supporting policies and actions. • *Climate and Energy* ○ Emergency response: Take proactive steps to protect critical infrastructure from interface fire and flooding events. ○ Community Planning: a) Consider updating regional floodplain mapping in consideration of future climate projections; b) Consider adding interface fire and floodplain management development permit areas to Official Community Plans to help mitigate the impacts of a changing climate. ○ Partnerships: Partner with Columbia Basin Trust, neighbouring regional districts, nongovernmental organizations and other agencies in the proactive management of climate related issues. ○ Green Energy: Support green energy projects where a sound business case and demonstrable GHG reductions are evident.	

[Regional District of East Kootenay Strategic Plan](#)
 	
Year: 2019
 	
By: Regional District of East Kootenay
	Description of Report
	
	This document highlights the strategic priorities for the district of East Kootenay. It is built around the pillars of Governance Excellence, Safety and preparedness, Economic Health, and Management Excellence.
	
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• *Safety and Preparedness*
	    ○ Emergency Preparedness: We maintain relationships with stakeholders we will work with in managing emergency situations.
	• *Economic Health*
	    ○ Infrastructure Development: We support the development of enabling infrastructure and services that attract and retain residents, skilled labour, and businesses to our region.
	    ○ Protecting the environment: We ensure natural areas are available for our residents and look for opportunities to support access.
	    ○ Support for Agriculture.
	• *Management Excellence*
	    ○ Asset Management: Impacts of climate change are considered in asset management and new construction.
	    ○ Solid Waste Planning: We support innovative solutions to waste reduction and residual management.
		• Emergency Management and Preparedness (flood, water, and fire management)
		• Economic Growth/Health (retain and attract businesses, support for agriculture)
		• Employment and Labour Market (attract and retain skilled labour).
		• Environment (mitigating climate change impacts, innovative solutions to waste management)

Central Okanagan		

[Regional District of Central Okanagan Regional Growth Strategy "Our Home, Our Future"](#)
 	
Year: 2013
 	
By: Regional District of Central Okanagan
	Description of Report
	
	This document highlights the Regional growth strategy for the District of Central Okanagan and is built on the following pillars: Land, Economy, Water resources, Health, Food, Housing, Climate, Ecosystems, Transportation, and Governance.
	
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• *Land*
	    ○ Support the protection of water supply on crown land and/or rural areas for all water users.
	    ○ Encourage access to and opportunity for development of Crown resources and rural land that provide economic opportunities that contribute revenues to support community social, health, education and transportation services for the citizens of the Central
		• Emergency Management (mitigating flood)
		• Environment (protecting ALR land, protecting waterways, recycling water waterways, decreasing greenhouse gases, protecting environmental assets, reducing reliance on fossil fuels)
		• Economic Diversification (innovation, improving quality of life, diverse economy)
		• Economic Growth

	Okanagan while having minimal impacts to the land, wildlife, and sensitive environmental area. ○ Support urban and rural land uses that provide affordable, effective and efficient services and infrastructure that conserve land, water and energy resources. ○ Support the protection of ALR lands and land uses which are supportive and/or complimentary to agricultural use. • *Economy* ○ Encourage and support related economic development initiatives that address the needs and challenges in the Region. ○ Support efforts in building a strong regional economy to: ▪ promote and stimulate innovation. ▪ create jobs. ▪ improve residents' quality of life. ▪ foster a diverse and balanced economic base. ▪ help reduce the Region's GHG emissions. ▪ increase economic development and regional prosperity. ○ Support effectively managing and protecting the integrity of the Region's critical assets such as the lakes, natural environment and agricultural lands that promote attraction of employment and investment. ○ Promote land development patterns that support a diverse regional economy. • *Water Resources* ○ Encourage the development of water source protection plans to improve drinking water quality, quantity and timing of flow of water sources. ○ Work with local governments, provincial agencies to assess and mitigate the risks in floodplains. ○ Utilize best management practices to protect and manage water resources, groundwater and surface water, through integrated watershed planning to improve water quality, and adequate supply for the Region. ○ Encourage opportunities to utilize "on-site" recycled water for landscaping and other uses within new and redevelopment projects. • *Food* ○ Encourage cooperation with regional partners, provincial ministries and stakeholders that consider a regional agricultural strategy to identify issues and the present and future needs of the agricultural sector that will contributes to the well being of all residents to guide food security, economic opportunity and the protection of agricultural land. ○ Preserve and support sustainable agricultural activities and land base that enhances local agriculture through the strengthening of best practices, support of local and regional food systems and the expansion of local food markets and agri-tourism.	• Employment and the Labour Market (creating jobs) • Food Security • Agri-Tourism/Tourism

	- Support appropriate water supply for the agriculture industry through the continued efforts to have efficient irrigation infrastructure and proper functioning and healthy watersheds. - Promote the use of agriculture and ALR lands for food production and ancillary agriculture processing and retailing consistent with uses outlined in the Agricultural Land Commission Act and Regulation. - Protect the supply of agricultural land and promote agricultural viability. • *Climate* - Work toward meeting the provincial target of reducing GHG emissions by 80% from 2007 levels by 2050. - Support the use of innovative approaches and technologies to help conserve energy and thus reduce GHG emissions. - Reduce reliance upon fossil fuels by promoting and supporting renewable energy infrastructure, such as solar power and geothermal, and by purchasing energy supplied by renewable sources. Renewable energy systems should be pursued in collaboration with Provincial, Federal and private sector programs. - Encourage cooperation with regional partners, provincial ministries and stakeholders on initiatives that improve efforts to reduce GHG emissions, improve energy conservation and mitigate climate change impacts. • *Ecosystems* - Encourage collaboration with regional partners on enhancing wildlife corridor linkages to improve habitat connectivity that avoids fragmentation and isolation of important habitats. - Encourage and support coordinated efforts to protect and enhance the Region's forests, environmentally sensitive and significant areas. - Encourage collaboration with regional partners, provincial ministries and stakeholders to consider regional conservation, watershed and other ecosystem-based plans and strategies that will update existing inventories. • *Governance* - Support opportunities for regional partners to collaborate, communicate and coordinate on matters of regional significance. - Encourage collaboration among the regional partners on long range land use, infrastructure and financial planning based upon projected growth, emerging priorities and the anticipated needs of communities.	
Thompson-Nicola		
Thompson-Nicola Regional District	**Description of Report** This document highlights the regional growth strategy for the district of Thompson-Nicola.	• Economic Growth. • Economic Diversification (diversify the economy,

Regional Growth Strategy
 	
Year: 2013
 	
By: Thompson-Nicola Regional District
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• *Overarching Strategic Goals*
	    ○ Promote and encourage local and regional economic development
	    ○ Protect and enhance the natural environment
	    ○ Protect and maintain access to the resource base
	    ○ Preserve the rural and wilderness character of the region
	    ○ Protect farmland and encourage farming
	    ○ Promote regional collaboration on common issues
	• *Growth Management Policies*
	    ○ Human Settlement - Encourage urban communities and established community nodes to work towards the following goals and objectives within their respective OCPs in a manner appropriate to their size and character:
	        ○ Enhance food security by encouraging the development of local community gardens, edible landscaping and farmers markets in urban areas.
	        ○ Encourage local road network planning with pedestrian and cycling components.
	        ○ Encourage high standards of development that enhance the urban and natural environment.
	        ○ Protect and enhance the quality of the natural environment.
	        ○ Establish a commercial base to provide employment and serve the needs of residents and visitors.
	• *Energy and Transportation*
	        ○ Encourage the use of green building techniques in new and retrofitted developments.
	        ○ Encourage the use of locally and regionally sourced materials to reduce transportation related GHG emissions.
	        ○ Support the development of alternate sources of energy and sustainable infrastructure including on-site energy production such as solar, wind, and geothermal technology.
	        ○ Protect transportation and utility corridors for potential expansion or use as pedestrian and non-motorized trail systems. Address impacts on adjacent lands through appropriate corridor planning.
	• *Economic Development*
	        ○ Encourage new economic development that is compatible with regional settlement, social and environmental objectives.
		increased productivity, eco-tourism)
		• Food Security.
		• Environment (GHG reduction, clean energy, reduction in air pollution, tree planting)
		• Employment and Labour Market (expand commercial base to provide employment)

	○ Encourage economic development that builds on the strengths of communities and supports the evolution of the distinctive character of individual communities or the region as a whole. ○ Protect and maintain access to the metals, minerals and aggregate resources, and encourage growth through participation in consultative processes and the support of initiatives that encourage conservation, diversification, and minimizes environmental impacts. ○ Support the preservation and increased productivity of agricultural lands and local food production and processing facilities. ○ Encourage eco-tourism and tourist-oriented developments that meet environmental, aesthetic, sustainable settlement, and regional servicing objectives. ○ Support the re-development of under-utilized industrial land and protect the existing industrial land base from conversion to other uses. ○ Evaluate proposals for the procurement and delivery of goods and services for their conformance with local and regional strategies for reducing energy consumption and greenhouse gas emissions. • *Environmental Protection* ○ Conserve and protect the region's natural resources, amenities and attributes for the benefit of existing and future generations. ○ Protect and enhance the quality and quantity of the water of the region's lakes, rivers, streams and ground water sources. ○ Encourage the development and adoption of air shed management plans and policies that contribute to the reduction or prevention of air pollution. ○ Encourage tree planting where appropriate and the retention of existing healthy trees and natural vegetation during new development. ○ Adopt a "zero waste" philosophy and support Regional Solid Waste Management Plan waste reduction goals.	
Cariboo		
Williams Lake Fringe Area Official Community Plan Year: 2013 By: Cariboo Regional District	**Description of Report** This is the Williams Lake Fringe Area community plan created in 2013. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • *Environment* ○ To encourage stewardship of natural resources through conservation and public education.	• Environment (invasive plant control, reducing impact on climate, waste reduction, sustainable resource management practices). • Emergency Management (wildfire management). • Economic Growth/Development

	○ To recognize the need for and participate in energy conservation measures. ○ To support programs for the control of invasive plants. ○ To participate in an effort to reduce human impacts on climate, including increased efforts to reduce waste (including recycling). • *Agriculture and Resource* ○ To minimize the conflicts between agricultural, resource and other land uses. ○ To support sustainable resource management practices in association with the use of the regional natural resource base. • *Residential* ○ To encourage consideration of global climate change, water conservation, air quality and environmental sustainability when reviewing new development applications. ○ To work with First Nations, provincial and government agencies and the public to minimize land use conflicts by planning for compatible adjacent uses which respect the use, scale and history of their surroundings. ○ To encourage development that minimizes the impacts of wildfires. • *Industrial* ○ To consider new industrial development opportunities that can contribute to local economic development.	(supporting the development of the local economy).
Quesnel Fringe Area Official Community Plan Year: 2014 By: True Consulting Sponsor: Quesnel and Cariboo Regional District	**Description of Report** This is the Quesnel Fringe Area community plan created in 2013. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • *Environment* ○ Develop an environmentally sustainable economy that promotes best management practices for all economic sectors. ○ Consider environmental conditions as an integral part of the assessment of growth management options, land use plans, transportation plans and development proposals. ○ Encourage increased efforts to reduce waste (including recycling). ○ Plan for the impacts of climate change. ○ Strive to ensure that land within the Agricultural Land Reserve (ALR) can be used for agricultural use. ○ Help to maintain high water quality by protecting the integrity of surface groundwater and aquifers. ○ Support strategies to increase environmental awareness. • *Agricultural and Resource Use* ○ To maintain a secure and productive resource base.	• Environment (reducing waste, planning for impacts of climate change, water quality, protecting water supplies, minimizing conflicts between resource development and other land use). • Emergency Management (wildfire management). • Economic Growth/Development (commercial development, stimulating local industrial economy, providing housing and employment, tourism) • Employment and the Labour Market (foster good quality employment and high paying jobs).

	○ To provide for the wise stewardship of the area's resources, including protection of access to aggregate deposits, protection of water supply sources and water resources. ○ To minimize conflicts between resource developments and other land uses. • *Commercial* ○ Provide sufficient opportunities for commercial development to allow for local responses to the needs of area residents. ○ Work with the City of Quesnel to support commercial land use patterns that reinforce Quesnel as the regional hub of commercial activity and to discourage the sprawl of urban development. • *Industrial* ○ To recognize and value industry as a vital component of the local economy. ○ To support initiatives to stimulate the regional industrial economy. ○ To encourage a high standard of development to enhance and protect the natural environment. • *Economy* ○ To foster a diverse and balanced economic base of good quality employment and high paying jobs. ○ To encourage economic development that supports the unique character of the community ○ To provide a balanced mix of jobs and housing in the community ○ To create a strong and sustainable tourism economy within a strong economic mix.	• Economic Diversification (balanced mix of jobs).
Comox Valley		
Comox Valley Regional District Strategic Planning Report. Year: 2019 By: A.M. Habkirk	**Description of Report** The Comox Valley Regional District Strategic Planning Report documents Comox Valley Regional District's (CVRD) mission, vision and core values. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • *Transportation* ○ Greenhouse gas reduction. ○ Alternative services in rural areas. ○ Link high need users to services e.g. food bank, farmers market. ○ Develop a Transit Future Action Plan for local government land use and identify future services and infrastructure need and cost implications. • *Emergency Programs* ○ Emergency prevention and mitigation. ○ Emergency Operations Centre preparedness.	• Environment (water conservation, climate change mitigation, air quality) • Infrastructure Development (reducing storm water infiltration, alternative services in rural areas) • Emergency Management (emergency food supply preparedness) • Food Security.

	- Business and resident emergency preparedness. - Emergency food supply preparedness. • *Sewage Treatment*
	  ○ Reduce storm water infiltration.
	• *Regional Growth*
	  ○ Settlement that is socially, economically, environmentally healthy.
	  ○ Improved air quality.
	  ○ Food security/system.
	  ○ Farming.
	  ○ Partnerships with KFN and food security organizations.
	  ○ Climate change mitigation and adaption planning.
	• *Recreation*
	  ○ Greenhouse gas and environmental impact reduction.
	• *Water Supply*
	  ○ Source and infrastructure resiliency to climate change impacts.
	  ○ Water conservation (reduction of per capita usage).
	  ○ Adequate, maintained, reliable and resilient infrastructure.	

Peace River		

Peace River Regional District Strategic Plan.
Year: 2019
By: Peace River Regional District
	Description of Report
	The Peace River Regional District (PRRD) Strategic Plan ensures that the PRRD's decisions, activities and policies are aligned with their vision and goals. The report addresses the most significant opportunities and challenges facing the region.
	Relevant Priorities
	Examples of priorities listed where the Sector could play a role in their advancement include:
	• Responsive Service Delivery
	  ○ Enhance Emergency Planning and Response Capacity
	  ○ Review and Amend Solid Waste Management Plan
		• Emergency Management (emergency planning and response)
		• Environment (solid waste management)

Cowichan Valley		
Economic Development Cowichan Strategic Plan. Year: 2018	**Description of Report** The report develops a four-year strategic plan for the Cowichan Valley Regional District (CVRD). This strategy builds on regional strengths in sectors like agriculture, forestry and tourism while acknowledging emerging sectors like advanced manufacturing, food processing, technology and film as economic contributors.	• Employment and the Labour Market (employment opportunities) • Economic Diversification (diversified economy)

By: The Cowichan Valley Regional District	**Relevant Priorities**
	Examples of priorities listed where the Sector could play a role in their advancement include:
	• *Overarching Objectives*
	  ○ Increasing high quality employment opportunities.
	  ○ Building a more diversified and sustainable local economy.
	  ○ Supporting existing and emerging businesses that bring new investment to the region.
	• *Business Retention, Expansion and Attraction*
	  ○ Industrial land use action plan.
	  ○ Business connector program (support and information in product development, market and infrastructure expansion, access to labor and other current issues).
	• *Sector Development*
	  ○ Connect existing and emerging sectors with information and resources and to stimulate new sector growth.
	  ○ Develop new food processing, value-added and agri-tech initiatives.
	• *Strengthening Communities*
	  ○ Sub-regional economic development strategies.
		• Economic Growth/Development (business attraction)
		• Value Chain Stability (business connector program, develop agri-tech, food and value added processing initiatives)

Cowichan 2050. Regional Collaboration Framework.
Year: 2018
By: The Cowichan Valley Regional District
	Description of Report
	The Cowichan 2050 Regional Collaboration Framework was developed to support sustainable and coordinated growth and development in the region. The Framework grew out of the realisation that by 2050 the Cowichan region will be "a very different place".
	Relevant Priorities
	Examples of priorities listed where the Sector could play a role in their advancement include:
	• *Climate Adaption*
	  ○ Support residents across the region develop neighbourhood climate change adaptation, or resilience plans.
	  ○ Identify priority impact areas for regional agriculture and outline a preliminary adaptation strategy.
	• *Growth Management*
	  ○ Policies to concentrate growth in areas that are already developed in order to preserve rural, agricultural, and environmentally significant lands, as well as to effectively and efficiently use existing infrastructure and save costs.
	  ○ Smart Growth principles, which encourage mixed land use, redevelopment and infill, diverse housing and transportation options, concentrating growth in compact neighbourhoods, and community engagement.
	• *Ecosystems and Biodiversity*
		• Environment (climate change adaptations and resilience plans, agriculture adaptation to climate change, environmental stewardship, addressing threats to biodiversity, protecting sensitive ecosystems, watershed protection, water management, air quality)
		• Economic Growth/Development (protect the agriculture sector)
		• Value-Chain Stability (sustainable movement of goods)

	o Promote responsible environmental stewardship. o Promote an integrated approach to planning and development that is based on sustainable development principles (e.g., direct growth away from environmentally sensitive areas. o Address threats to biodiversity. o Identify and connect ecologically sensitive lands and green spaces through greenway system development. o Base land use decisions on the best available information and ensure that relevant environmental issues are appropriately considered during development review processes. o Promote environmental stewardship education. • *Watershed Stewardship* o Protect sensitive environmental areas and ecological functioning within our watersheds. o Work in partnership with other stakeholders to better understand and protect the region's water resources and promote sustainable water use. o Ensure that development and land use activities support the natural water balance model. • *Liquid Waste* o Plan and carry out effective wastewater treatment. • *Solid Waste* o Enhancing and increasing access for programs for reuse and reduction, including building local food rescue capacity. • *Regional Economy* o Emphasize environmentally sustainable development of resources and value-added activities. o Maintain and protect the agriculture sector. • *Agriculture* o Protect and maintain agricultural land for agricultural purposes such as food production, and prevent uses that would hinder future agricultural use. o Encourage diversity in the sector and secondary agriculture (e.g., wineries, dairy farms, agritourism, organic produce farms, local processing). o Promote food security (e.g., healthy local diet, access to local food markets and buying locally). o Minimize conflict between agricultural and non-agricultural stakeholders and land uses. o Recognize and preserve the region's agricultural heritage and character. o Support urban agriculture, or small-scale production (e.g., community gardens) within residential areas to support food security.	• Emergency Management (emergency preparedness, designing infrastructure for emergency preparedness) • Food Security. • Heritage (preserve agricultural heritage)

	• *Health, Safety and Emergency Planning*
	  ○ Protect communities from natural hazards and risks through emergency preparedness.
	  ○ Enhance and protect air quality.
	  ○ Cooperate with other agencies and governments to enhance emergency preparedness.
	  ○ Support community capacity, education and awareness surrounding emergency preparedness.
	  ○ Promote safety through environmental design and the built environment.
	• *Food Security*
	  ○ Promote food security, such as by supporting a healthy local diet, access to local food markets and buying locally.
	  ○ Support urban agriculture and encourage community gardens.
	• *Heritage*
	  ○ Protect rural landscapes and seascapes for their visual values.
	  ○ Preserve our unique heritage resources and landscape vistas.
	  ○ Recognize and preserve the agricultural heritage and character of the Plan area, while minimizing conflicts between agricultural and non-agricultural resources.	

Metro-Vancouver		

Metro Vancouver 2040, Shaping our Future.
 	
Year: 2020
 	
By: Metro Vancouver
	Description of Report
	
	The Metro Vancouver 2040 report aspires to achieve the highest quality of life embracing cultural vitality, economic prosperity, social justice and compassion, all nurtured in and by a beautiful and healthy natural environment.
	
	Relevant Priorities
	
	Examples of priorities listed where the Sector could play a role in their advancement include:
	
	• Create a compact urban area
	  ○ Contain urban development within the Urban Containment Boundary.
	  ○ Protect rural areas from urban development.
	• Support a sustainable economy
	  ○ Promote land development patterns that support a diverse regional economy and employment close to where people live (including economic growth).
	  ○ Protect the supply of agricultural land and promote agricultural viability with an emphasis on food production.
	• Protect the environment and respond to climate change impacts
	  ○ Encourage land use and transportation infrastructure that reduce energy consumption and greenhouse gas emissions, and improve air quality.
		• Economic Growth/ Development (land development, food production)
		• Emergency Management (management of natural hazard risks)
		• Environment (reducing GHG emissions, climate change adaptations, protection of the natural environment)
		• Employment and the Labour Market (providing employment opportunities)

	○ Encourage land use and transportation infrastructure that improve the ability to withstand climate change impacts and natural hazard risks.	
Nechako		
Lakes District Economic Diversification and Community Development Strategy. Year: 2018 By: EcoPlan	**Description of Report** This economic strategy looks at the Lakes District as an economic whole. The purpose of this strategy is to make the Lakes District a better place to live with a stronger economy. The strategy will guide the communities of the Lakes District to improve and diversify the local economy. **Relevant Priorities** Examples of priorities listed where the Sector could play a role in their advancement include: • Economic Diversification ○ Develop a wider variety of sectors and types of work in the region to protect the economy from fires, smoke and other environmental factors. • Employment ○ Increase the number of good jobs. • Support Local Businesses ○ Actions to support an increase in local purchasing. ○ Work with large purchasers and local suppliers to increase local procurement. ○ Expand business retention and expansion program. • Agriculture and Food ○ Support local food producers by having more local food in local stores. ○ More sector collaboration and networking opportunities. ○ Develop a local butchering facility. ○ Develop food producer co-ops. ○ Increase procurement of local food. ○ Implement a sustainable business model for the farmers market. ○ Investigate potential for 'freight' box farm for local food security. Freight farming is a relatively new concept that involves turning shipping containers into vertical, hydroponic farming systems. ○ Support operators in expanding into agritourism ○ Be supportive of new/niche markets (haskap, beekeeping, hemp)	• Economic Diversification (developing wide variety of sectors) • Employment and the Labour Market. • Food Security (local food procurement, sustainable food markets, Freight Box farms) • Emergency Management and Preparedness (protecting from wildfire, smoke and other environmental disasters)

Appendix E – Data Sources

This appendix lists the key data sources that MNP consulted throughout our analyses. Supplementary references are included in the footnotes throughout the report.

PRIMARY RESEARCH

MNP conducted 16 telephone interviews with subject matter experts and Sector stakeholders. Table 7 summarizes the interviewee profile.

Table 7: Interviewee Profile

Interviewee	Title	Organization
Mr. Kenneth Nickel	Manager, Agriculture	BMO Financial Group
Ms. Christine Koch	Manager	BC Poultry Association
Mr. Lee Hesketh	Program Manager	Farmland-Riparian Interface Stewardship Program and BC Cattlemen’s Association
Mr. Andrew Petersen	Water Management Specialist	Ministry of Agriculture, Government of BC
Dr. Lenore Newman	Associate Professor and Canada Research Chair, Food Security and Environment	University of Fraser Valley, School of Land Use and Environmental Change
Ms. Julie Dickson	Director, Public Affairs and Corporate Services	Save-On-Foods
Ms. Ann Marie Walsh	Consultant, Labour Market Partnership Projects, Agriculture-Horticulture and Landscape Horticulture	Solstice Consulting, BC Landscape and Nursery Association
Ms. Debra Hauer	Manager	Canadian Agricultural Human Resource Council
Mr. Woody Seimens	Director, Supply Chain and Business Development	BC Milk Marketing Board
Mr. Ridley Bestwick	Chairman Director of Finance	National Renderers Association West Coast Reduction Ltd.
Ms. Sharon Brownell	Merchandise Leader	Gordon Food Service
Mr. James Donaldson	CEO	BC Food Processors Association
Mr. Phil Vanderpol	President and CEO	Vitalus Nutrition Inc.
Mr. Karn Manhas	CEO	Terramera, Inc.
Ms. Stephanie Slaman	Business Development Officer	Central Okanagan Economic Development Commission, Regional District of Central Okanagan

Interviewee	Title	Organization
Mr. Vern May	Economic Development Manager	City of Abbotsford
Mr. Ryan Perry	Senior Planner	City of Abbotsford

SECONDARY RESEARCH

The secondary sources used in this report are cited throughout the report. A selection of important information sources is provided below:

- BC Agriculture Council, https://bcac.ca/
- BC Ministry of Agriculture, https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/ministries/agriculture
- Investment Agriculture Foundation of BC, https://iafbc.ca/
- Provincial Agricultural Land Commission, https://www.alc.gov.bc.ca
- Canadian Agricultural Human Resource Council, https://cahrc-ccrha.ca
- Statistics Canada, http://www.statcan.gc.ca
- BC Stats, www.bcstats.gov.bc.ca

Appendix F – About MNP

MNP is one of the leading chartered accountancy and business advisory firm in Canada. Founded in 1958, MNP has grown from a single office in Manitoba to more than 75 offices and 5,000 team members across Canada. In British Columbia, MNP has more than 800 staff located in 18 offices throughout the province. The map below shows our office locations.

About MNP's Economics and Research Practice

Economic and industry studies are carried out by MNP's Economics and Research practice. Based in Vancouver, the Economics and Research practice consists of a team of professionals that has a successful track record of assisting clients with a wide variety of financial and economic impact studies. Our work has encompassed a wide range of programs, industries, company operations and policy initiatives, and has helped clients with decision-making, communication of economic and financial contributions, documentation of the value of initiatives and activities, and development of public policy.