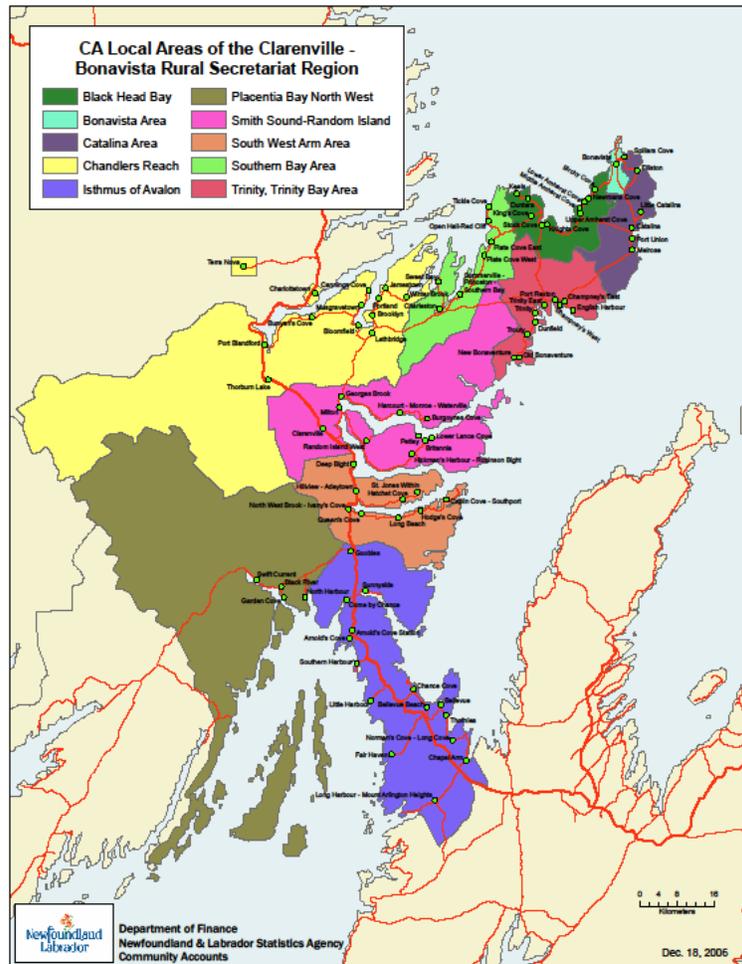


**The Analysis of Labour Market Factors Impacting Primary Industries
in the Province of Newfoundland and Labrador,
with a special interest in the Clarenville-Bonavista Rural Secretariat region**



By Janelle Skeard with Colin Holloway and Kelly Vodden

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Introduction

This report presents the results of a review of documents pertaining to five primary industries: fishing, agriculture, forestry, oil and gas, and mining as well as their associated processing industries. Through this research and review, labour market conditions have been assessed. The amount of available information pertaining to specific sectors in the Clarenville-Bonavista region was severely limited. However, it is assumed that the general trends for Newfoundland and Labrador mentioned in this report and all related documents are applicable to the area. For each sector this assessment includes a general overview, wages and incomes, employment and unemployment, demographics, education and training and the issues specific to the nature of the sector (for example, seasonality). For organizational purposes, the report is organized by key themes, following a general overview of the labour market situation in the province and the Clarenville-Bonavista region. A brief summary of the issues is included after each sector, along with any suggested solutions acquired from the sources reviewed. The report concludes with some cross-sector observations about labour market issues in the primary and related sectors.

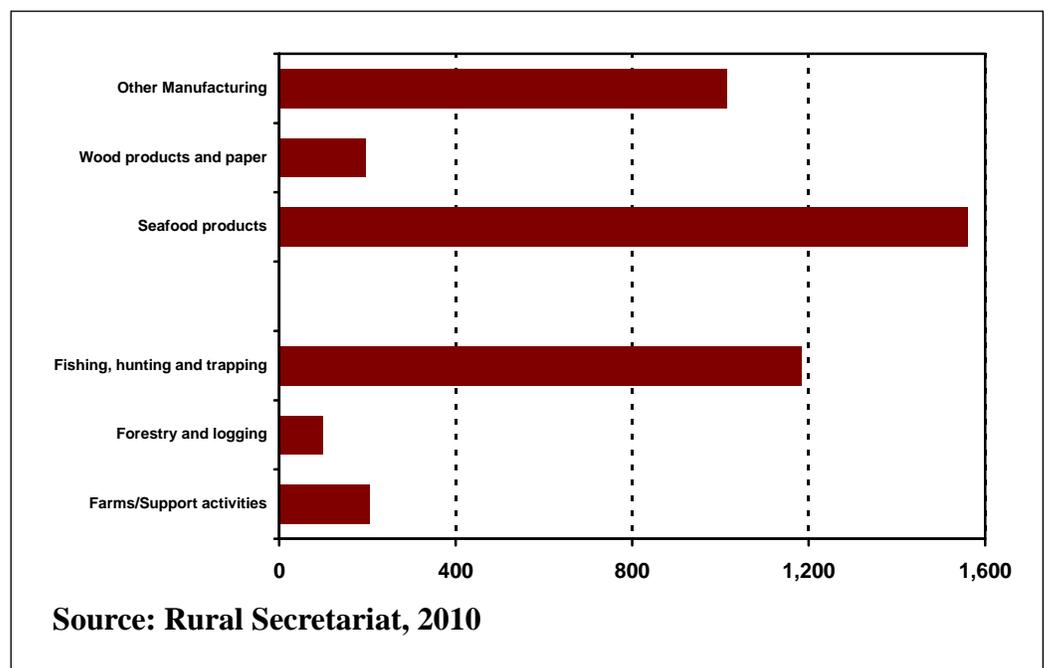
Overview

The current labour force residing and working in Newfoundland and Labrador is ageing, with fewer and fewer young persons entering the provincial labour market and a larger number of older workers than younger. This change has often been attributed to out-migration along with lower birth rates in recent years and difficulties attracting and retaining immigrants (HRLE, 2007). Newfoundland and Labrador has one of the oldest workforces in the country, especially in rural areas. The issue of slowing population increase has resonated throughout many areas of the world (including Canada), however, Newfoundland and Labrador experienced steady population declines from 1992 to 2008 (NL Statistics Agency 2010) and has seen a more rapid ageing of its workforce than other provinces. These demographic issues combined with new employment opportunities have led to concerns about labour shortages despite high rates of unemployment, particularly in some industries, occupations and skill-types. The provincial labour force is an asset required for a strong economy for Newfoundland and Labrador and increasing globalization and demands of a global marketplace require the skills and knowledge necessary for competition. A high rate of technological advancement also means that workers will need to acquire the necessary skills, as well as adapt to more diverse duties and tasks. Primary industries are not excluded from the trends. In rural communities, the predominant employer is often rooted in primary industries (fishery, forestry, agriculture, oil and gas, and mining). Nearly 50% (48.5%) of the province's workforce reside in rural and small town communities (HRLE, 2007).

In 2006, workers in the Clarenville-Bonavista region accounted for approximately 5.5% of the total provincial workforce (approximately 18,312 persons). The working age population encompasses the largest demographic group within the region, at about 63.8% (HRLE, 2007). Prior to 2003, the ratio of potential retirees to younger workers implied a sustainable labour force with plenty of younger workers available to replace retiring workers. In 2003, however, the ratio equalized at one to one and since 2003, the amount of potential retiring workers has steadily outnumbered the number of younger workers present in the region. It is estimated that by 2021 there will be nearly two retiring workers to every one younger worker (LMI, 2008). To put these statistics in perspective, it is projected that in 2021 the median age of the working population in Canada will be 42.2 years old. This number rises to 49.3 for the province and 50.4 for the Clarenville-Bonavista region (LMI, 2008).

In the Clarenville-Bonavista region, the average employment income has increased from \$20,600 in 2002 to \$27,881 in 2006. A large share (43.5%) of the employment comes from the manufacturing, fishing and trapping, and retail sales industries (HRLE, 2007). According to the 2006 census, there were approximately 1,700 persons from the

**Figure 1. Primary and Manufacturing Employment, 2005
Clarenville-Bonavista Rural Secretariat Region**



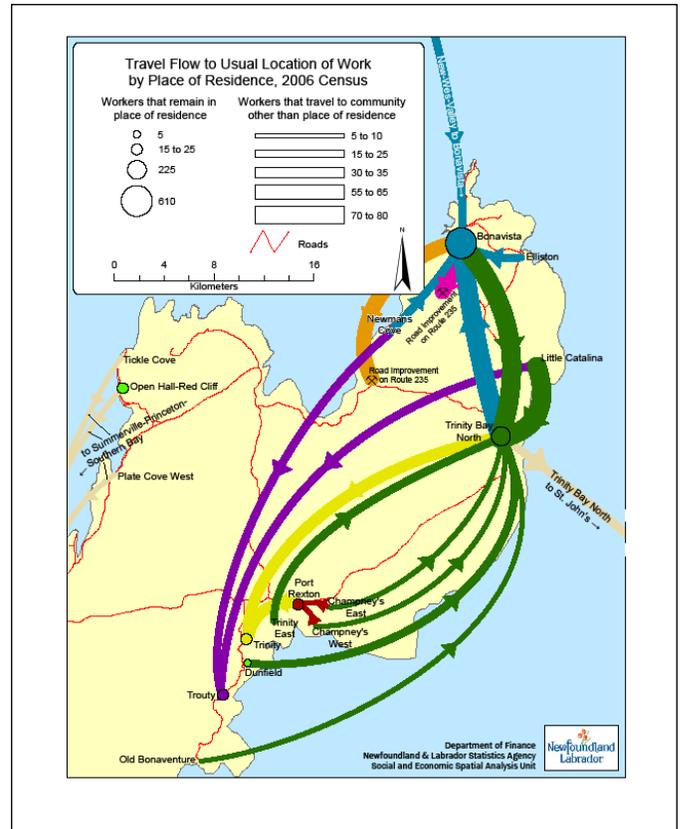
Clarenville-Bonavista region employed in the primary sector (approximately 11.6% of the total employed workforce) (Statistics Canada, 2006). An equivalent number of jobs existed in primary sector-related processing sectors, particularly seafood and wood products. These statistics highlight the importance of primary sector jobs that still remains within the region.

Linked to primary sector dependence, the region has lower-than-average education levels. In 2001, 38.6% of the prime working age population (25-54 years) had less than a high school education, compared to

30.8% for the province overall and 19.5% at the national level. Within the region, education levels were relatively higher in Clarenville where only 18.8% of the working age population had less than a high school education in 2001 and 21.9% had a university degree (LMI, 2009). In 2005, the percentage of labour force participants who had completed postsecondary education was lowest at 30.4 % in the Newman’s Cove sub-region and highest at approximately 42% in the Isthmus of Avalon sub-region (Rural Secretariat, 2010).

Due to the seasonal nature of primary industries and associated processing sectors in the region, with approximately 4,100 individuals employed in seasonal industries in 2005 (nearly 30% of all labour force participants) Employment Insurance incidence is high. This is especially true for certain communities. In 2007, for example, the incidence for Employment Insurance was 66.4% for the King’s Cove/Black Head Bay sub-region, compared to 31.1% for the Clarenville sub-region (Rural Secretariat, 2010). According to the 2006 Census, 34.7 per cent of workers in the Clarenville-Bonavista region were employed with full-time work. Within this data, it is also noted that the percentage of full-time workers varied from community to community and was as low as 14.7 per cent in the Newman's Cove/Black Head Bay area and 19.9 per cent in the Catalina area (Community Accounts, 2006).

Figure 2. Commuting flows to Bonavista and Port Union



Source: NL Statistics Agency

A majority of labour force participants in the Clarenville-Bonavista region are commuting from their home communities to another community for work. In 2006, 56.5 % were traveling for work. This was the highest percentage for any Rural Secretariat region. Commuter destinations in the region include Clarenville, Bonavista and Port Union (see Figure 2, page 4), Come by Chance, Arnold’s Cove and Sunnyside (Bull Arm). With the exception of the regional service centre of Clarenville, these commuting flows are tied to primary-sector driven industries.

Fishery

Overview

In 2005, the fishing industry (including both harvesting and processing) contributed 3.5% to the provincial GDP and 7.5% to the employment in the province (Vale Inco, 2008). The fishery is one of the largest employing industries in the Clarenville-Bonavista region. Approximately 17.5% of the workforce is employed in harvesting and processing fisheries resources. Within the Clarenville-Bonavista region, there are a number of fishery-related processing facilities. As of 2009, there were 13 communities with at least one registered fish processing facility in the region, including processing facilities that employ over 100 residents in Hickman's Harbour, Bonavista, Port Union, Arnold's Cove, Clarenville and Norman's Cove-Long Cove (Rural Secretariat 2010). Others include the Furlong Brother's plant at Plate Cove West, Princeton Seawater plant at Princeton, Summerville Fisheries plant at Summerville, Nu Tan (BGI) Inc. seal pelt processing plant at Catalina, as well as plants at Fair Haven, Chance Cove and Southern Harbour.

Key points:

- **One-third of Canadian fish harvesters reside in NL.**
- **8% decline in number of fish processing workers and 4% decline in fish harvesters in the region between 1996-2006**
- **In 2006, fishing incomes ranged from \$5,300 to \$26,900.**
- **23% of all Canadian fish harvesters have less than Grade 9 education in 2000.**
- **Only 26% of all registered harvesters are under the age of 40; workers are younger in aquaculture**
- **13 registered fish processing facilities in the Clarenville-Bonavista region in 2009**

Employment and unemployment

Approximately one-third of Canadian fish harvesters reside in Newfoundland and Labrador. Of the 20,415 people employed in primary industries in the province, 11,860 are fish harvesters (Statistics Canada, 2006). Out of the approximately 1,700 persons employed in the primary sector in the Clarenville-Bonavista region, 1,155 of them (68%) were listed as fish harvesters in the 2006 census (Statistics Canada, 2006). The number of harvesters has declined by 4% (50 individuals) in the region from 1996-2006 and by 2.8% in the province (Community Accounts, 2010).

In addition to the harvesting segment of the fishery, there are approximately 1,500 persons working in the fish processing industry in the Clarenville-Bonavista region (Rural Secretariat, 2010)¹ and approximately 15,000 in the province (Dunne, 2003). The largest employers in the sector are Bonavista fish plant, which

¹ There is some discrepancy in statistics regarding the processing workforce. Community Accounts (census data) suggests there were 915 fish plant workers and labourers in 2006, down from 995 since 1996 (a decline of 8%, or 80 jobs). Community Accounts also reports 9,920 workers in fish processing in 2000/2001 while Dunne (2003) suggests there were 15,000.

employs approximately 270 people, and the Ocean Choice Plant in Port Union, with 225 employees. The fish plant in Trouty closed in 2008, putting approximately 200 employees out of work (Rural Secretariat, 2010). Automation, considered a requirement for competitiveness in a global industry, and the shift from reliance on ground fish to shellfish have contributed to job losses in fish processing in the region and throughout the province. According to The Canada-Newfoundland and Labrador Fishing Industry Renewal Initiative Discussion Paper (2006) levels of employment in processing facilities in 2006 were less than 60% of pre-moratorium levels. Dunne (2003) reports that the number of harvesters in the province fell by 9% from 1990 to 2003 while the number of individuals employed in fish processing fell by 41% (with a peak in 1987-1988 and the largest decline occurring from 1990 to 1991). Community Accounts shows only a 1.3% decline in the processing workforce from 1996-2006 (8% in the Clarenville-Bonavista region), suggesting greater stability in recent years. Further closures are expected in the future, however, with efforts to consolidate the fishing industry and seasonal unemployment remains high in both harvesting and processing segments of this industry. Employment related to the aquaculture sector is discussed further below.

Education and training

The fishing industry workforce has a lower-than-average level of education compared to other sectors. Reports show, however, that education levels among fish harvesters has been on the increase. The Canadian Council of Professional Fish Harvesters (CCPFH) reports that harvesters with less than 9 years of schooling dropped from about 41% in 1987 to 23% in 2000. In 1996, 36% of all harvesters reported on the Census that they had some high school but had not graduated or completed any other formal education or training (CCPFH, 2001). Education levels remain lower in the sector than in Newfoundland and Labrador as a whole, but the gap is narrowing through initiatives such as fish harvester professionalization and training requirements. As of 1997, harvesters receive personal certification as an Apprentice, Level I or Level II harvester. While experienced harvesters were given Level II status when the new system was introduced, today becoming a Level II fish harvester requires training combined with fishing experience (PFHCB 2010). Fish harvesters who completed high school and acquired a post-secondary certificate or diploma jumped from about 10% of the population in 1987 to almost 30% in 2000 (CCPFH, 2001).

A 2004 FFAW submission to the Task Force on Seasonal Work points out that it is more difficult for older workers to respond to the rapid introduction of new technology to increase productivity in the fish processing industry, suggesting the importance of attracting young workers with the necessary skills or training middle-aged workers to provide them with these skills (FFAW 2004). It is also noted that there is a lack of a training culture in the industry, and the costs of training and the reluctance of harvesters to pay for training, are

major constraints on the continuing development of their program offerings (CCPFH, 2001).

Demographics

An ageing workforce is a concern in the fishing sector across Canada. In 1987, there were more harvesters in the 15-24 age group than in the 45-54 age group in Canada. However, by 2000 the situation had completely reversed (CCPFH, 2001). In Newfoundland and Labrador, it is important to note the impact that the collapse of the cod stocks and 1992 moratorium had on the industry. The event caused workers of all ages to leave the industry and significantly reduced the number of new entrants and younger participants (CCPFH, 2001). Many smaller, coastal communities in Newfoundland and Labrador that are reliant on the fishery continue to see their population decline and difficulties are experienced attracting new residents or entrants to the fishing industry.

The average age of fishing masters and skippers in the province has risen from 38.9 in 1991 to 43.9 in 2006 (CCPFH, 2001). According to FFAW (2009) there are approximately 3,755 core licence holders and 11,323 registered harvesters in the province. Of this number, 60% of core licence holders are age 50 and over while only 2,943 (26%) of all registered harvesters are under the age of 40. Fishing captains report difficulties finding and retaining crew members due to low wages and the seasonality of the industry (Ma 2009).

In the processing segment of the fishing industry an estimated 36% of workers were 45 years of age or more in 2003 (Dunne 2003). Further, the Clarenville-Bonavista was among the regions in the province with the highest portion of processing workers in 45 years and older age categories (44%). The Canada - Newfoundland and Labrador Fishing Industry Renewal Initiative Discussion Paper (2006) reports that many plant workers in 30-45 year age range are leaving the industry. Dunne (2003) adds that seniority clauses combined with seasonality, low incomes and limited job opportunities have limited opportunities for new entrants into the processing sector. Provincially and in the Clarenville-Bonavista region, the majority of harvesters are male while women make up the majority of fish processing workers.

Wages and income

Tax filer data shows that average total incomes for fish harvesters in Canada increased from just over \$20,000 per harvester in 1990 to over \$30,000 in 1995 (CCPFH, 2001). In 1995, the average yearly employment income for the Canadian labour force as a whole was \$37,600 (CCPFH, 2001). In 2009, however, the total reported net income for people who listed fishing as their primary source of income had dropped by nearly \$6,000 dollars from 2001 levels (\$35,800 to \$30,000) (CCPFH, 2009). In 2001, crewmembers in the

Atlantic Region earned an average of \$25,300 compared to \$22,600 in the Pacific Region (CCPFH, 2005). Within the province, incomes vary considerably by type of fishery, area fished, and the vessel/operation size. In 2006, fishing incomes ranged from approximately \$5,300 to \$26,900 (Fisheries and Oceans Canada, 2010).

For processing workers, as of 2004 average wages in unionized plants were between \$9 and \$15 per hour (FFAW 2004). Of course, as minimum wage has risen, the minimal hourly industry wage will also increase. Dunne (2003) reports that in real terms (constant \$1997), average plant workers' incomes declined 4% from 1991 to 2001. With an average income from the processing sector of \$10,220 in 2001 dollars and approximately 89% of plant workers earning less than \$30,000 per year from all services their incomes are lower than both harvesters and non-fishing sector workers. Dunne (2003) points out, however, that processing workers receive an average weekly wage (including overtime) higher than most occupations with similar formal training in rural communities, with an average weekly wage of \$567 in 2002 compared to \$319 in home care, \$261 in food service, and \$420 for retail trade. But with higher wage opportunities in other sectors such as trades and contracting, and low numbers of weeks worked, incomes for fish plant workers are insufficient to attract and retain younger plant workers (NL 2006).

Sector-specific issues

The fishing sector has often been characterized by its seasonal nature, along with its predominance in many outport rural Newfoundland communities. Employment varies seasonally within the sector. In Newfoundland and Labrador, according to 2005 figures, 26% of the fish harvesting workforce worked between 1 and 13 weeks, 56% worked between 14 to 26 weeks, and only 18% worked 27 weeks or more (CCPFH, 2009). On the processing side, residents, working in plants such as Bonavista, often find themselves without sufficient weeks of employment to qualify for Employment Insurance. Dunne (2003) notes, however, that the longer season of operation at the Arnold's Cove fish plant has led to the Isthmus of the Avalon Peninsula to have the highest percentage of total income from plant earnings in the province.

Industry recruitment is also a major concern. While the bulk of skippers, quota and vessel owners are nearing retirement, the high cost of buying into fishing operations as well as high license and quota values are considered to be barriers to new entrants into the fishery labour market. It is also noted that many young people from these rural communities may leave the industry in pursuit of more attractive opportunities, taking with them the accumulated knowledge and skills that the industry needs for the future. Dunne (2003) suggested that by 2013 the processing sector will start to see significant difficulties for labour supply as the productive 35-54 age group retires or migrates and is not replaced. In 2008-2009, the net inter-provincial out-migration of

workers was 718, a majority of which was from the 15-29 age cohort (LMI, 2010). The fishing industry has tremendous uncertainty and is often not seen as an attractive career for young people who are often discouraged by their family from entering the sector (Rural Secretariat 2010).

Solutions

Solutions to the issues raised above may include: attracting new entrepreneurs to the industry; using new technologies; access to venture capital to allow entrepreneurs to purchase fishing licenses and fishing enterprises; and possibly immigration, particularly within the processing sector (Rural Secretariat, 2010). In a 2004 Task Force on Seasonal Work the Fish, Food and Allied Workers (FFAW/CAW) made recommendations in three areas: early retirement, modernizing EI and institutionalization of a training insurance entitlement under the EI Program that allows workers to collect regular benefits while in training. One solution proposed to counteract seasonality and low incomes in the industry is “rationalization.” The term rationalization has various interpretations but for many readers it means reducing the number of people in the industry with the idea that there are too many vessels and too many processing plants in the province given the available fisheries resources. A detailed discussion of rationalization is beyond the scope of this document; however, key points are made due to the importance of this concept for future labour market conditions in the sector. Ma (2009) points out that this process is occurring through “self-rationalization” as people leave the industry, with policy supports such as “enterprise combining” provided to encourage this trend. FFAW (2009) suggests an early retirement program but stresses the importance of making a place for new workers as existing participants retire and efforts to strengthen and lengthen existing job opportunities. Similarly, as noted by HRLE in 2007, ageing workers will form an increasingly larger share of the workforce, provoking major workplace adjustments. For example, efforts to keep older workers will likely increase with reasons to delay retirements in an effort to meet developing labour demands (HRLE, 2007).

The Canadian Council of Professional Fish Harvesters suggests that there must be alternative models for inter-generational transfer of assets that does not adversely affect the financial situation of new entrants into the sector. One option suggested by FFAW is to create a “quota bank” option where the provincial government buys a quota from retiring enterprise owners then re-issues these licenses to new operators on a “lease-to-own” arrangement with safety measures for time when prices and/or quotas are below threshold levels. (FFAW, 2009). These quotas could be associated with regional allocations or linked to particular vessel sizes or gear types to address additional concerns related to preservation of the province’s inshore fleet (The Canada - Newfoundland and Labrador Fishing Industry Renewal Initiative Discussion Paper, 2006). It is also suggested that more research and strategic planning be performed on the industry in an effort to understand current and

projected labour market models. Finally, Dunne (2003) suggests “Government must combine its fish processing sector policies and its general economic development policies if certain rural communities are to survive”.

Aquaculture

The aquaculture industry in Newfoundland and Labrador has grown significantly. In 2009, there were 655 individuals employed in the aquaculture industry in the province. In that same year, 13,625 tonnes of farmed fish were produced provincially- an 18% increase from 2008 levels, which were approximately 11,545 tonnes. The total export value of farmed fish in 2009 was \$92.1 million (Government of Newfoundland, 2009). The aquaculture industry also creates new jobs in fish processing. Of the 655 employees in aquaculture, 50% are between 21 and 35 years of age- a much lower average than that of the fishing industry. This information suggests that the aquaculture sector may be more attractive for younger workers than the wild fishery. There is also post-secondary training available for the industry, ensuring that workers are well-versed in aquaculture practices (DFA, 2009). The aquaculture industry in the province is centred on the South Coast, near Bay d’Espoir and in the Notre Dame Bay. Within the Clarenville-Bonavista region, attempts to develop the sector have included mussel farming near Trinity and Atlantic cod grow-out near Southport (Rural Secretariat, 2010).

Agriculture

Overview

The agriculture sector in Canada encompasses a variety of commodities that have been divided into six groups: livestock and poultry; crops; berries, vegetables, tree fruit and vine; greenhouse, nursery landscape and floriculture; aquaculture²; and other and non-traditional (e.g. herbs and spices, sods, and tobacco). Dairy, beef, eggs, fruits (berries) and vegetables (particularly root crops), fur pelts, sod, landscaping and greenhouse products are all produced within the region by an estimated 40 commercial farms, with a concentration in the Lethbridge area (Discovery Regional Development Board, 2008).

Demographics

Demographic trends for the sector are similar with the trends experienced across all primary sectors for Newfoundland and Labrador- and in the agricultural sector throughout the rest of the country. The average age of agricultural workers has been increasing for nearly two

Key points:

- **Average age of farm operators is increasing**
- **There are 558 farms in NL, with a trend of decreasing farm numbers and acreage**
- **Only 24% of NL farm operators are women**
- **In 2005 nearly 46% of workers also had an off-farm job**
- **Operators in Zone 15 cite lack of human resources as a business challenge**

² Aquaculture has dual status as both an agricultural and fishery-related activity

decades. Since 1991, the average age of farm operators has risen from 46 to 52 years old. In the province, a mere 6% of farmers are younger than 35 years of age (Skeard et al., 2010). Similarly, the only age category in the sector to experience increase has been the 'above 55' cohort. This group encompasses the largest number of workers in the sector. It should be also noted that gender employment within the sector is still unequal and that there is a need to attract more female entrants into the sector (Skeard et al., 2010).

Employment and unemployment

Analysis of 2006 Census information indicates that the agricultural sector employed 345,020 individuals in Canada in 2006 (Statistics Canada, 2006). Employment in primary agriculture in Canada has declined after a high level of 457,000 individuals in 1987. Agricultural employment has levelled off in the past few years after having dropped by almost 100,000 people from 1998 to 2001. According to Statistics Canada, in 2006, there were 558 farms in Newfoundland and Labrador, a 13% decrease during the past five years. This number is greater than the 7.1% decrease at the national level. At the time of the 2006 Census, there were 184 fewer farms in Newfoundland and Labrador compared to 1996. There were also 710 farm operators, a 9% decline since 2001. In short, participation within the sector is declining (Census of Agriculture, 2006). Of Newfoundland and Labrador's 710 farm operators, 24% are women (an increase from 21% in 2001 but lower than 28% in Canada). It is also noted that the high seasonality of work in Newfoundland and Labrador and its primary sectors, including agriculture, gives the province a much higher unemployment rate compared to the rest of Canada (HRLE, 2007).

According to the Discovery Regional Development Board (2008) the agriculture industry employs approximately 400 people in Zone 15, producing a farm gate value of over \$20, 000,000. As in other parts of the province, however, and despite significant market potential, the number of horticultural farms and acreage farms has decreased and operators cite lack of human resources as one of their key challenges, along with operating costs, lack of land use, lack of community and government support and unfair competition from other provinces.

Wages and income

Newfoundland and Labrador's total gross farm receipts was \$107 million in 2005 and operating expenses reached \$92 million. Approximately 51% of farmers worked more than 40 hours a week on their operations and nearly 46% supplemented their incomes with an off-farm job or business in 2005 (down from 48% in 2000 and nationally) (Census of Agriculture, 2006). Farm cash receipts and wages have risen in the province over the past decade (Skeard et al., 2010).

Education and training

The diverse range of activities in the agriculture sector requires an array of tasks and skills. The introduction of new technologies in the sector has led to increased need for training. Traditional methods have evolved into highly mechanized efforts requiring knowledge of the machinery, combined with traditional knowledge of the sector (Skeard et al., 2010). In 2006, however, out of the 715 farm operators in Newfoundland and Labrador, only 110 (15%) had acquired a university degree (Statistics Canada, 2006). In Canada, NL and in the region operators report a shortage of human resources, including skilled workers. A 2004 national study identified related challenges that include low wages, hard work, negative perceptions of the industry, lack of awareness of employment opportunities, and lack of training and professional development culture (Mussell and Stiefelmeyer, 2005).

Sector-specific issues

The predominant labour market issues in the sector are pertaining to the attraction and retention of new workers. There is currently a labour gap whereby 17% of all jobs in agriculture in Atlantic Canada are unfilled (~2000 persons). Because of the strain on the already existing labour market, in combination with the demographic trends in the province, it is estimated that by 2015 needs in the labour market will have to be met either by those already in the market or by migrants. These trends emphasize the need to attract new, skilled, younger workers to the industry.

Solutions

Suggested solutions and ways to overcome obstacles surrounding recruitment in the agriculture sector include: offering practical courses to overcome literacy challenges and on-site safety training, the development of industry-specific courses, information sessions in local schools and farm tours to promote awareness, development and award of scholarships, public awareness campaigns and immigration as a strategy for filling human resource needs. Two programs aimed at addressing the issue of recruitment are also noted: The New Farm Investment Program and the Agriculture Innovation Program. However, in order for these measures to work, agricultural work must firstly be viewed as a career, and secondly be supported by the educational system.

Forestry

Overview

It its most basic sense, the primary portion of the forestry sector deals with the extraction of resources for commercial use. The province is endowed with a gratuitous amount of forestry resources, and because of this, their use has been central to the primary industry in Newfoundland. There are also jobs created indirectly from harvesting forest resources, including processing, shipping, and managing the resource. In 2009, the province's forestry sector's estimated value

was about \$250 million for the products produced. This figure includes newsprint, lumber, as well as value added production. These industries use approximately 1.2 million m³ of local timber, mainly balsam fir and black spruce (Department of Natural Resources, 2010). See **Table 1** for associated activities within the region.

The sector has experienced mixed success in the last few years. In the United States, the demand for newsprint has been steadily declining and the housing market is at historic lows leading to a reduced demand for lumber, although markets are expected to improve in 2011 (Department of Natural Resources, 2010). The costs of production are increasing due to rising energy prices, a strong Canadian dollar, and increased competition from other countries (Department of Natural Resources, 2010).

Employment and unemployment

According to the 2006 census, there were approximately 70 residents from the Clarenville-Bonavista region employed as “loggers” (Statistics Canada, 2006). In the same census period, approximately 1,470 persons were employed in the sector provincially.³ Because of the high amount of technological advancement within the sector, fewer manual labourers are necessary to extract the same amount of material that was

Table 1. Value Added Forest Products Produced in District 02: 2004-05

Christmas trees	Laths
Panelling	Felt moulding
Construction timber	Cabinet stock
Pallet kits	Premium graded/stress tested lumber
Flooring Survey pegs	Clapboard
Log siding	Storage stickers
Pallets	Bagged firewood
Fencing	Bedframing
New product made from traditional waste products: hog fuel, animal bedding, mulch, landscape chips, pallet notches, trimmed ends, heat treated pallet stock (shorts), bagged birch bark	

Source: District 2 Forestry Plan, Dept. of Natural Resources, 2006

Key points:

- In 2006 almost 1,500 people were employed in the sector provincially
- Between 2003 and 2009 there were 7 mill closures in the province
- Typical labourers make \$10 to \$16 an hour
- Median age of workers is 42 years

³ There is some discrepancy in statistics regarding the logging workforce. Community Accounts (census data) suggests there were 1,470 loggers in 2006, while Working In Canada suggests that there were 405.

harvested in previous decades. Approximately 5,500 people are involved in pulp and paper production, sawmilling, woods contracting and value added activities (Department of Natural Resources, 2010). According to the Forest Products Sector Council, there were seven mill closures in the province between 2003 and 2009, eliminating jobs within the processing sector of the forest industry (FPSC, 2010).

The 2006 census reveals that the unemployment rate in the sector was much higher than the rate for other industries in general (possibly attributed to the seasonal nature of the industry). It was also acknowledged that the closing of the paper mill in Grand Falls-Windsor would affect employment within the sector, especially in relation to the pulp and paper industry (Milley, 2008). Including the processing segment, the forestry industry provided 373 jobs in the local forest District in 2005. Of these, 70 were from logging and 67 were from value-added product manufacturing (including pulp chips and kiln-dried lumber).

Demographics

The largest portion of silviculture and forestry workers in the province is employed in the central region. The median age of workers in the sector in 2008 was 42 years of age (Government of Canada, 2010).

Education and training

There are currently no required programs for labourers in this industry. However, it should be noted that with technological advancements, comes the need for existing workers to learn new skills in order to adapt to the changing technology. The Forest Products Sector Council notes that the older forestry workforce has issues in accessing training, including training offered through traditional delivery modes as well as online and through distance. Similarly, older workers have also expressed reluctance towards re-locating for training (FPSC, 2010).

Wages and income

The typical labourer in this sector makes between \$10 and \$16 per hour (Government of Canada, 2010). Mechanical labourers employed with Abitibi Bowater earn wages ranging from \$1,000 to \$1,200 per week, on average (Milley, 2008).

Sector-specific issues

The seasonality of the sector is highly apparent when comparing the amount of workers collecting Employment Insurance benefits between different seasons. Of the 405 workers in the sector reported by the Government of Canada (2010), the number of persons collecting Employment Insurance benefits ranged from

a low of 123 in July to a high of 347 in April. According to the Newfoundland Forest Sector Strategy, 94% of Abitibi Bowater's employees are considered “seasonal” workers.

An issue commonly associated with the forestry sector is the implementation of new technology that erodes jobs. The introduction of technology reduces the demand for manual labourers and eliminates numerous jobs within the industry. Another issue that emerges from these technological advancements is the need for remaining workers to acquire the skills and know-how to use the newly-implemented equipment.

Opportunities and solutions

The greatest opportunities for expansion in the forest sector are forest products. Clarenville-Bonavista region falls within Forest District 02. The proportion of the local commercially harvested logs being used to manufacture lumber has grown from 44% of the total harvest in 1995/96, to 62% during 2000/01. Several modern sawmills have also been added to those traditionally present. These mills rely heavily on raw material from outside District 02. Sawmill production in the region grew from less than 10 million fbm (foot board measure or board feet) in the early 1990s to 44 million in 2004/2005. Other forest products produced in the region are outlined in Table 2 (Dept. of Natural Resources, 2006).

Oil and Gas

Overview

The production from projects in the oil and gas and mining sectors has contributed to substantial economic growth felt by the province since the 1990s (Vale Inco, 2008). This growth is expected to continue with steps such as the Hebron project and approval of Hibernia’s development plan, which will increase daily production and extend the life of the field into 2040 (Service Canada 2010). The region contains a dry-dock and fabrication facility serving the oil industry (Bull Arm), a transshipment terminal for offshore oil (Whiffen Head) and the province's only oil refinery, located in Come By Chance. The refinery has been a major source of high paying jobs for both the region and the province since the 1970s.

Employment and unemployment

At the time of the 2006 census, there were 585 persons within the

Key points:

- Clarenville-Bonavista region contains NL's only oil refinery as well as a transshipment terminal, dry-dock and fabrication facility
- High unemployment rate within sector
- Average hourly pay approximately \$22.22
- Workers are younger on average than in other primary sectors
- Come by Chance refinery provides 550 long-term jobs

province in the oil and gas sector's labour force, 290 of which were employed at the time of the census (May). According to the same source, the unemployment rate for this occupation was high (50%) compared to 16% for occupations in general, however. In addition to opportunities directly in the oil and gas sector projects such as the construction of the Hebron oil platform at Bull Arm create opportunities in construction and related trades. It is estimated that 3,500 workers will be employed at the peak of Hebron platform construction. The Come By Chance refinery provides an additional 550 jobs in the processing side of the sector (North Atlantic).

The employment potential directly in this sector is rated as “fair” (Government of Canada, 2010). It is suggested that by 2015, however, nearly 18,000 employees will be necessary to fulfill job opportunities in all large scale development, including the oil and gas industry (LMI, 2010). Oil production workers are often hired through a contractor, although East Coast Management Development, a joint venture with ExxonMobil, employs Hibernia oil rig workers (Boland, 2005). Efforts are underway to ensure local suppliers and contractors are able to take advantage of construction-related opportunities, with implications for local employment.

Education and training

In terms of education and training, it is noted that basic skills are important for employment within the sector, while high school and secondary certificate programs are also valuable (Government of Canada, 2010). Many positions are technology or operations based and require experienced workers. Experience in the oil and gas industry outside the province is often necessary. Global oil and gas companies often require travel and work in sites around the world for advancement (Boland 2005). Oil and gas employment opportunities elsewhere also affect local workers, particularly those that have been traveling to Alberta and may no longer have jobs available or are working less number of weeks than in previous years (Rural Secretariat, 2010). For construction-related opportunities skilled trades training and certification is often required, although labourer positions are also available.

Wages and income

Wages in the oil and gas sector range from a low of \$11.50 per hour to a high of \$28.67 per hour. The average hourly pay in the sector is approximately \$22.22 (Government of Canada, 2010). The ongoing exploration (both onshore and offshore) and development within the sector influences the creation of numerous jobs in the industry. Higher than average wages are enticing new entrants into the sector.

Demographics

Within the oil and gas sector, the individuals employed are younger on average than employees within other sectors (Government of Canada, 2010). This means that retirement creating labour issues within the next five to ten years does not appear to be a problem.

Sector-specific issues

The Petroleum Human Resources Council of Canada (PHRCC) recognizes the sector's greatest workforce issues as being the attraction and retention workers in hard-to-recruit locations as well as worker expectations for compensation and benefits. They note challenges of the increased need for skills and experience to support such practices as horizontal drilling, as well as the need to remain globally competitive (PHRCC). Organizations such as Women in Resource Development have also raised the concerns that women are under-represented within the industry's labour force, particularly in skills trades.

Solutions

To address some workforce issues, some drilling companies are promoting workforce development through increased employee training as well as recruiting for both growth and replacement demand (PHRCC). Workers with experience are being recruited from oil fields in other parts of Canada and internationally (Boland, 2005). The industry has responded to the need for attention to the gender equity and related requirements of the CNLOPB and Provincial Energy Plan by developing diversity plans. Proponents of the Hebron Project, for example, will implement a gender equity and diversity program for all phases of this project. The diversity plans/policies and non-discrimination policies of these firms, however, do not appear to apply to subcontractors in some cases (Boland 2005). To enhance local business and employment opportunities in August 2009, the Eastern Suppliers Development Alliance launched an on-line database of businesses in the Clarenville-Bonavista region which have expressed interest in serving the oil and gas sector (www.esda.com). The aim of the database is to promote greater local business opportunities in the oil and gas industry by increasing awareness and understanding of compliancy requirements.

Mining

Overview

Mining is noted as being a significant contributor to the provincial economy through both employment and GDP. It accounts for approximately 9% of the province's GDP and 1.4% of employment (Vale Inco, 2008). The vast majority (98%) of mineral exploration comes from Labrador. There are 5,980 person years of employment anticipated in the sector for 2011, marking a 30 year high. In the Clarenville-Bonavista region

alone, there are 12 independent prospectors operating. Mineral exploration in the Clarenville-Bonavista region has occurred on the Bonavista Peninsula, near Burgoyne's Cove and in the Norman's Cove-Long Cove area (Department of Natural Resources, 2011).

Employment and unemployment

It is estimated that approximately 1,470 people were employed in Voisey's Bay alone through both construction and mining (including employment at the Argentia Demonstration Plant) in 2007. Most relevant for the Clarenville-Bonavista region is a hydrometallurgy, or “hydromet”, facility that will process the nickel concentrate directly to metal products. Construction of the Long Harbour Commercial Nickel Processing Plant is expected to provide significant direct labour demand during the construction and operational phases. The plant is expected to provide 450 full-time jobs annually in engineering and technical occupations, operations, maintenance and administrative personnel (Vale, 2008). Vale has made a commitment to hiring from neighbouring communities and maximizing opportunities for local businesses, which will provide further employment opportunities (Lysenko, 2011).

Today's mining industries tend to stick closely to their core lines of business and contract out work that is not directly related. During the current development/construction phase of Voisey's Bay, for example, most work is completed by contractors. Tradespersons that are hired generally require journeyman status. Apprenticeship trades employed include millwrights, power engineers and industrial electricians. Direct employment in the Newfoundland and Labrador mineral industry is projected to be 5,099 person years in 2010, an increase of 877 over the 2009 estimate (Government of Newfoundland and Labrador, 2010).

Key points:

- **Significant form of employment in NL**
- **Approximately 40% of workers in the sector will retire within the next decade**
- **Average weekly earnings for the sector are around \$1357**
- **Sector is male-dominated and female participation is being encouraged**
- **12 independent prospectors operate within the region**

Demographics

Although the province is currently experiencing expansion in the mining sector, the Mining Industry Human Resource Council warns that the mining industry will experience the loss of almost 40% of its current workers within the next decade. This is largely attributed to an ageing workforce and retirements within the sector (Government of Newfoundland and Labrador, 2010). With a 40% retirement rate, Storey (2009) reports that Canada will have a shortfall of 27,500-70,800 workers within the mining sector from 2004-2014.

Wages and income

According to the Department of Natural Resources, in 2008, the average weekly earnings for those employed in the mining sector were \$1,357. This average was higher than the Canadian average of weekly earnings for all occupations, and was a 4.4% increase from the previous year (Government of Canada, 2009).

Education and training

Required education levels in the mining sector have increased, initially to a minimum of Grade 12 (or equivalent) and more recently a diploma program (e.g. two-year diploma program in Mining and Mineral Processing) (Boland, 2005).

Sector-specific issues

As with the other primary sectors, workplaces are typically unionized and male-dominated. The requirement for skilled tradespeople, particularly for large construction projects associated with the mining and oil and gas sectors, also comes with the need for appropriate training and apprenticeship opportunities and issues related to union membership and seniority that can affect local employment opportunities.

Solutions

To address gender inequities, particularly in science, trade and technology occupations, Vale Inco has stated their commitment to work with governments, educational institutions, women's organizations, and organized labour and industry associations to encourage more women to seek employment in the industry. The Company has developed a Women's Employment Plan for its Labrador Operations and Hydromet Demonstration Plant in Argentina, with a target of 20% female participation and actual employment at the plant above 35%. The company has provided scholarships at the College of the North Atlantic, including awards to women enrolled in Engineering and Industrial Trades programs, sought to address gender inequities through recruitment practices, and established a target of 3% for female participation in building trade occupations during the four year construction phase for the Long Harbour facility (ideally in apprentice positions) (Vale, 2009).

Industry Infrastructure

Overview

Infrastructure typically refers to the essential facilities required for an operation to function. Key infrastructure generally varies between industries and their requirements for successful operation. Because of its importance, key infrastructure requires maintenance after an extended period of time. Infrastructure is

fundamental to economic diversification and the vast array of infrastructure found in primary industries is necessary to ensure that the sector thrives.

Fishery

Noted infrastructure in the fishing sector include wharfage, fish processing facilities, and more recently, fish farming infrastructure. Also, roadways are essential infrastructure in the sense that the resource must be shipped. In 2010 provincial budget, the government allotted \$600,000 for the development of aquaculture wastewater treatment facilities that would aid in meeting fish health and safety protocols (Government of Newfoundland, 2010). Other infrastructure noted pertaining to aquaculture include wharves, laydown areas, feed storage, breakwaters and access roads.

It is noted that the multipurpose nature of wharfage for both fishery activities and aquaculture poses a biosecurity hazard. The Cumulative impacts of fish plant effluent, offal dumping and sewage are impacting environmental quality and remediation requires investment for installation of proper treatment facilities.

Agriculture

Key infrastructure in the agricultural sector includes water-related infrastructure for irrigation. It also includes transportation systems for the shipment of materials (For instance, roadways). In the 2006 provincial budget, funding for the construction of agricultural access roads was increased by \$255,000 to complement rural land expansion plans throughout Newfoundland and Labrador. The construction and upkeep of roadways is intended to help farmers take advantage of new land developments. In addition, \$342,300 was allotted for the provincial limestone program to assist farmers to prepare and enrich the soil (Government of Newfoundland and Labrador, 2006).

Forestry

Road networks are an essential piece of infrastructure for the shipment of forest products. Infrastructure in the forestry sector could also be inclusive of the buildings or logging camps required to host labourers. Similarly, it would contain the water-related and sewer-related infrastructure necessary to service the workers.

Oil and gas

The oil and gas sector requires extensive infrastructure in order to extract, as well as process the resource. This includes platforms, drill rigs, roadways, and processing plants. Terminals are an essential piece of infrastructure and are used for the shipment of crude oil (Department of Natural Resources, 2009). The

Clarenville-Bonavista region is home to the province's only oil refinery, located in Come By Chance. There is also a shipping terminal located at Whiffen Head which provides docking and undocking services as well as supply access to other services required for the operation of vessels involved in the transportation “chain” (Newfoundland Transshipment Limited, 2011).

Mining

In order to effectively extract mineral resources, an important aspect of infrastructure is the facilities needed to provide power supply to the mine site. Secondly, road networks are an essential infrastructure. Road upgrades might be necessary near and in communities where mining operations are present to ensure that the roads are able to withstand the transportation of heavy materials (Minerals and Metals Group, 2010).

Overview/conclusion

Through a cross-sector analysis, it becomes apparent that many of the issues found in one industry also relate to others. For example, workers are commuting for multiple sectors. This means that there is a common need for well maintained road infrastructure.

In demographic terms, the increasingly apparent and anticipated labour shortage noted in the fishing sector has also been noted in the agricultural, forestry and mining sectors. Conversely, workers in the oil and gas sector were on average younger and no anticipated labour shortages were noted. This phenomenon could be attributed to the higher wages often found in the oil and gas sector, as well as the general potential and attractiveness of the industry.

In most sectors, it was noted that there are no particular post-secondary training courses required. However, there is an emphasis placed on safety training. Although some programs are available, obtaining the credentials is not necessarily required in order to actively participate in sectors such as the fishery, agriculture, forestry and oil and gas, however, it is noted that previous experience in these sectors and any optional post-secondary credentials are valuable. Participation in the mining sector originally required a grade 12 level of education; however, the requirements have recently increased to a diploma program (e.g. two-year diploma program in Mining and Mineral Processing). Because of the hands-on nature of the primary industry, many of the skills required and knowledge present are acquired through participation in the sector.

In terms of employment and unemployment, it must be first and foremost noted that employment

within the primary industry is often characterized by its highly seasonal nature. Within the fishing sector, only 18% of the workforce works 27 weeks or more. Similarly, within the forestry sector, in the 2006 Census period, approximately 405 persons were employed in the sector provincially. At the time of the 2006 census (May), only 105 of these workers were employed, a decrease of 16% from 2001 levels (Government of Canada, 2010). These numbers emphasize the variance between unemployment and employment seasonally. In the agriculture sector, there is no noted seasonal decline pertaining to employment, however it is observed that participation within the sector is steadily decreasing. Participation in Canada had declined by 100,000 people from 1998 to 2001. According to the provincial government in 2010, direct employment in the Newfoundland and Labrador mineral industry is projected to be 5,099 person years in 2010, an increase of 877 over the 2009 estimate. The employment picture within the mining industry is therefore optimistic with the creation of new mines and jobs. At the time of the 2006 census, there were 585 persons within the province in the oil and gas sector's labour force, 290 of which were employed (May). According to the same source, the unemployment rate for this occupation is high (50%) compared to 16% for all other occupations, consistent with other primary sectors.

In terms of wages and income, earnings in primary industries are on average lower than those of workers outside of primary industry. According to the Canadian Council of Professional Fish Harvesters, for example, in 2009 the total reported net income for people who listed fishing as their primary source of income had dropped by nearly \$6,000 dollars from 2001 levels (\$35,800 to \$30,000). In the agricultural sector, wages have risen by approximately 41%. According to the Government of Canada's Working in Canada website, in 2010 the typical labourer in the forestry sector makes between \$10 and \$16 per hour. Mechanical labourers employed in the sector with Abitibi Bowater, however, earn wages ranging from \$1,000 to \$1,200 per week on average (Milley, 2008). In the oil and gas sector, wages range from a low of \$11.50 per hour to a high of \$28.67 per hour, with the average hourly pay in the sector \$22.22 (Government of Canada, 2010). Finally, in the mining sector, the average weekly earnings in 2008 for those employed were \$1357. Thus there is potential for high wages in the forestry, mining, and oil and gas sectors. However, it should be noted that the nature of work in the forestry sector is highly seasonal. Similarly, the seasonality of the fishing sector is a factor in determining incomes. Only 18% of the workers in the fishery work longer than 27 weeks out of the year, while higher than average wages in the oil and gas sector are enticing new and younger workers into the industry and providing a stable workforce.

In terms of issues, the most widely-acknowledged issue was that of an ageing and ultimately declining workforce. The demographic nature of the primary industry in fishing, forestry, agriculture, and mining is that

of an ageing nature. Similarly, the issue of attraction and retention of new, younger workers is becoming increasingly predominant. As previously noted, the oil and gas sector does not face this issue, and workers in the field are, on average, younger than workers in the other four sectors. This is also true for aquaculture. An issue raised in both the mining and oil and gas sector was the under-representation of women in a typically male-dominated industry. An issue acknowledged in both the fishing and forestry sectors is the seasonal nature of the industry which ultimately leads to less time to work and thus lower incomes for participants in the sectors. Less commonly noted was the issue regarding the introduction of new technologies that erode jobs and require more training for existing workers. This was noted in the forestry sector, as well as in the fishing sector.

Building upon the recognized issues, solutions have been posed to deal with the various concerns raised. To combat the difficulty in attracting new workers and ensuring a supply of readily available workers, companies have been meeting with colleges such as College of the North Atlantic (CNA) and developing programs such as the Diploma in Mining and Mineral Processing as well as the Diploma in Pulp and Paper Technology. Companies have also been providing student placements and scholarships for positions within certain primary sectors. Finally, companies have been making plans to hire apprentices over the next five to seven years in an effort to anticipate retirements (Boland, 2005). In an effort to address gender inequities, particularly in science, trade and technology occupations, Vale has stated their commitment to work with governments, educational institutions, women's organizations, organized labour and industry associations to encourage more women to seek employment in the industry. Scholarships and awards to women enrolled in Engineering and Industrial Trades programs are among the measures being taken (Vale, 2009).

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