

**Socio-Demographic &
Job Creation Needs Analysis
for the Deh Cho Territory,
Northwest Territories**

**Prepared for
The Deh Cho Land Use Planning Committee**

**Prepared by
PACTeam Canada
Suite 200 10720 113th Street
Edmonton, Alberta
T5H 3H8**

www.pacteam-ca.org

July 2, 2003

Contents

1	Abstract
2	1.0 Introduction
2	1.1 Background
3	1.2 Study Area
3	1.3 Methods
5	1.4 Cautions & Concerns
6	2.0 The Deh Cho Today
6	2.1 Populations
6	2.1.1 Current Population
7	2.1.2 Population by Age Cohort
12	2.1.3 Historic Population Growth
14	2.2 The Labour Force, Employment & Education
14	2.2.1 Labour Force Participation & Unemployment
16	2.2.2 Employment by Sector
19	2.2.3 Education Levels
23	2.2.4 Employment by Highest Level of Education
26	3.0 The Deh Cho Tomorrow
26	3.1 Future Population
30	3.2 Future Education Level Projections
36	3.3 Future Projections for the Labour force, Employment & Education
36	3.3.1 Future Labour Force Participation Rate
40	3.3.2 Gross Job Creation Needs
42	3.3.3 Education Level of Job Seekers
50	4.0 Economic Development & Labour Force Development
50	4.1 Economic Sectors
50	4.1.1 Mining
51	4.1.2 Oil & Gas
51	4.1.3 Tourism
52	4.2 Potential Employment & Business Opportunities—Focus on the Mackenzie Valley Project
52	4.2.1 Potential Direct Employment Opportunities
58	4.2.2 Potential Indirect Employment Opportunities
59	4.3 Labour Force Development
63	5.0 Conclusions, Data Gaps & Research Priorities
63	5.1 Conclusions
63	5.2 Data Gaps & Research Priorities
65	Bibliography & Works Cites
69	Appendix A—Proposal to Undertake a Socio-Demographic & Job Creation Needs Analysis
81	Appendix B—Resource People & Contact List
84	Appendix C—Annotated Bibliography

Socio Demographic & Job Creation Needs Analysis for the Deh Cho Territory, Northwest Territories

Abstract

The Deh Cho Land Use Planning Committee, an agency resulting from the Deh Cho First Nations Interim Measures Agreement, is tasked with creating a regional land use plan for the Deh Cho Territory. The Committee is in the process of collecting and analyzing biophysical, cultural and socio-economic information for the area. This report outlines a Socio-Demographic and Job Creation Needs Forecast commissioned by the Committee. The work was completed by PACTeam Canada Inc. Part 1 provides background to the study. Part 2 looks at contemporary socio-demographic characteristics including the population, education levels, labour force and unemployment. Part 3 offers a series of predictions concerning the future population, education levels and job creation needs. Part 4 looks at the economy of the NWT, focusing on the development of natural gas reserves with the building of a pipeline through the Mackenzie Valley, and the potential jobs that will be created by this project. Finally, part 5 reviews the data gaps that exist in the current research, and offers some solutions to filling those gaps.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

1.0 Introduction

1.1 Background

In March 2001 the Deh Cho First Nations, the Government of Canada and the Government of the Northwest Territories signed the Deh Cho First Nations Interim Measures Agreement. This agreement, which outlines interim measures related to land, resources and governance in the Deh Cho territory, established the Deh Cho Land Use Planning Committee. This Committee is tasked with creating a regional land use plan for the territory. This plan is intended to form part of an integrated land and resource management regime, and to outline the terms and conditions necessary to guide land use proposals and development projects over time.

The Deh Cho Land Use Planning Committee is in the process of collecting and analyzing biophysical, cultural and socio-economic information for the Deh Cho territory. In September of 2002, to assist in this process, the committee released a request for proposals to conduct a Socio-Demographic and Job Creation Needs Forecast for use in identifying future job creation and training needs. In December 2002 PACTeam Canada was awarded a contract to conduct the analysis (Appendix A).

Specifically, the objectives of this project are to:

1. Identify, collect and summarize existing information;
2. Review and analyze existing literature in order to document the current state of academic, government, NGO and industry knowledge that will support the preparation of an accurate socio-demographic forecast for the Deh Cho Territory, including current status of research, data gaps and research priorities;
3. Consult with officials with research and management responsibilities for activities relevant to job creation and training in the Deh Cho Territory;
4. Prepare tables, graphs, charts and projections that form part of a socio-demographic and job creation needs forecast; and
5. Prepare reports documenting the above tasks and results.

The following report aims to meet these objectives, by presenting a socio-demographic and job creation needs analysis for the Deh Cho Territory, through an examination of statistics related to the Deh Cho community populations, labour force, employment and education.

Part 1 looks at the methodology used in the study and offers a few notes of caution related to the analysis. Part 2 focuses on the population of the Deh Cho looks today, including age distributions, historic population trends, and the labour force, employment, unemployment and education levels.

Part 3 builds on the numbers provided in part 2 and offers a number of future projections for the population, labour force participation, gross job creation needs and job creation needs by education level. Part 4 offers a brief look at the sectors of the economy that are most likely to grow in the coming years and where there may likely be potential job creation for residents of the NWT and Deh Cho specifically. Here the focus is on the development of a Mackenzie Valley Pipeline, and the opportunities that will arise with its construction and operation. Maximizing Northern participation in development is key to ensuring Northerners receive maximum benefits and some suggestions in accomplishing this are offered. Finally, Part 5 offers a look at the gaps that exist in the data, and offers some possible future courses of action.

1.2 The Study Area

The Deh Cho territory encompasses over 200000 km² in the south-western portion of the Northwest Territories. There are 12 communities in the Deh Cho with a combined population of approximately 6000. The communities, as outlined by the Deh Cho Land Use Planning Committee are as follows: Enterprise, Fort Liard, Fort Providence, Fort Simpson, Hay River, Hay River Reserve, Jean Marie River, Kakisa, Nahanni Butte, Trout Lake and Wrigley.

1.3 Method

The method/process used in conducting the socio-demographic and job creation needs survey is as follows:

- a. *Initial Meeting with the Deh Cho Land Use Planning Committee—***
Following the signing of a contract, a conference call was held between PACTeam Canada and members of the Deh Cho Land Use Planning Committee. Present during this conference call were Sara Geirholm, Barry Hunter, Colin Beddoes, Heidi Wiebe and Petr Cizek. At this point PACTeam was given a general overview of the Committee and the project. Questions were clarified concerning desired statistical calculations, communities for inclusion and anticipated problems with the availability of data for the less populous communities.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

b. *Collect Statistics* —

Statistics from the Government of the Northwest Territories (www.stats.gov.nt.ca) and Statistics Canada (www.statcan.ca) were collected for the Deh Cho communities¹ for calculation and analysis. The majority of these statistics are from the 1996 Statistics Canada Census²; however, some data was also gathered from various Northwest Territories Labour Force Surveys (1999, 1994, 1989 and 1984). Origins of all statistics are noted in the text.

c. *Conduct Statistical Analysis*—

A number of statistical calculations were made and tables and graphs created, as outlined in the contract (Appendix A), to illustrate the current and possible future state of the Deh Cho population, education levels, employment, unemployment, and possible job creation needs.

d. *Internet and Library Research*—

Research was conducted on the internet and in various academic and government libraries to collect information on employment, education, training, development and the economy of the Deh Cho.

e. *Identify Potential Resources*—

Through discussions with the Deh Cho Land Use Planning Committee and staff, and a review of various GNWT department websites, phone lists, and publications distributed by government and non-governmental bodies, a list of potential resources was created (Appendix B). PACTeam made initial contact with each individual through both email and telephone calls in January 2003.

f. *Consultations in the Deh Cho Territory*

In February 2003 PACTeam travelled to the Deh Cho Region and Yellowknife to meet with various people to discuss and collect information concerning employment, training, industry and economic development in the Deh Cho Region and the Northwest Territories. A list of these people is found in Appendix B.

g. *Synthesize information into a draft report*

Once pertinent information had been gathered it was synthesized into a draft report.

¹ The Deh Cho Land Use Planning Commission identified the Deh Cho communities as: Hay River, Hay River Reserve, Enterprise, Kakisa, Fort Providence, Fort Simpson, Trout Lake, Fort Liard, Nahanni Butte, Wrigley and Jean Marie River.

² Most statistical data used and reported in the report is from the 1996 Census. At the time of this report much of the 2001 Census data was not yet available; additionally, serious questions have been raised concerning the validity of the 2001 Census. In the NWT, it is alleged that the numbers are inaccurate, and Statistics Canada is currently conducting an undercount survey to determine whether or not the original numbers are in error.

h. *Identify data gaps*

The final stage in the process was to identify any gaps in the information that exists.

i. *Submit Draft Report to Committee*

This draft report was then submitted to the Deh Cho Land Use Planning Committee for review

j. *Revise & finalize draft report*

Comments were provided by the Committee, and those comments were incorporated into the final report.

k. *Submit Final Report*

Once all comments and concerns were addressed in the report, a final report was submitted to the Committee.

1.4 Cautions & Concerns

Before looking at the results of the statistical calculations related to the socio-demographics of the Deh Cho, there are a number of things the reader should bear in mind:

- For Statistics Canada, the Deh Cho is not an exclusive region; rather, the communities in the Deh Cho are grouped into the Fort Smith Region which also includes the communities of Detah, Fort Resolution, Fort Smith, Lutselk'e, Rae Lakes, Rae-Edzo, Wekwati, Wha Ti and Yellowknife. This is important because when Statistics Canada provides regional totals, it not only includes the total populations of all communities in that region, but also includes unorganized settlements. The population of organized settlements in the Deh Cho Region is not known. When totals are provided for the Deh Cho Region in this report they have been calculated by the author as a sum of the community totals and do not include any unorganized settlements that may exist.
- The Deh Cho has a number of small communities with populations of less than 100 and in some cases less than 50. Small population numbers raise issues of confidentiality and anonymity for Statistics Canada and the NWT Bureau of Statistics; thus, numbers are often not provided for these communities, or they are rounded to the nearest 5 or 10 as a means of protecting the individuals who participated in the census. This can obviously skew the numbers and projections calculated from them.
- When calculating projections using linear or exponential regression techniques, the higher the number of data points you have upon which to base the projection, the more reliable the projection is. Unfortunately, in many cases, especially in terms of the education projections, there were only two or three points to use to calculate the projections.

2.0 The Deh Cho Today

2.1 Populations

The following section looks at the population of the Deh Cho Territory in each community and the population by age cohort according to the 1996 Statistics Canada Census, as well as historic population trends and the community population totals.

2.1.1 Current Population

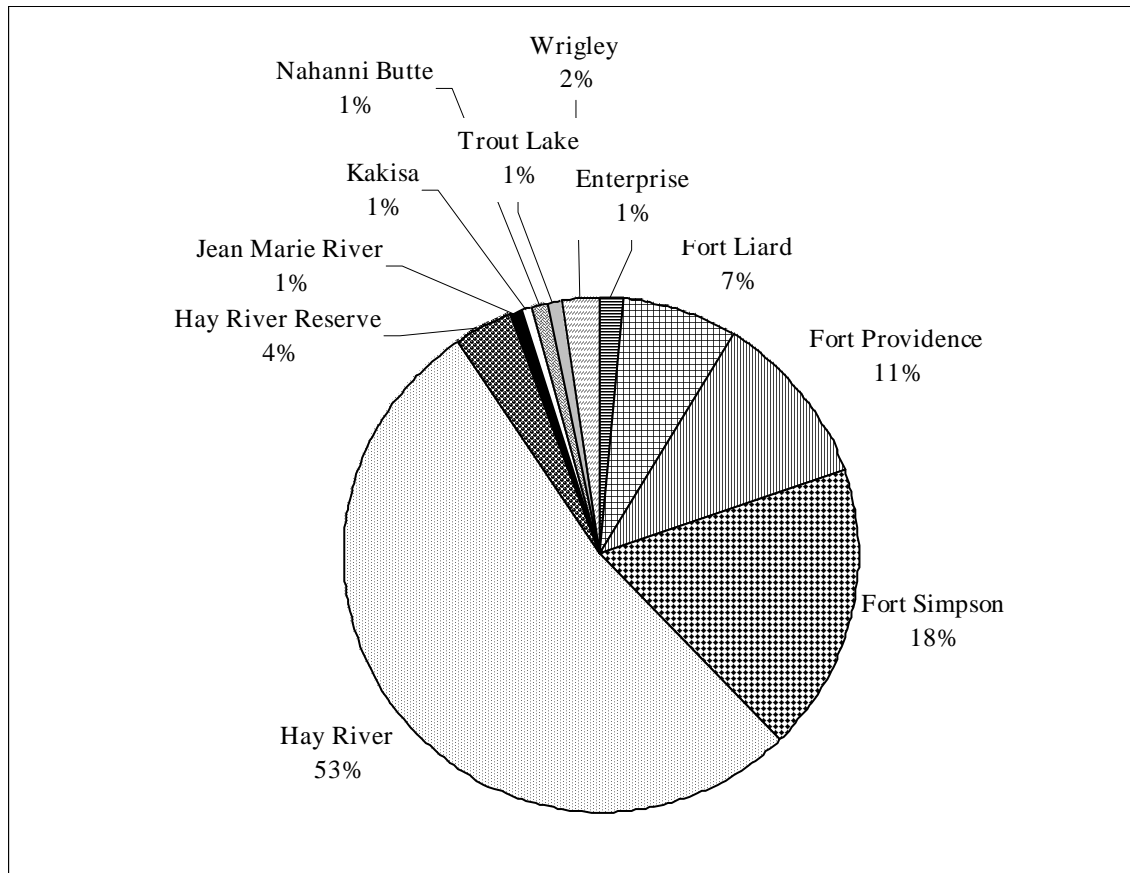
According to the 1996 Census, The Deh Cho Region has a population of 6866, not including any unorganized settlements that may exist (see figure 1 for a comparison of 1996 and 2001 Census totals).³ This population is spread over 11 communities, the largest of which is Hay River, a regional centre with a population of 3611. Fort Simpson is the second largest community with a population of 1257. Together, 70% of the population of the Deh Cho live in these two communities (see figure 2 for the percentage distribution of the population in each community).

There are a number of smaller communities in the Deh Cho as well. Enterprise, Jean Marie River, Kakisa, Nahanni Butte and Trout Lake all have populations of less than 100. Together, their populations total 318, 4.6% of the total population of the Deh Cho. Kakisa is the smallest community in the Deh Cho with only 36 people; consequently, very little statistical data is available on this community.

Community	1996	2001
Kakisa	36	40
Jean Marie River	53	50
Trout Lake	68	70
Nahanni Butte	75	107
Enterprise	86	61
Wrigley	167	165
Hay River Reserve	253	269
Fort Liard	512	530
Fort Providence	748	753
Fort Simpson	1257	1163
Hay River	3611	3510
Deh Cho Territory	6866	6718

Source: Statistics Canada Census, 1996 and 2001

Figure 1. Comparison of Population Totals



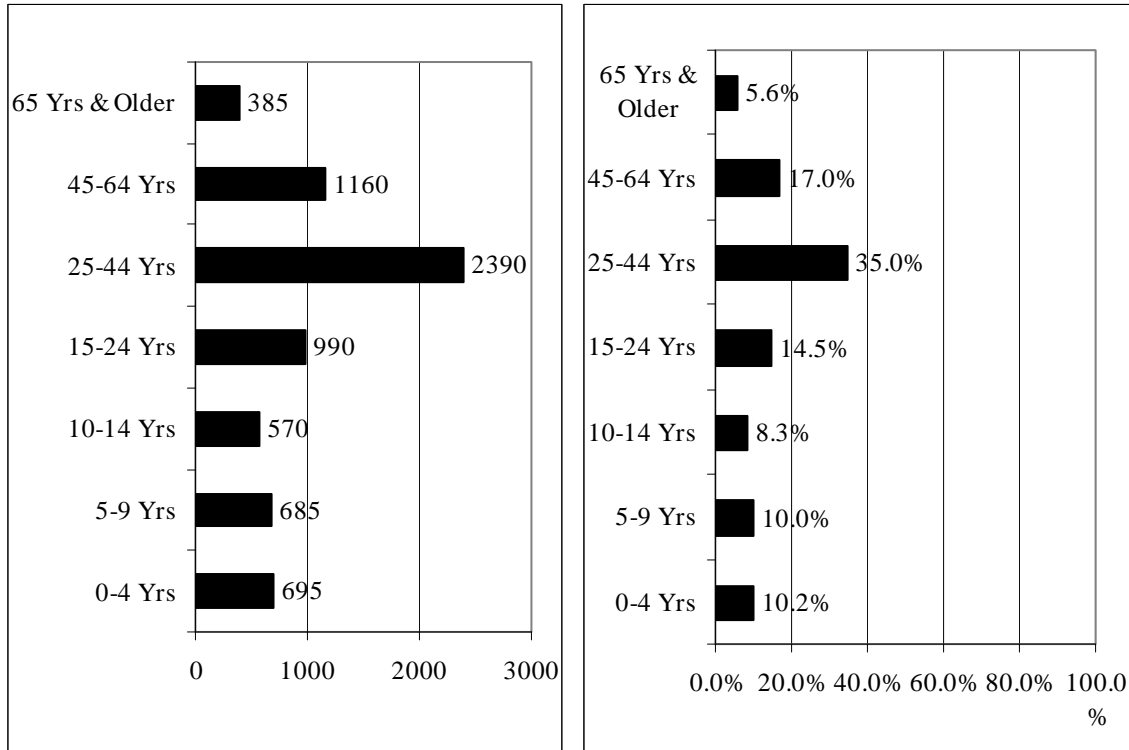
Source: Statistics Canada Census, 1996.

Figure 2. Deh Cho Population by Community, 1996

2.1.2 Population by Age Cohort

The Deh Cho is a relatively young region. As figure 3 illustrates, 43% of the population is 24 years old and younger, while 35% is between 25 and 44 years old. Only 17% of the population is between the ages of 45 and 64, and 6% are over 65 years of age. Figures 4 and 5 look at the population of each Deh Cho community by age cohort. As Graph 3 clearly illustrates, the population distribution for each age cohort follows roughly the same pattern in all Deh Cho Communities, except for Jean Marie River and Trout Lake. Jean Marie River has a much older population than the other communities with 85% of the population between the ages of 25 and 64. Trout Lake, on the other hand has a larger portion of the population between the ages of 15 and 24, which is not seen to such an extent in any other communities in the Deh Cho.

Deh Cho Socio-Demographic & Job Creation Needs Analysis



3a. Deh Cho Age Cohort Totals

3b. Deh Cho Age Cohort as a Percentage of the Total Population

Source: Statistics Canada Census, 1996.
 Note, totals are rounded to the nearest interval of 5.

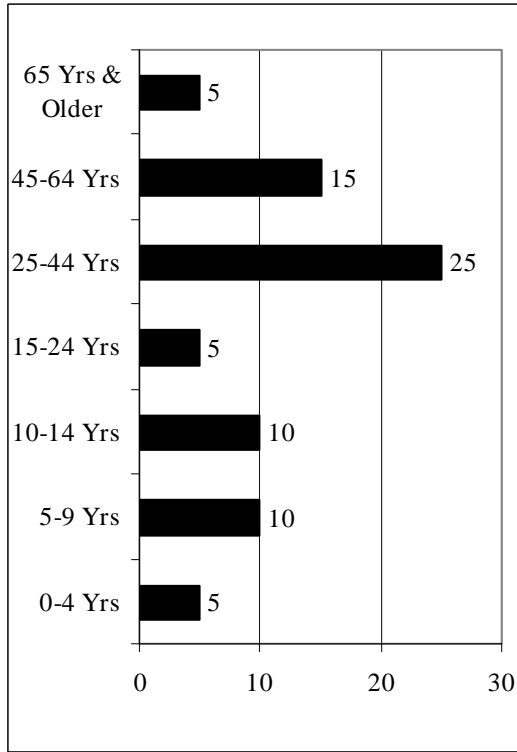
Figure 3a to 3b. Deh Cho Population by (a.) Age Cohort Totals and (b.) Age Cohort as a Percentage of the Total, 1996

	0-4 Years	5-9 Years	10-14 Years	15-24 Years	25-44 Years	45-64 Years	65 & Older	Total
Deh Cho Territory	695	685	570	990	2390	1160	385	6830
Enterprise	5	10	10	5	25	15	5	86
Fort Liard	60	65	45	85	175	60	40	512
Fort Providence	80	75	60	115	255	115	55	748
Fort Simpson	135	120	95	160	485	205	65	1257
Hay River	345	355	315	530	1265	655	140	3611
Hay River Reserve	40	25	25	40	60	40	30	253
Jean Marie River	5	5	5	5	25	20	5	53
Kakisa	X	X	X	X	X	X	X	X
Nahanni Butte	5	10	0	15	30	15	10	75
Trout Lake	0	5	0	20	20	5	10	68
Wrigley	20	15	15	15	50	30	25	167

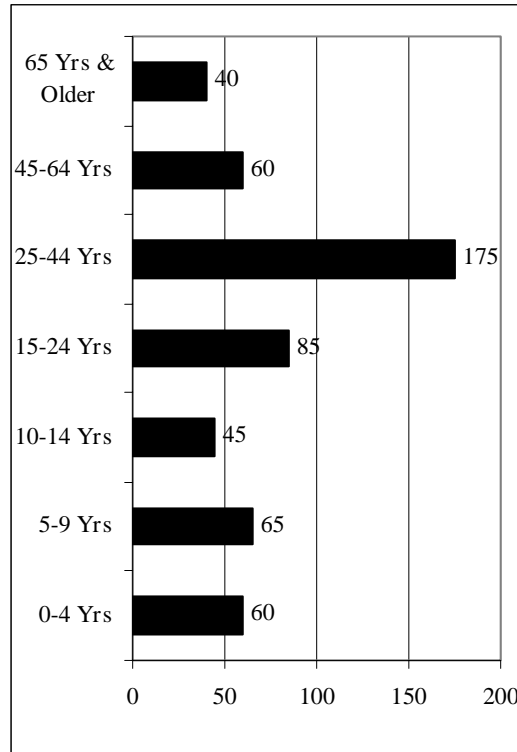
Source: Statistics Canada 1996 Census.
 Numbers for Kakisa are unavailable because of its small size.
 Totals area rounded to the nearest interval of 5.

Figure 4. Deh Cho Population by Community & Age Cohort, 1996

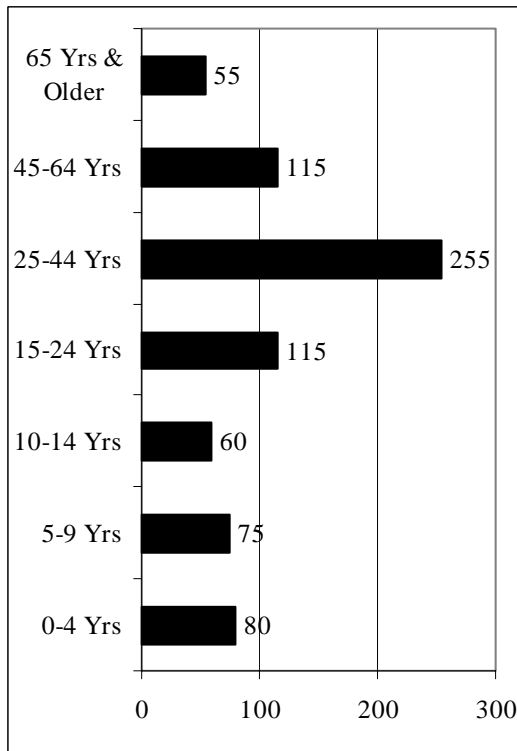
Deh Cho Socio-Demographic & Job Creation Needs Analysis



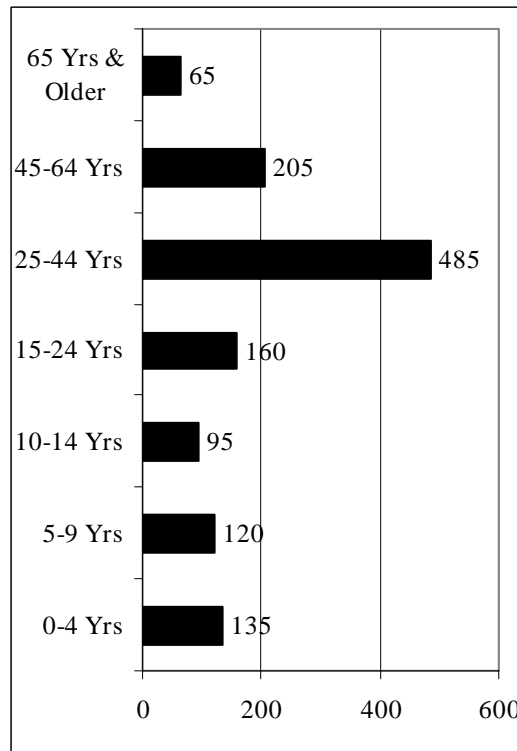
5a. Enterprise by Age Cohort



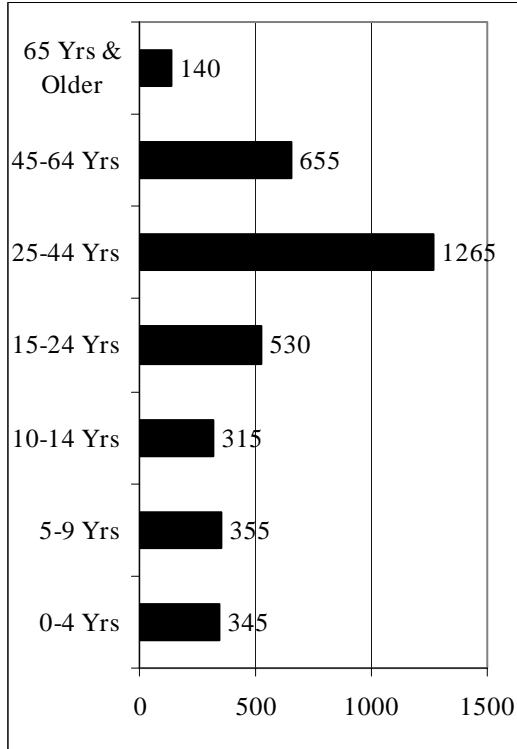
5b. Fort Liard by Age Cohort



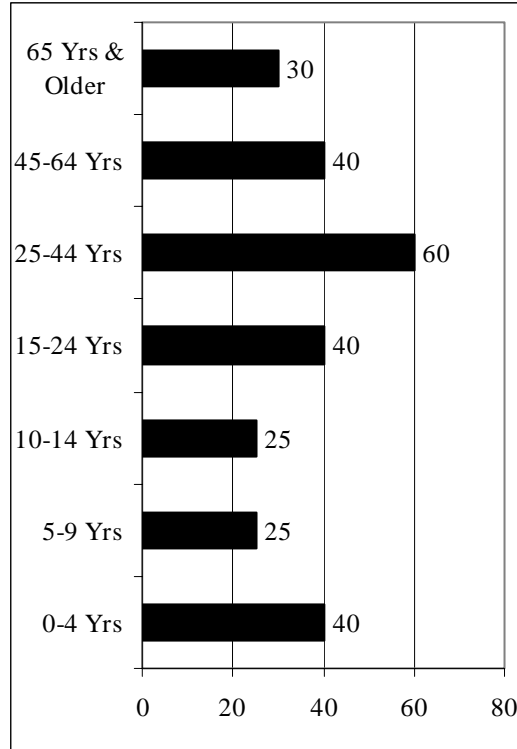
5c. Fort Providence by Age Cohort



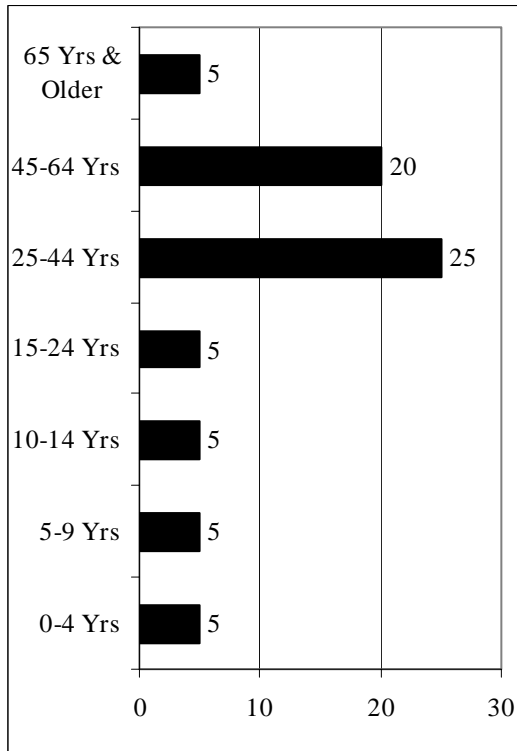
5d. Fort Simpson by Age Cohort



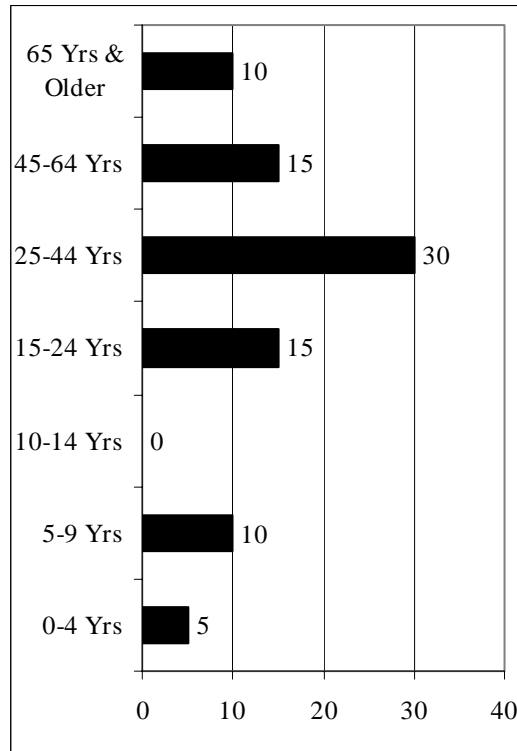
5e. Hay River by Age Cohort



5f. Hay River Reserve by Age Cohort

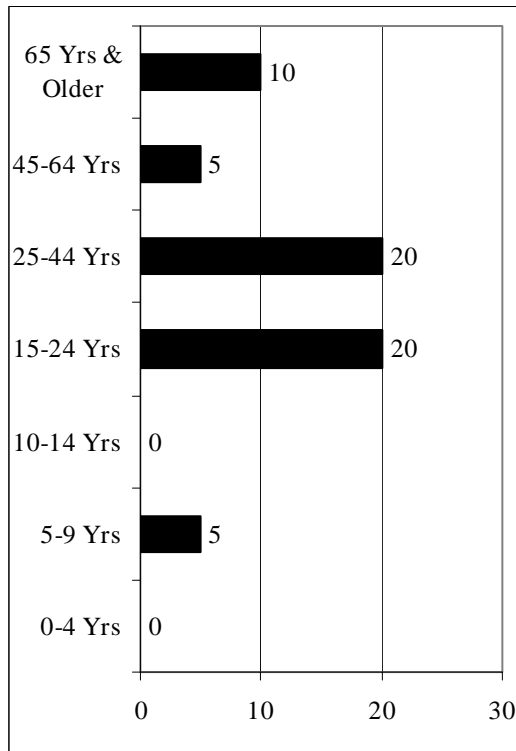


5g. Jean Marie Rive by Age Cohort

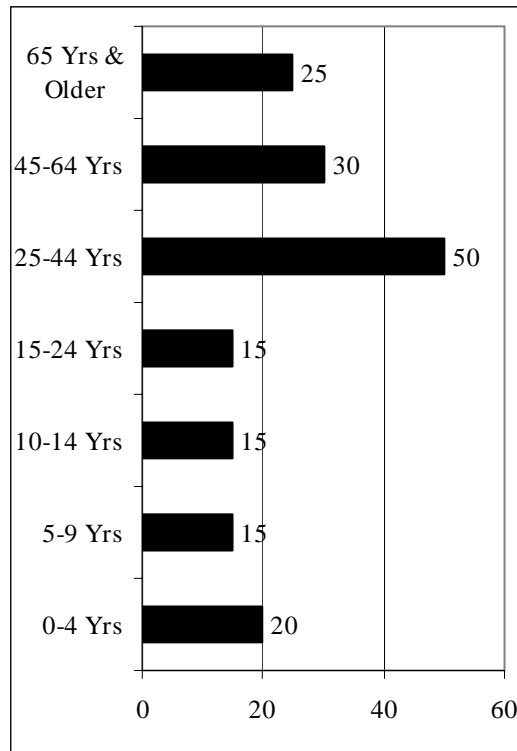


5h. Nahanni Butte by Age Cohort

Deh Cho Socio-Demographic & Job Creation Needs Analysis



5i. Trout Lake by Age Cohort



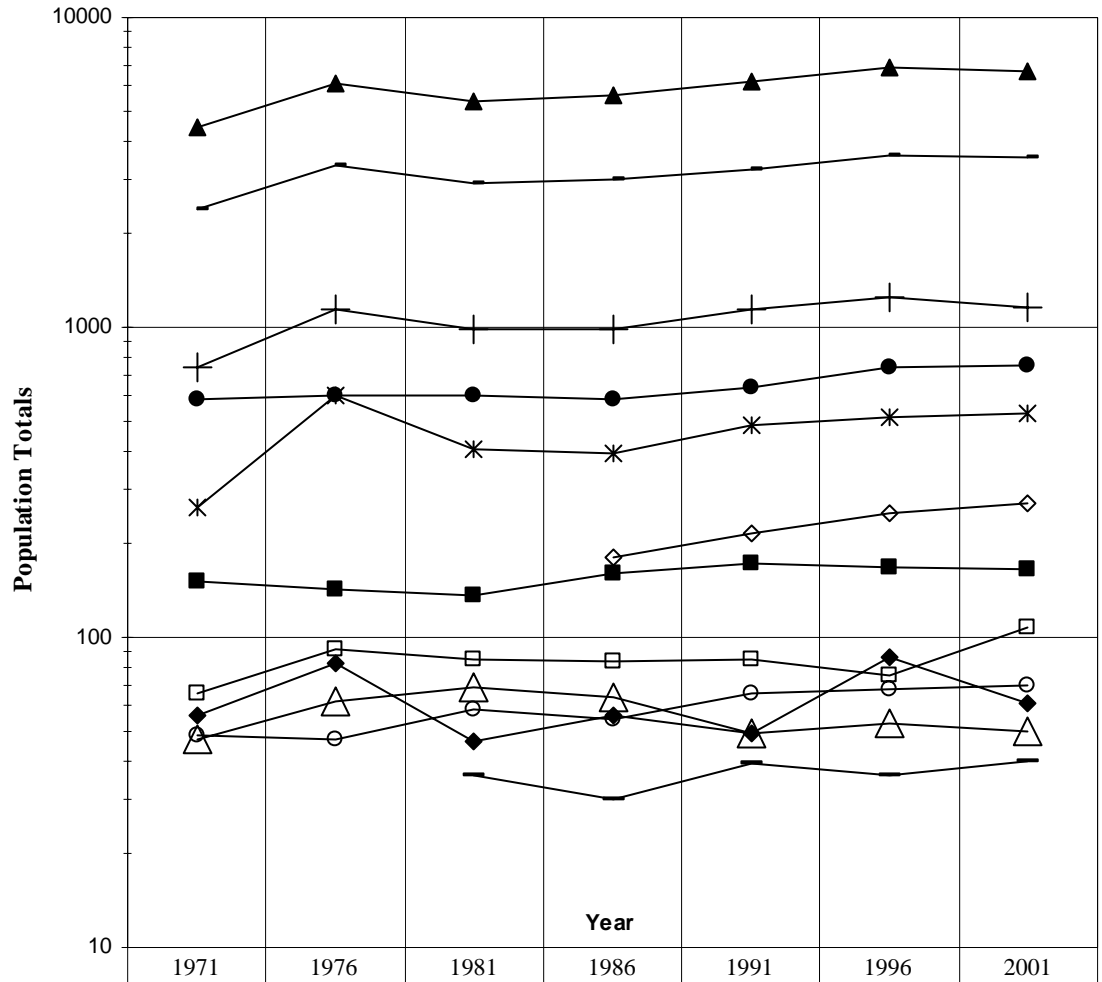
5j. Wrigley by Age Cohort

Source: Statistics Canada Census, 1996.
 Note: Numbers for Kakisa are unavailable because its total population is under 50.
 All numbers are rounded to the nearest interval of 5.

Figure 5 a. to 5j. Population of Deh Cho Territory Communities by Age Cohort

2.1.3 Historic Population Growth

Over the past 30 years, the population of the Deh Cho Territory has fluctuated, sometimes quite dramatically, often unpredictably, influenced by a variety of factors including the economy and political environment. Overall, from 1971 to 2001, the population of the Deh Cho Territory increased from 4386 to 6718 or approximately 35%, but this has not been a steady climb. Across some census years the population often witnessed dramatic increases and decreases. From 1971 to 1976, for example, the population increased by 1704 people; then from 1976 to 1981, to population decreased by 757 people. The population then rose from 1981 to 1996, until it again dipped slightly in 2001. The population trends for each Deh Cho community and the Territory as a whole are illustrated in figure 6. Please note that a logarithmic scale is used for the y axis.



	1971	1976	1981	1986	1991	1996	2001
▲ Deh Cho Territory	4386	6090	5333	5605	6203	6866	6718
◆ Enterprise	56	83	46	56	49	86	61
* Fort Liard	263	599	405	395	485	512	530
● Fort Providence	587	602	605	588	645	748	753
+ Fort Simpson	747	1136	980	987	1142	1257	1163
— Hay River	2420	3327	2911	3006	3253	3611	3510
◇ Hay River Reserve				180	216	253	269
△ Jean Marie River	47	62	69	64	49	53	50
— Kakisa			36	30	39	36	40
□ Nahanni Butte	66	91	85	84	85	75	107
○ Trout Lake	48	47	59	54	66	68	70
■ Wrigley	152	143	137	161	174	167	165

Source: Statistics Canada Census Data, 1971-2000.

Figure 6. Deh Cho Territory Population Trends for Census years 1971-2001

2.2 The Labour Force Employment & Education

The following sections focus on Deh Cho residents' participation in the wage-earning labour force as described by the 1999 Labour Force Survey, published by the GNWT Bureau of Statistics, and the 1996 Statistics Canada Census. Included herein are statistics on labour force participation rates, unemployment rates, employment, and education.

2.2.1 Labour Force Participation & Unemployment

According to the 1999 Labour Force Survey, the Deh Cho territory has an approximate labour force⁴ of 3838 people. This is over half (approximately 55%) of the total population. The labour force participation rate⁵ varies across the Deh Cho ranging from 86.2% in Trout Lake to 54.5% on the Hay River Reserve (figure 7). In 1999 the labour force participation rate for the entire Northwest Territories was 78.3%, while for Canada the labour force participation rate was 64.5%.

In comparison to the rest of the Northwest Territories and Canada as a whole, the unemployment rate⁶ in the Deh Cho is high at 15.0%, compared to 13.7% for the Northwest Territories and 8.5% for Canada. As figure 7 illustrates, however, unemployment rates vary greatly from community to community. For instance, Wrigley and Trout Lake have the highest unemployment rate at 44% while Hay River and Enterprise have the lowest at 9% and 10% respectively.

The reader should be cautioned that employment related statistics include only those persons currently working and those actively seeking work. Such statistics do not account for individuals who have given up searching for work or those individuals who are receiving other social benefits as their employment benefits had expired. If these individuals were included the numbers of unemployed would no doubt be much higher than they are reported through the census.

⁴ Labour Force refers to the number of people 15 and over who were either employed or unemployed during the week prior to the survey.

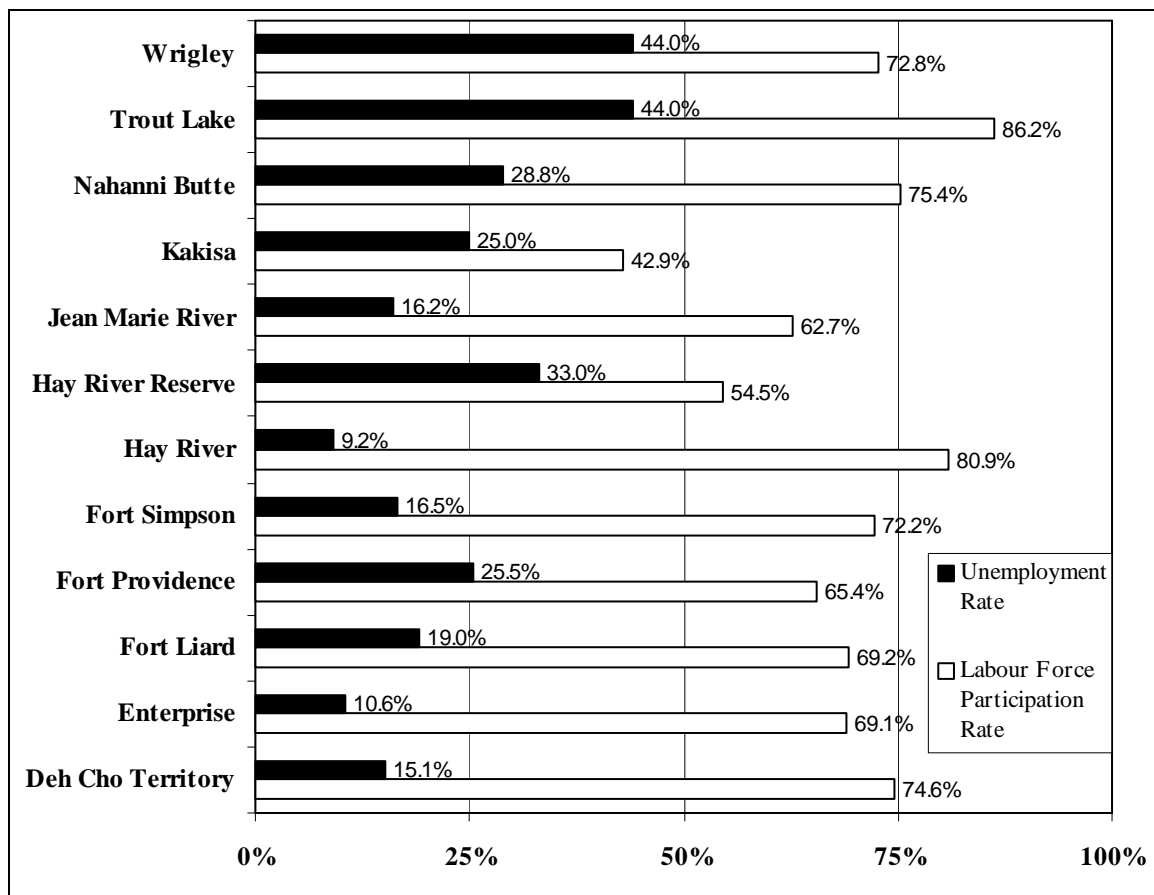
⁵ Labour Force Participation Rate refers to the percentage of persons 15 years and older who are in the labour force.

⁶ Unemployment Rate refers to the percentage of the labour force unemployed during the week prior to the survey.

	Labour Force	Unemployed
Deh Cho Territory	3838	578
Enterprise	47	5
Fort Liard	247	47
Fort Providence	381	97
Fort Simpson	656	108
Hay River	2156	199
Hay River Reserve	109	36
Jean Marie River	37	6
Kakisa	12	3
Nahanni Butte	52	15
Trout Lake	50	22
Wrigley	91	40

Source: 1999 NWT Labour Force Survey

Figure 7. Total Labour Force and Unemployed People



Source: 1999 Labour Force Survey, Bureau of Statistics, GNWT

Figure 8. Labour Force Participation Rates & Unemployment Rates

Deh Cho Socio-Demographic & Job Creation Needs Analysis

2.2.2 Employment by Sector

The 1996 Canada Census divides the economy into 4 industry sectors: (1) goods producing industries, (2) wholesale and retail industries, (3) government, education and health industries and (4) other service industries.

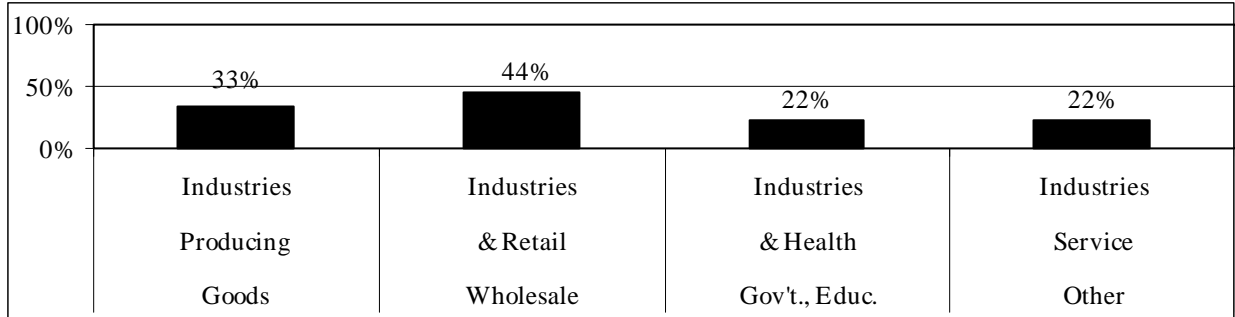
As figures 9 and 10a. to 10j. illustrate, the vast majority of people are employed in the government, education and health sector, followed by the goods producing industries sector. For many communities in the Northwest Territories including Jean Marie River, government, health and education industries are the only forms of local employment available, leading many to term the economy of the Northwest Territories, a ‘government economy’.

It is important to be aware that in counting and presenting the numbers of people working in each sector, Statistics Canada rounds the numbers to the nearest interval of 5 to preserve confidentiality. This influences the results shown in figure 11. Data for Kakisa is unavailable because the total population, as of 1996, is under 50.

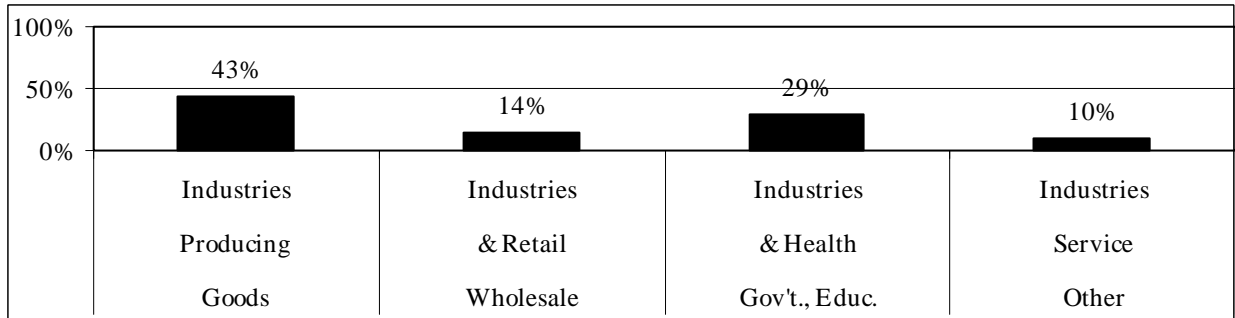
	All Industries	Goods Producing Industries	Wholesale & Retail Industries	Gov't Education & Health Industries	Other Service Industries
Deh Cho	3545	1160	575	1270	555
Enterprise	45	15	20	10	10
Fort Liard	210	90	30	60	20
Fort Providence	345	110	50	100	80
Fort Simpson	665	190	55	325	95
Hay River	2,005	665	385	625	330
Hay River Reserve	100	25	25	40	10
Jean Marie River	30	-	-	20	-
Nahanni Butte	40	15	-	25	-
Trout Lake	35	10	-	30	-
Wrigley	70	40	10	35	10

Source: 1999 NWT Labour Force Survey.
Note that numbers are rounded to the nearest interval of 5.
Number for Kakisa are unavailable because of its small size.

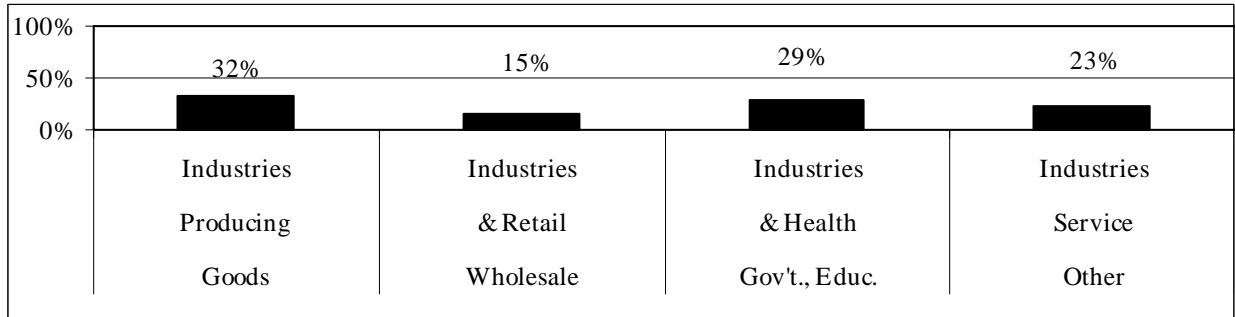
Figure 9. Number of people Employed in Each Industry.



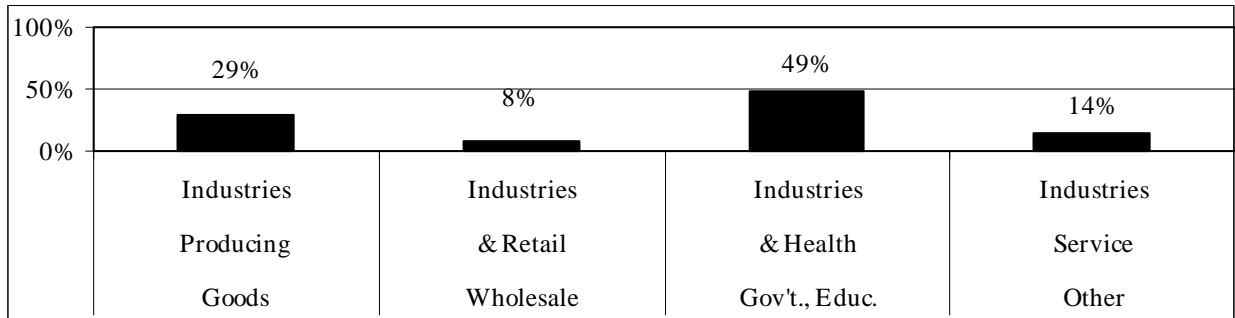
10a. Enterprise, Employment by Sector



10b. Fort Liard, Employment by Sector

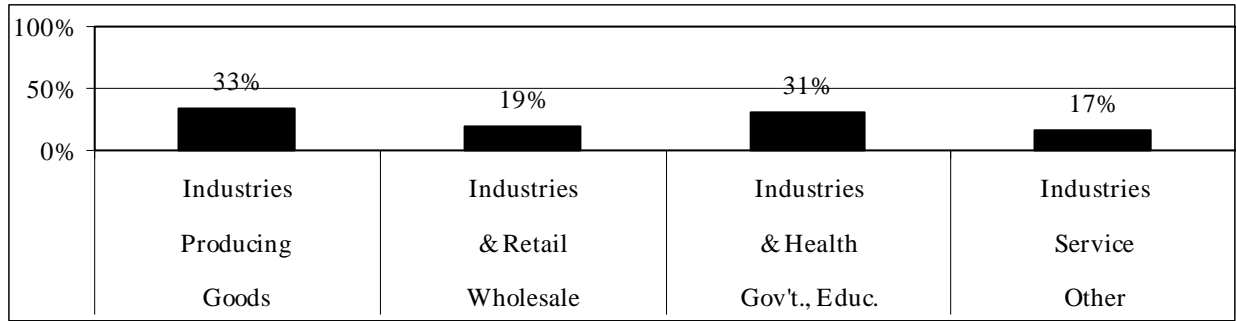


10c. Fort Providence, Employment by Sector

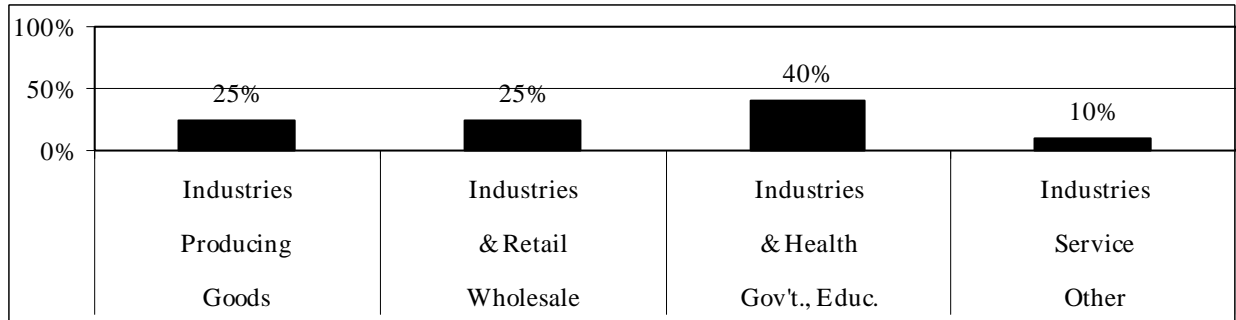


10d. Fort Simpson, Employment by Sector

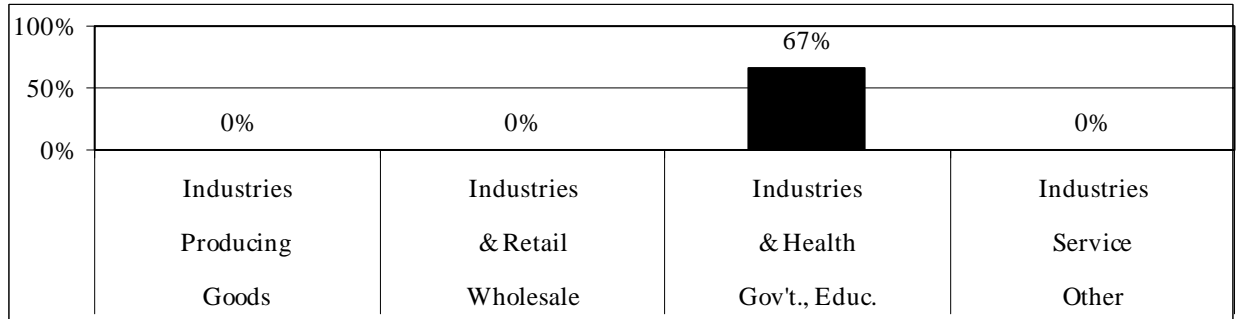
Deh Cho Socio-Demographic & Job Creation Needs Analysis



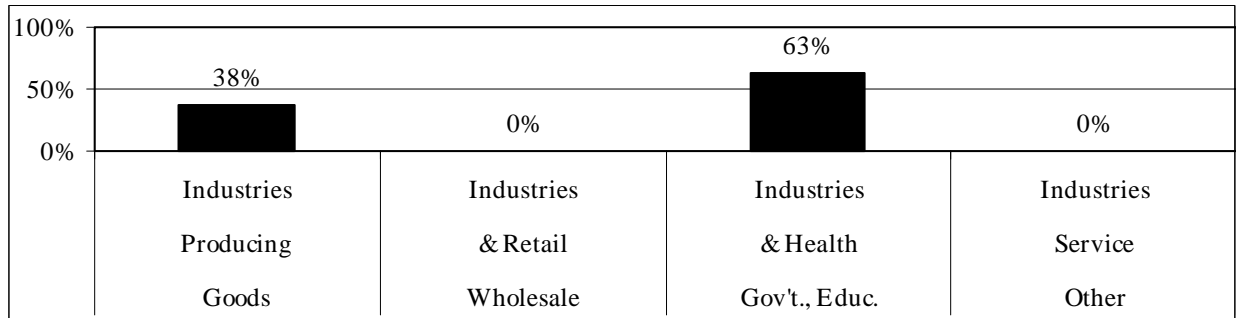
10e. Hay River, Employment by Sector



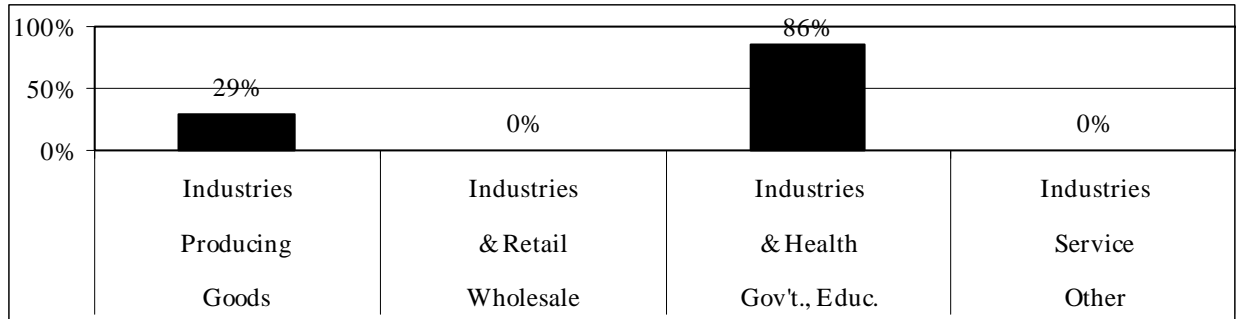
10f. Hay River Reserve, Employment by Sector



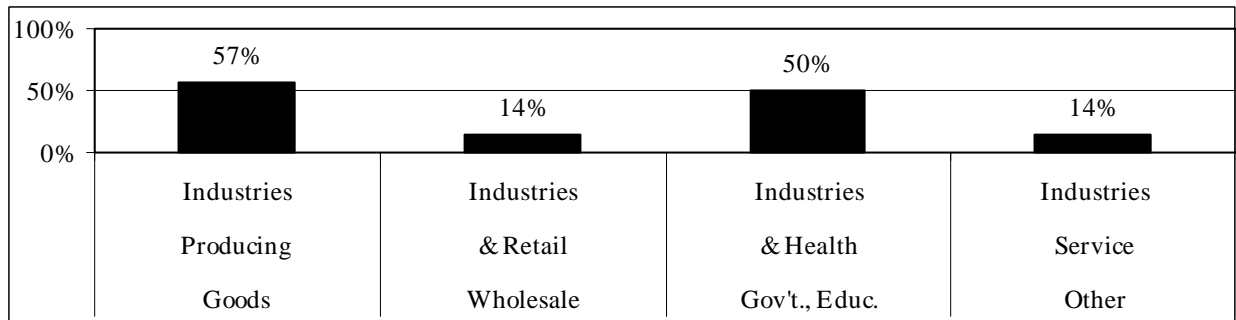
10g. Jean Marie River, Employment by Sector



10h. Nahanni Butte, Employment by Sector



10i. Trout Lake, Employment by Sector



10j. Wrigley, Employment by Sector

Source: Statistics Canada Census, 1996
 Communities with a population of less than 50 are not reported.
 Original data was rounded to the nearest interval of 5.
 Due to compounding errors, percentages may not add up to 100%.

Figure 10. Employment by Sector for Deh Cho Territory Communities

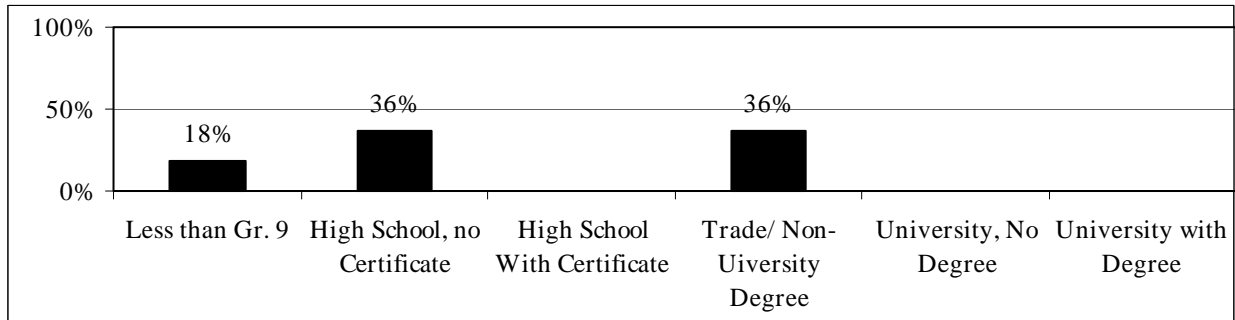
2.2.3 Education Levels

Education levels for residents of the NWT are categorized as following: (1) less than grade 9, (2) high school without a certificate, (3) high school with certificate, (4) trade or non-University degree, (5) university without a degree, and (6) university with a degree. As is the case with the employment sector numbers, these are also rounded to the nearest interval of 5.

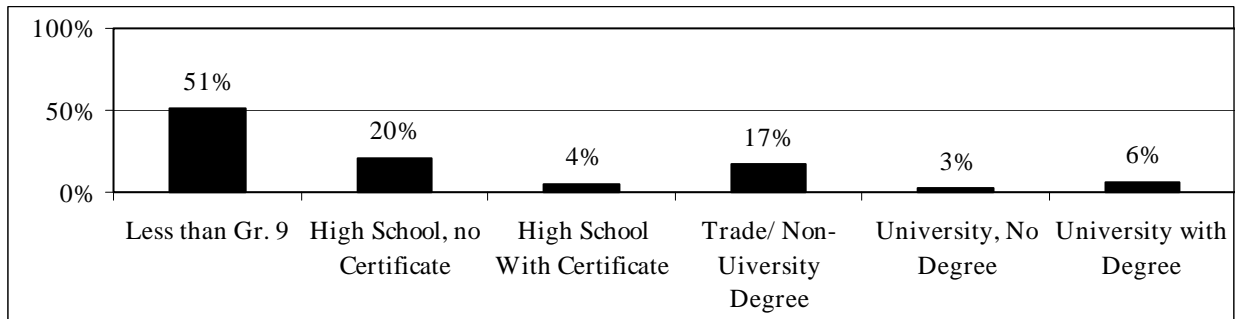
Figures 11a. to 11j. show the education level of residents for the communities in the Deh Cho. The majority of people in the Deh Cho, 1615, have a trade or non-university degree while approximately 1135 have some high school education, but no high school degree and 985 have less than a grade nine education. What is not clear from the statistics is of those who possess a trade or non-university degree, what level of high school education they possess.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

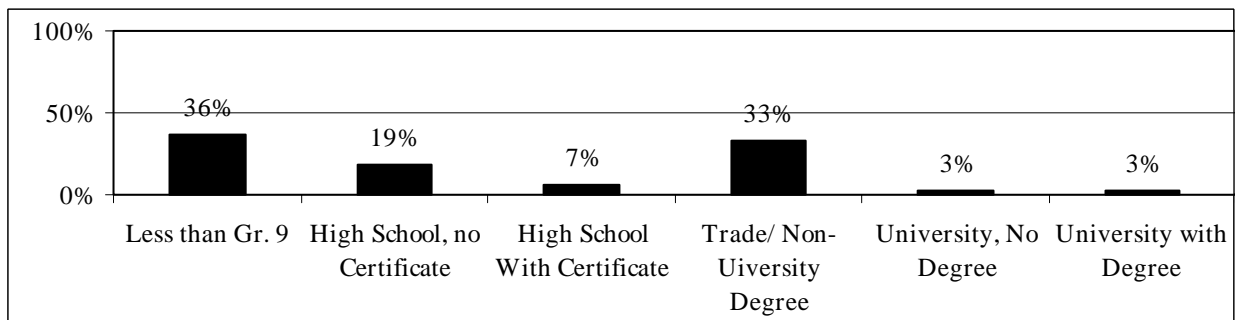
A very small proportion of the Deh Cho population possesses a university level education. Hay River is the only community that has at least 10% of the population in possession of a complete university degree. In most communities, education levels are relatively low. In Nahanni Butte, Trout Lake and Fort Liard, for example, over 50% of the population of each community has less than a grade nine degree.



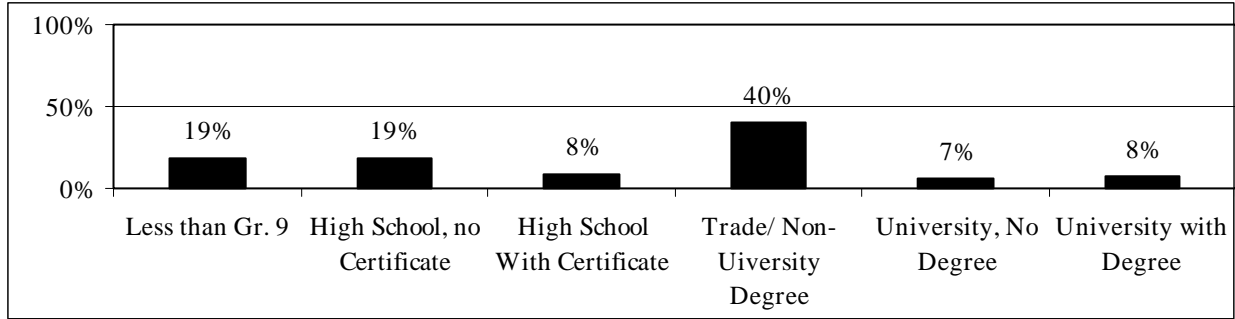
11a. Enterprise, Highest Level of Education



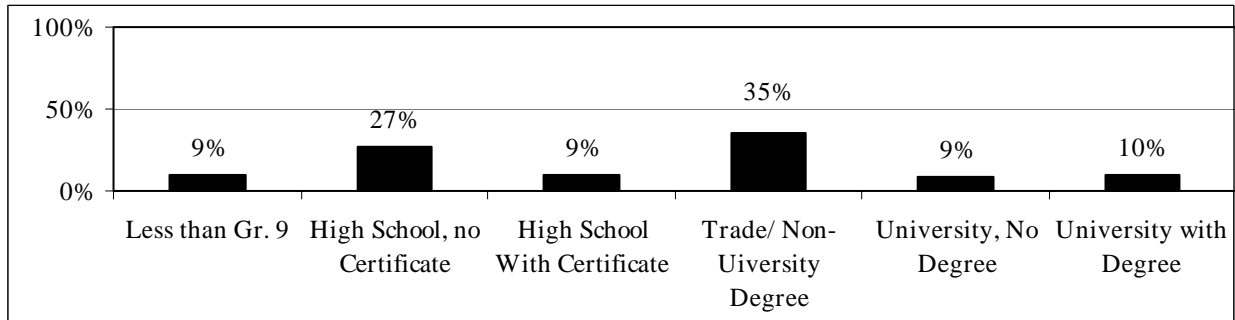
11b. Fort Liard, Highest Level of Education



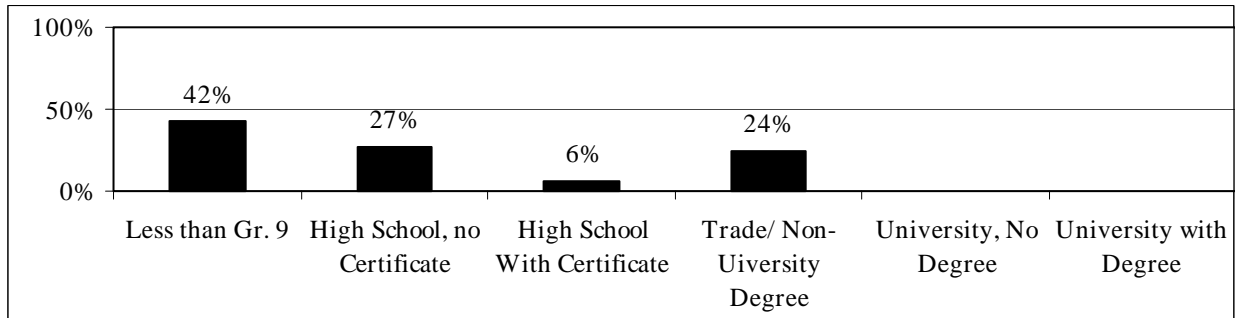
11c. Fort Providence, Highest Level of Education



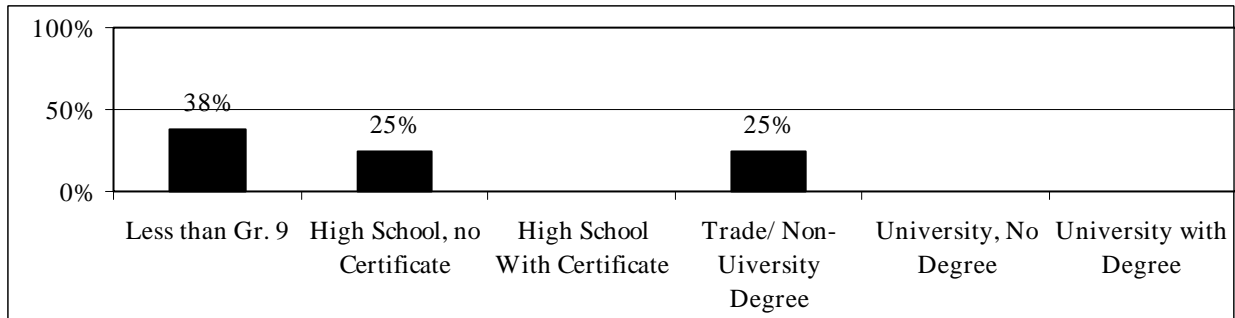
11d. Fort Simpson, Highest Level of Education



11e. Hay River, Highest Level of Education

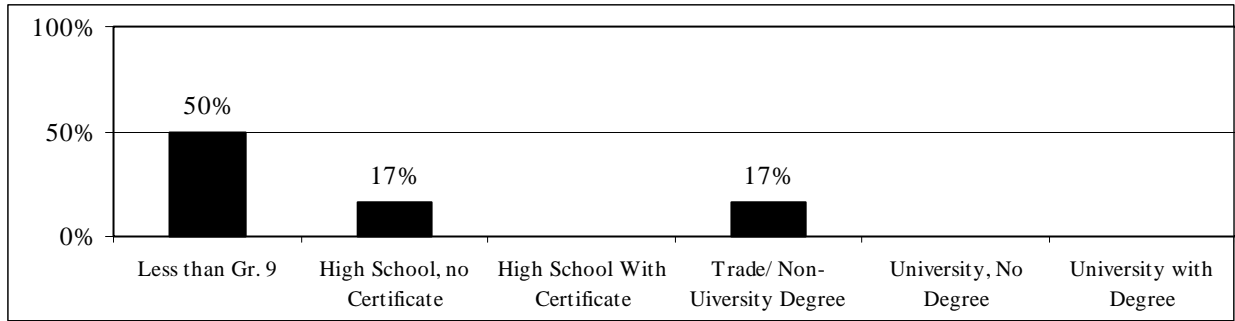


11f. Hay River Reserve, Highest Level of Education

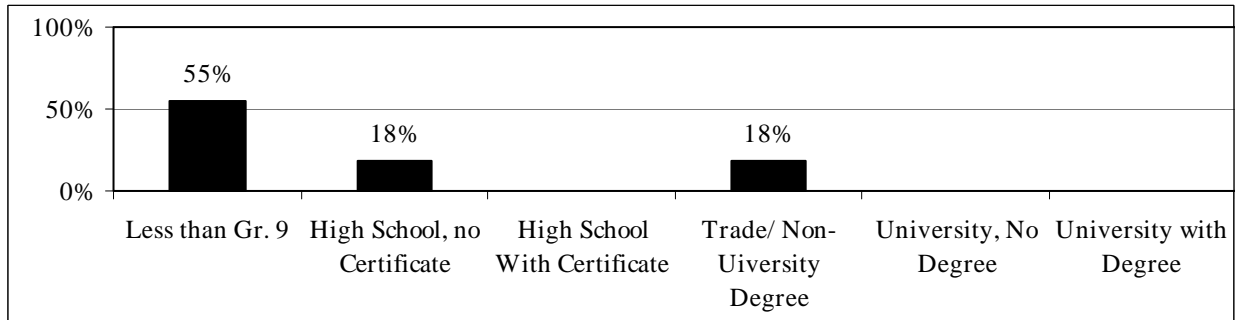


11g. Jean Marie River, Highest Level of Education

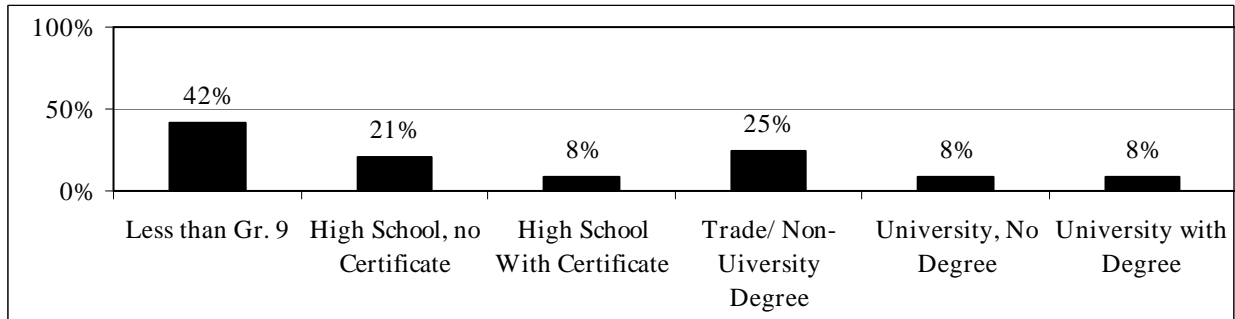
Deh Cho Socio-Demographic & Job Creation Needs Analysis



11h. Nahanni Butte, Highest Level of Education



11i. Trout Lake, Highest Level of Education



11j. Wrigley, Highest Level of Education

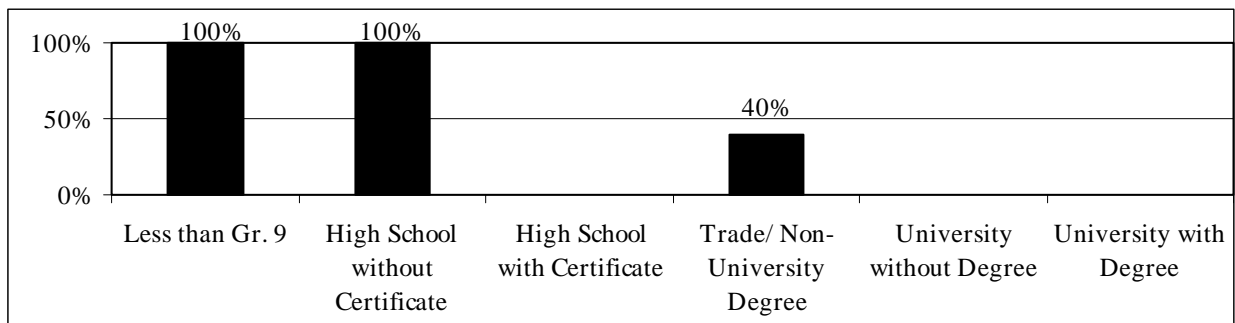
Source: Statistics Canada Census, 1996
 Communities with a population less than 50 are not reported.
 Original data was rounded to the nearest interval of 5.
 Due to compounding errors, percentages may not add up to 100%.

Figure 11a. to 11j. Highest Level of Education for Each Community in the Deh Cho Territory

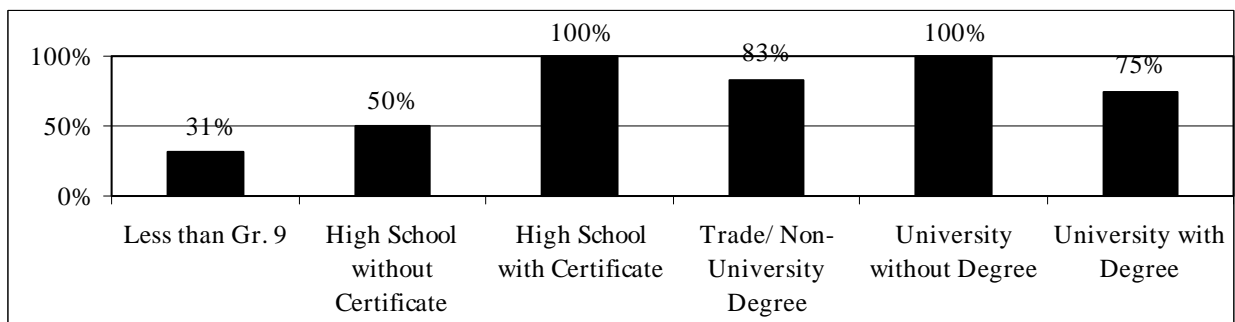
2.2.4 Employment by Highest Level of Education

The level of an individuals' education has a significant influence on (1) the employment opportunities available to them, (2) the nature and size of businesses operating in a region, and (3) the degree of benefit local peoples derive from development opportunities.

Figures 12a. to 12 j. illustrate employment levels in the Deh Cho communities by level of education. Generally speaking, the higher the level of education a person possesses, the greater their chances of being employed. In almost every community except for Hay River, 100% of those with a university degree are employed. Hay River is also the community with the highest proportion of people possessing a university degree. In smaller communities where the labour force is limited, there is more opportunity in the labour force for those individuals with lower education levels. For instance in communities such as Jean Marie River, Enterprise and Nahanni Butte, at least 50% of those with a grade 9 education or less are employed. In the larger communities of Hay River, Fort Providence and Fort Simpson, these numbers fall below 35%.

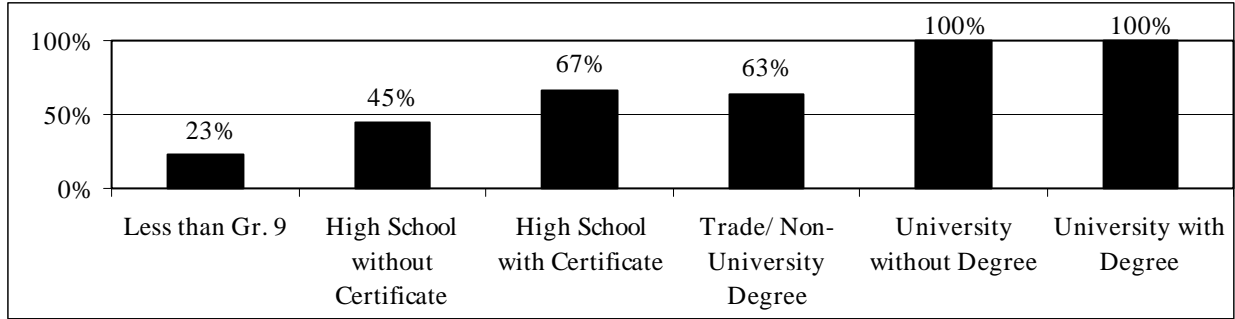


12a. Enterprise, Employment Rate by Level of Education

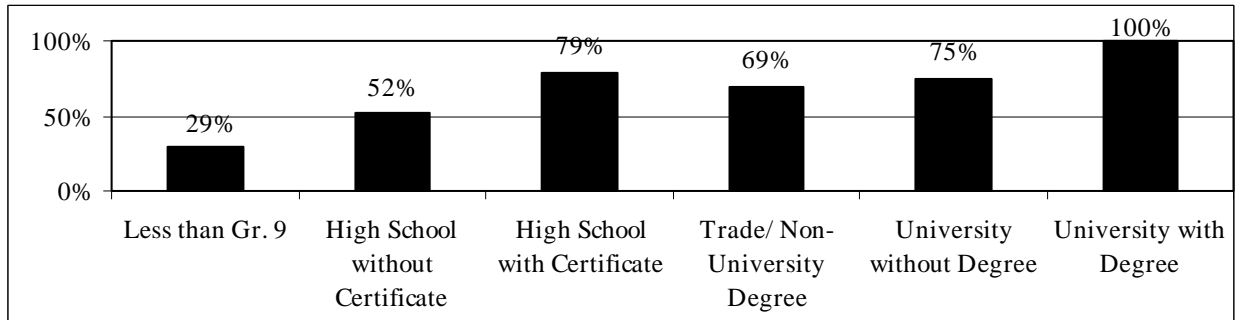


12b. Fort Liard, Employment Rate by Level of Education

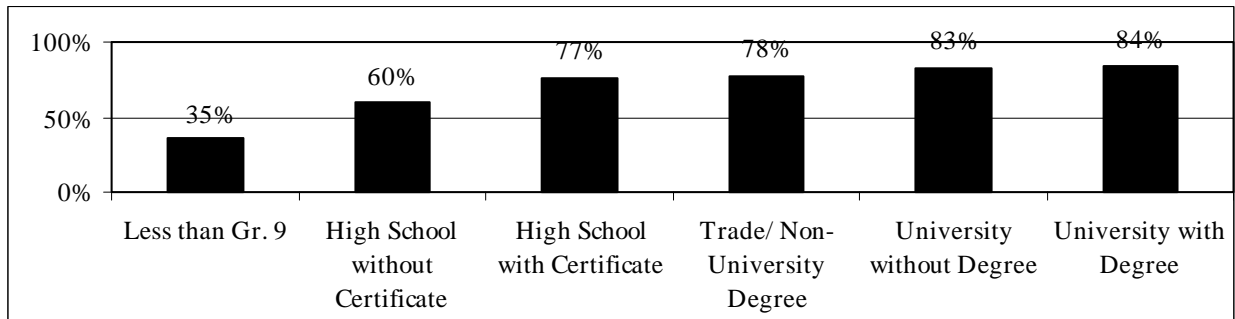
Deh Cho Socio-Demographic & Job Creation Needs Analysis



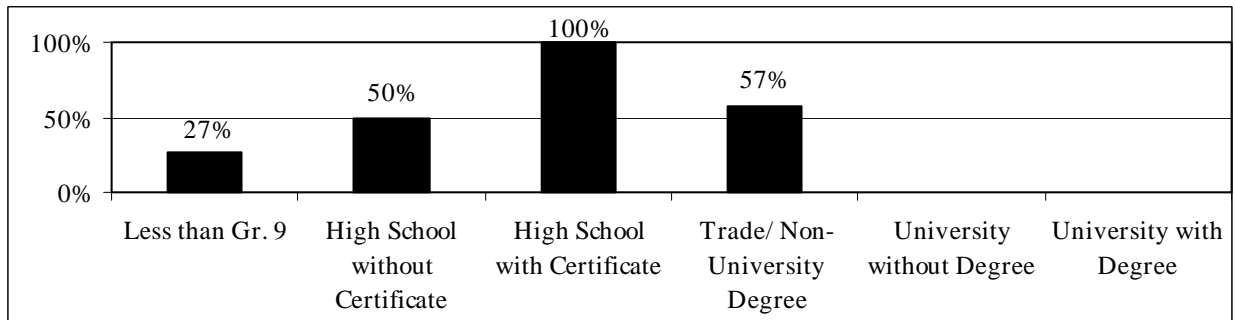
12c. Fort Providence, Employment Rate by Level of Education



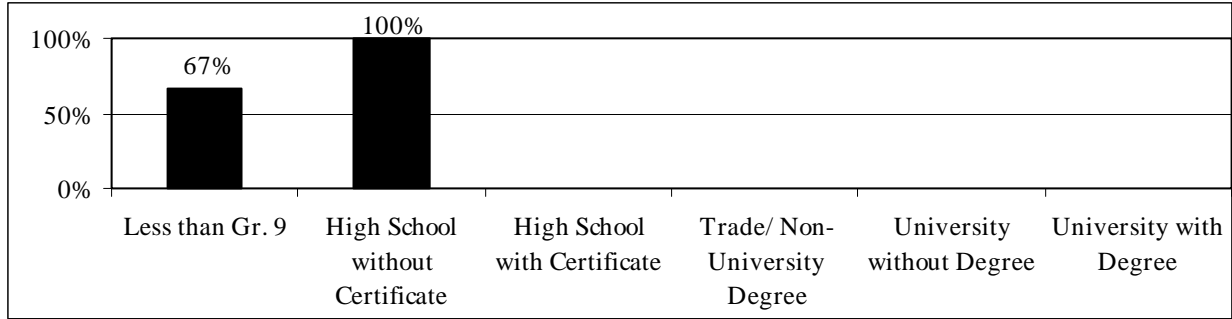
12d. Fort Simpson, Employment Rate by Level of Education



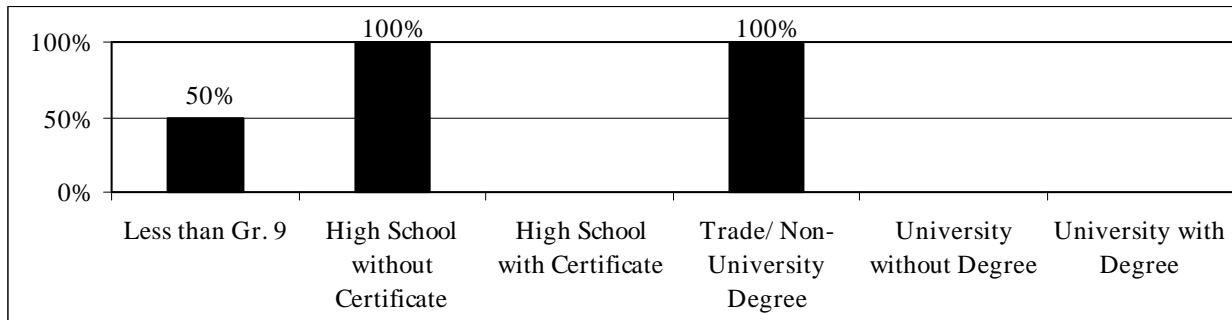
12e. Hay River, Employment Rate by Level of Education



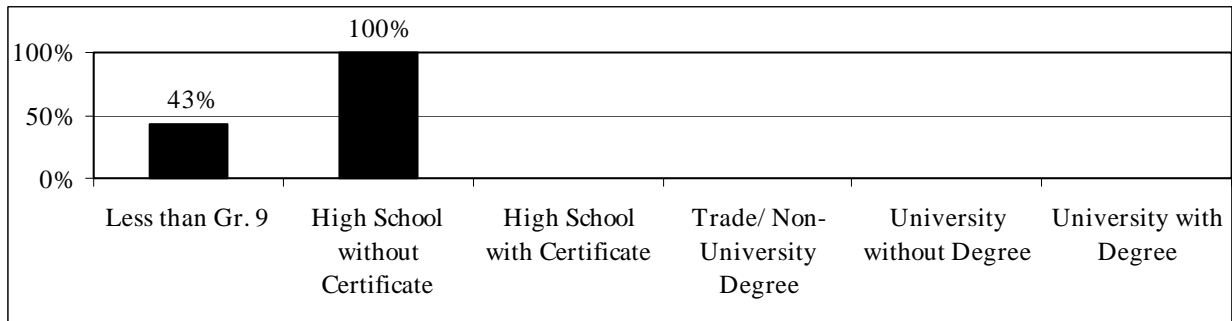
12f. Hay River Reserve, Employment Rate by Level of Education



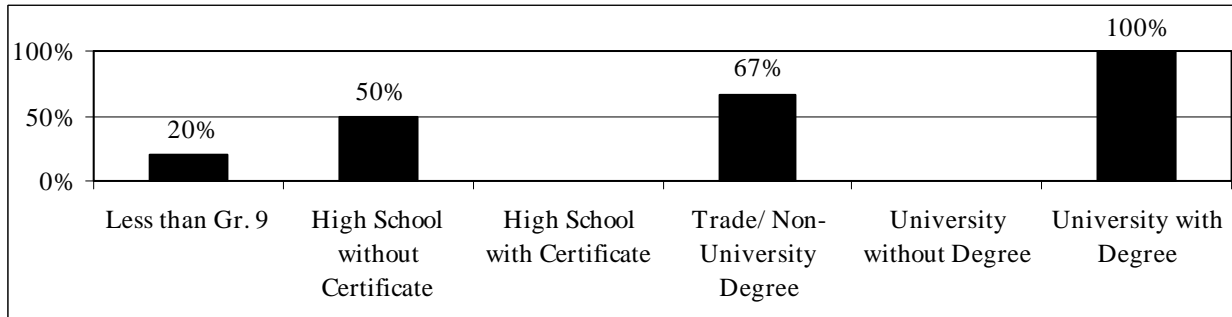
12g. Jean Marie River, Employment Rate by Level of Education



12h. Nahanni Butte, Employment Rate by Level of Education



12i. Trout Lake, Employment Rate by Level of Education



12j. Wrigley, Employment Rate by Level of Education

Source: Statistics Canada Census, 1996
 Raw data used to calculate percentages was rounded to the nearest interval of 5.
 Communities with populations under 50 are not reported.

Figure 12a to 12j. Employment Rate by Highest Level of Education

3.0 The Deh Cho Tomorrow

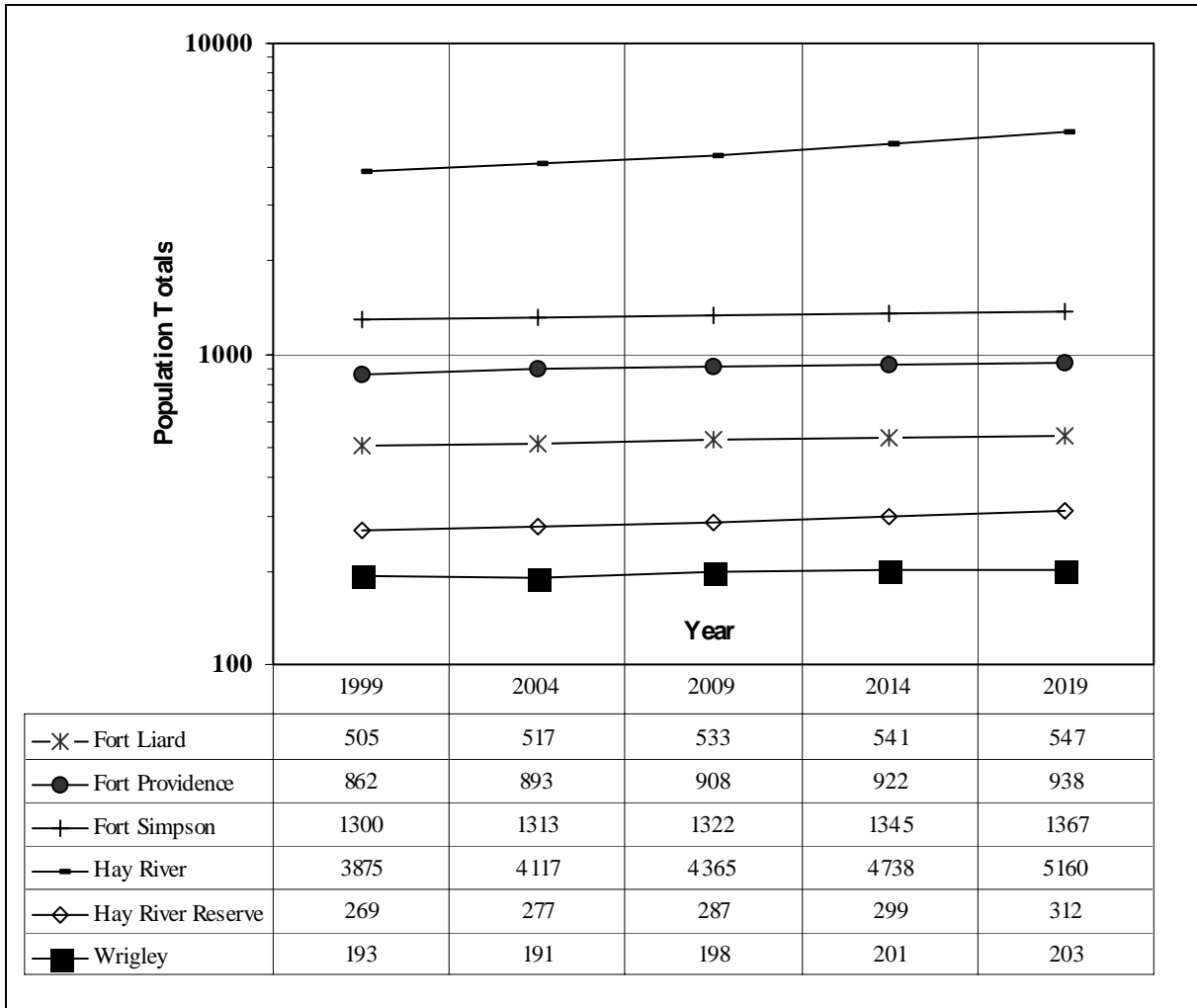
The following sections look at various projections calculated for the Deh Cho Territory at various intervals in the future (1999, 2009 and 2019). Here various forecasting methods and scenarios have been used to estimate the future population, gross job creation needs, education levels and gross job creation needs for each education level. The economy of the NWT and Deh Cho is largely based on the development of the land and natural resources and as such the Deh Cho Land Use Planning Committee desires such forecasts to aid in their decision making processes.

3.1 Future Population

The Government of the Northwest Territories (GNWT) has created a population projection model to determine future population totals. This model takes into account birth rates, death rates, historic figures and migration. The GNWT population model projections for 1999, 2004, 2009, 2014 and 2019 are shown in figure 13.

You will notice that population totals are missing for a number of Deh Cho communities. Projections for communities with a population of 100 or less as of July 1, 1999 are suppressed by the GNWT. For the Deh Cho, this means that for 5 of 11 communities, no GNWT population model projections are available; consequently, a total for the Deh Cho Territory was not calculated for the purposes of this report.

For comparative purposes, linear and exponential regression analyses were calculated using population totals from the census years from 1971 to 2001 (1971, 1976, 1981, 1986, 1991, 1996 and 2001) to calculate populations for 1999, 2004, 2009 and 2014. Data for Kakisa is only available for 1981 to 2001, and for Hay River from 1986 to 2001. With fewer points to use in the regression, the results become less reliable than regressions performed with more points. The results are provided in figure 14 and 15 respectively. For figures 13, 14 and 15, a logarithmic scale is used for the y axis.



Source: Government of the Northwest Territories Bureau of Statistics
 Note: Unorganized regions and communities with populations less than 100 as of 1999 are not reported

Figure 13. GNWT Population Model Projections (1999-2019)

Deh Cho Socio-Demographic & Job Creation Needs Analysis

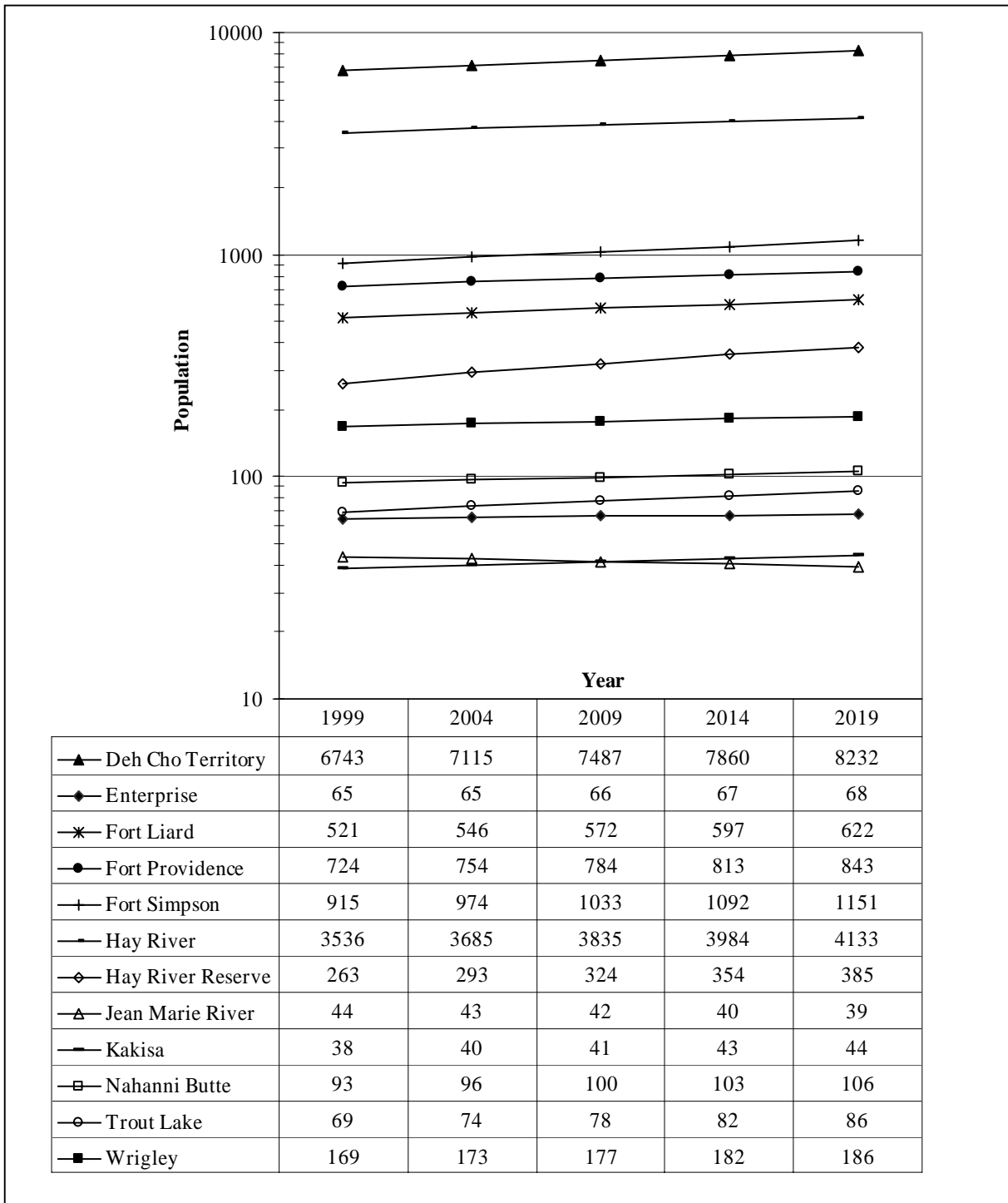


Figure 14. Population Projections Using Linear Regression Analysis

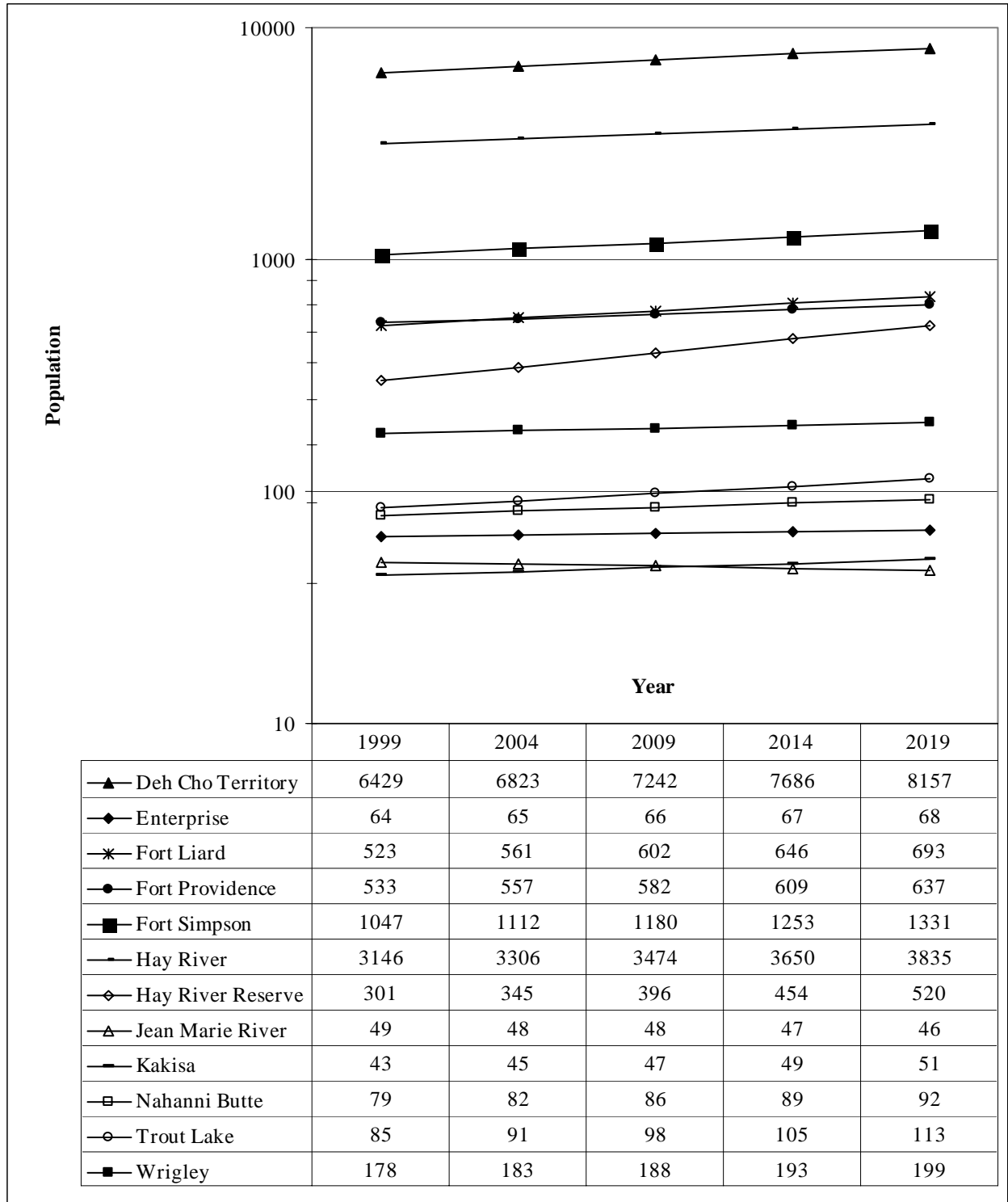


Figure 15. Population Projections Using Exponential Regression Analysis

Deh Cho Socio-Demographic & Job Creation Needs Analysis

The coefficient of determination, r^2 , is a measure of the “goodness of fit” for the regression line. While the r^2 value provides some estimate of the reliability of a regression analysis, its practical value for some social science applications may be limited. For reference the r^2 values for the analysis discussed herein can be found in figure 16 and 17. For reference, the closer the r^2 value is to 1 the better the regression line fits.

Community	r^2 Value
Enterprise	.014
Fort Liard	.243
Fort Providence	.762
Fort Simpson	.568
Hay River	.627
Hay River Reserve	.974
Jean Marie River	.068
Kakisa	.324
Nahanni Butte	.301
Trout Lake	.873
Wrigley	.504

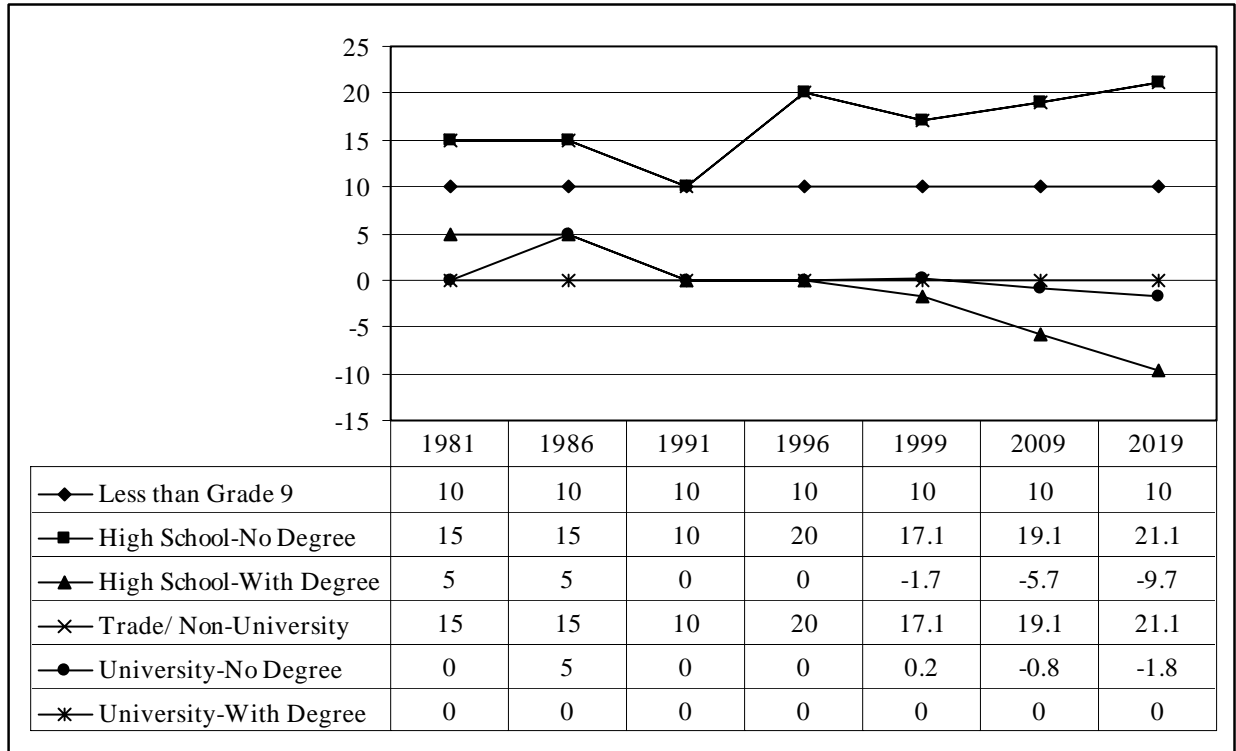
Figure 16. *r^2 Values for Calculating Population Projections Using Linear Regression Analysis*

Community	r^2 Value
Enterprise	.015
Fort Liard	.312
Fort Providence	.768
Fort Simpson	.561
Hay River	.617
Hay River Reserve	.959
Jean Marie River	.058
Kakisa	.304
Nahanni Butte	.296
Trout Lake	.863
Wrigley	.494

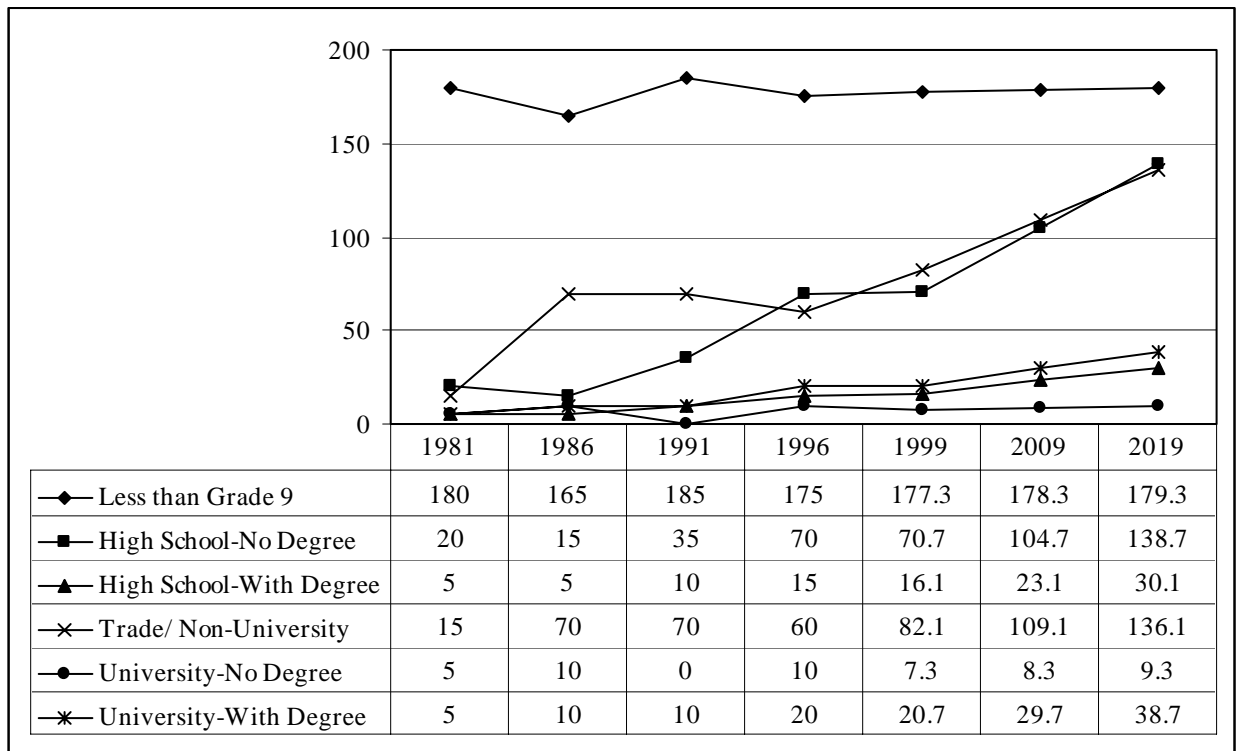
Figure 17. *r^2 Values for Calculating Population Projections Using Exponential Regression Analysis*

3.2 Future Education Level Projections

A linear regression analysis was conducted using education level data from census years 1984, 1989, 1994 and 1999 to predict the level of education people might possess in 1999, 2009 and 2019. The results of these calculations are illustrated in Figures 18a. to 18j. No numbers are available for Kakisa because of its small size. It is important to know that the original education level data is rounded to the nearest interval of 5, compounding the potential inaccuracy of the education level projections. Additionally, because of the small size of many of the Deh Cho communities, there are not individuals in all of the education level intervals. Thus some of the linear regression calculations are based on only 2 points. As mentioned previously, the results of calculations using this few points are much less reliable and accurate than those using more points.

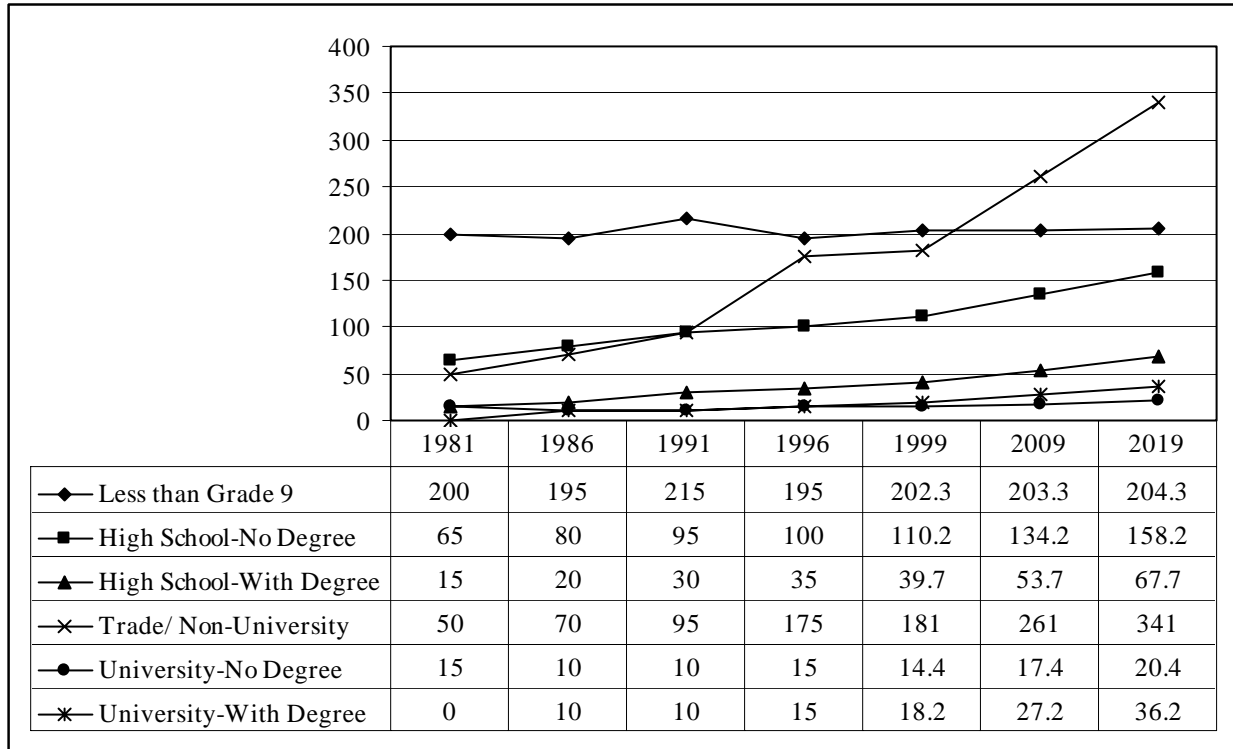


18a. Enterprise, Education Level Projections 1999, 2009 and 2019

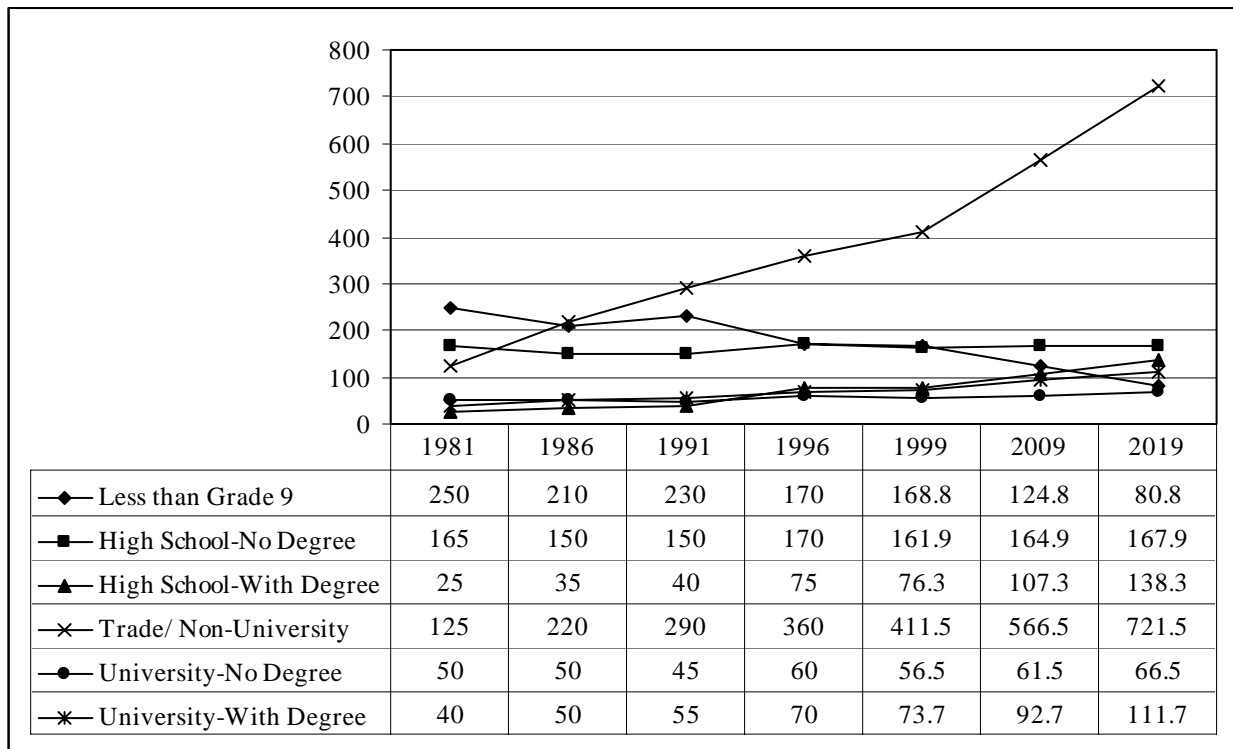


18b. Fort Liard, Education Level Projections 1999, 2009 and 2019

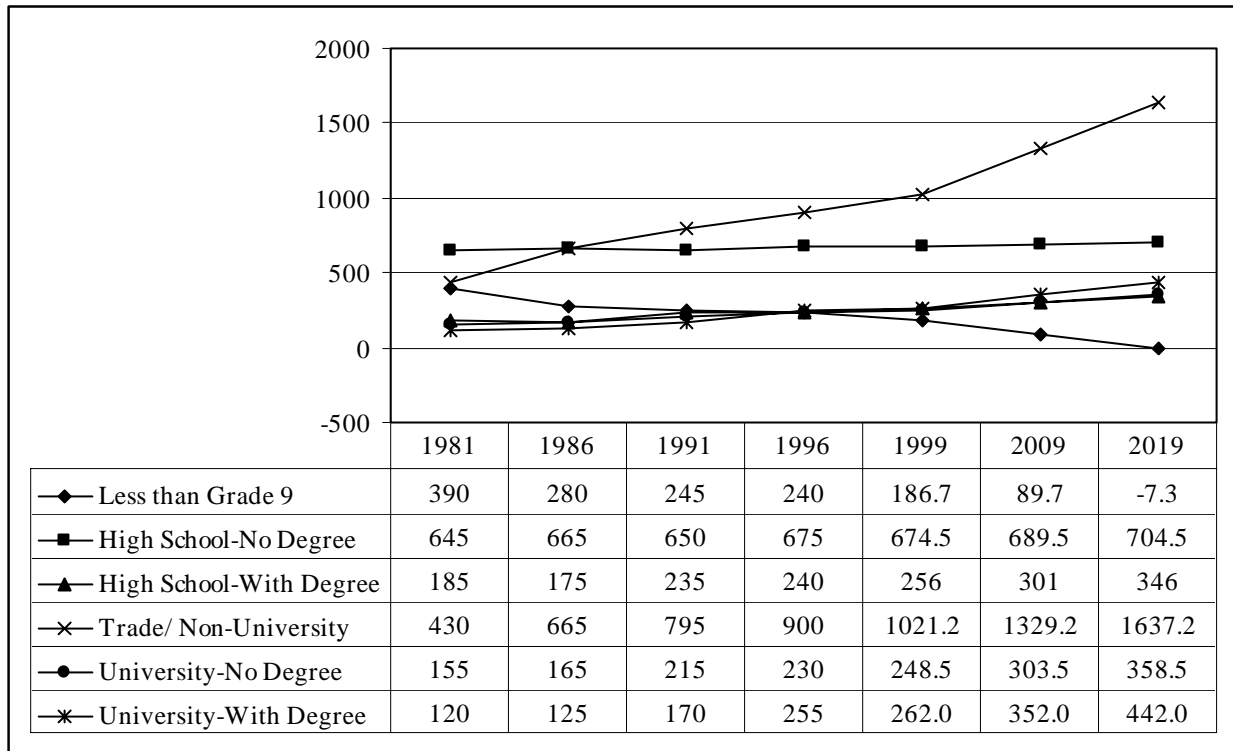
Deh Cho Socio-Demographic & Job Creation Needs Analysis



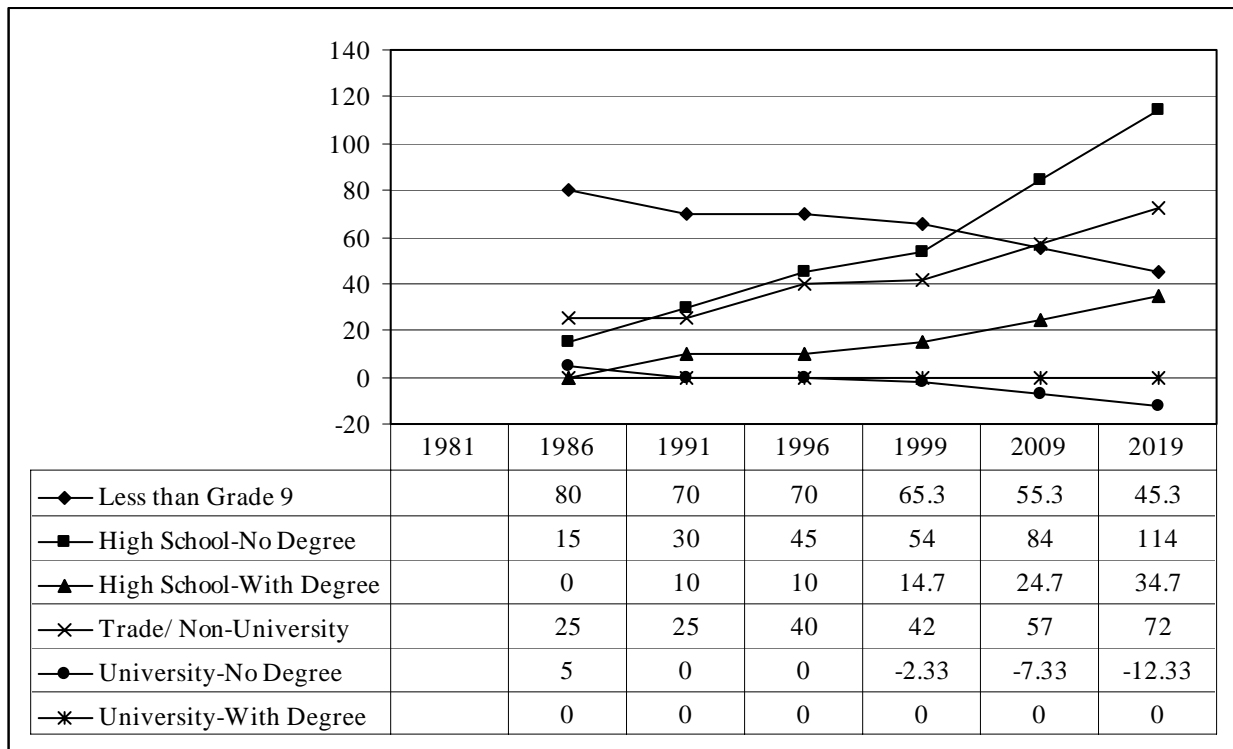
18c. Fort Providence, Education Level Projections 1999, 2009 and 2019



18d. Fort Simpson, Education Level Projections 1999, 2009 and 2019

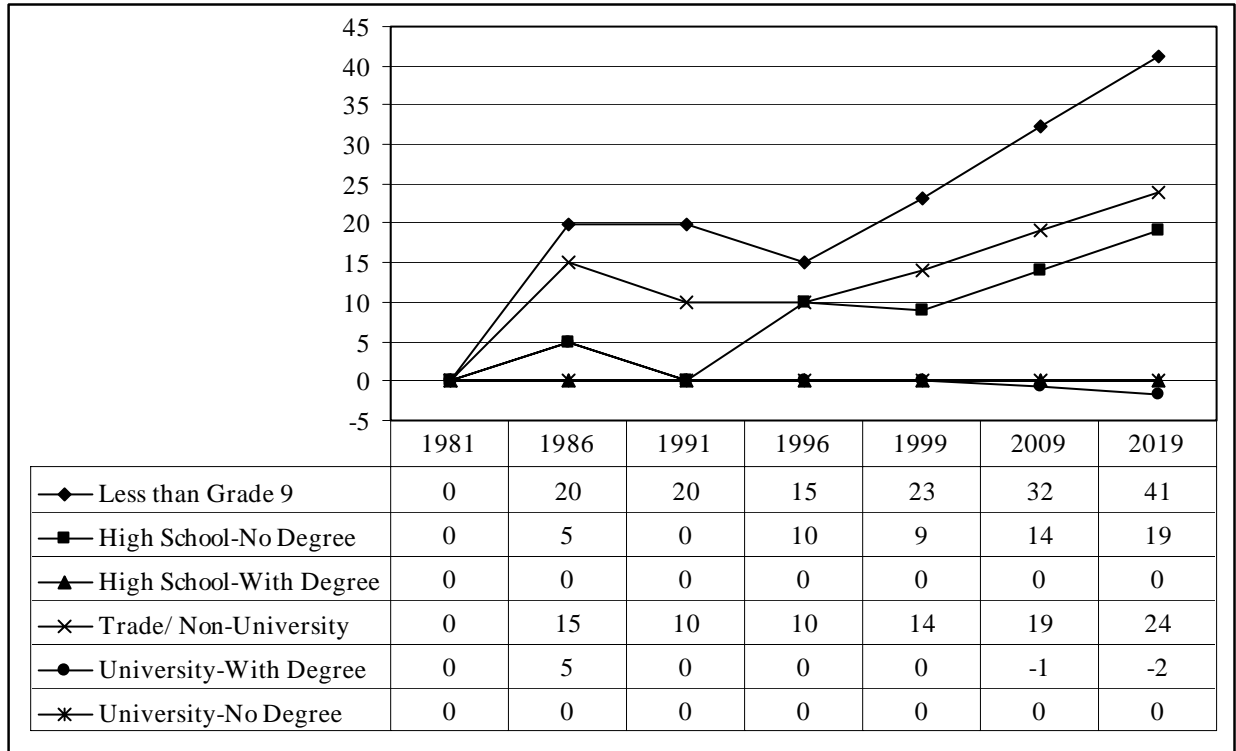


18e. Hay River, Education Level Projections 1999, 2009 and 2019

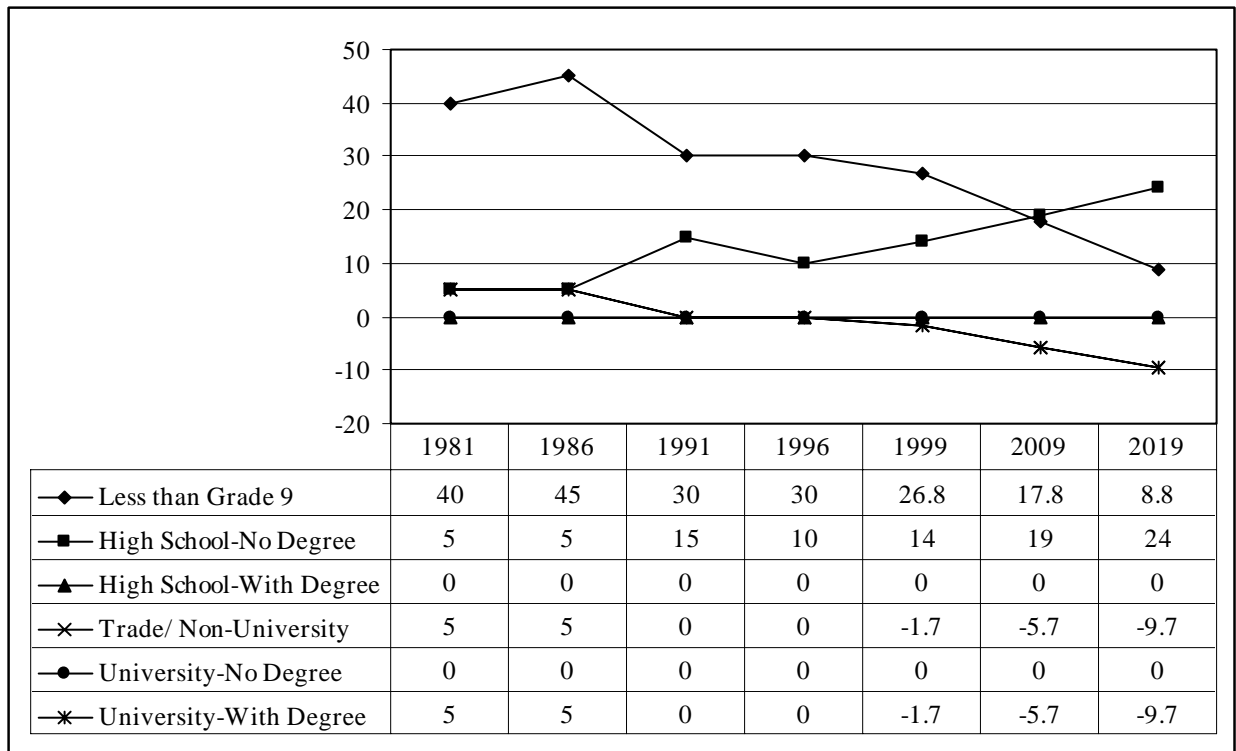


18f. Hay River Reserve, Education Level Projections 1999, 2009 and 2019

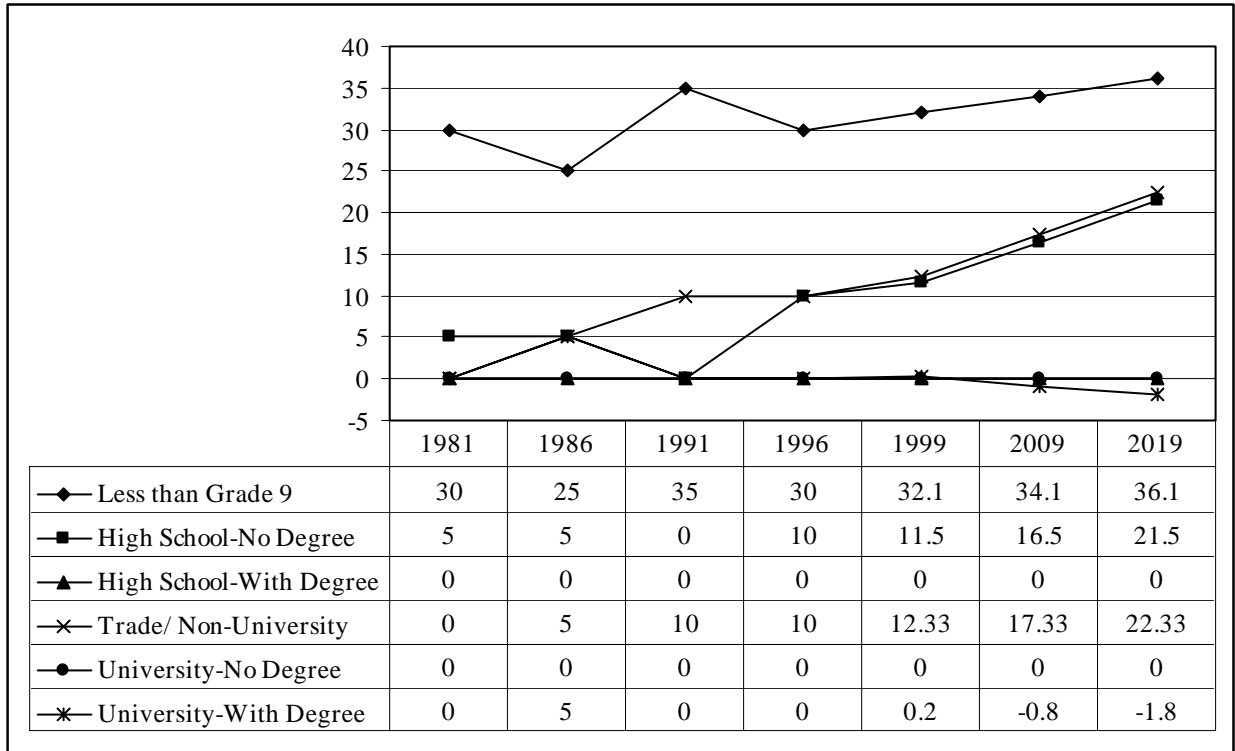
Deh Cho Socio-Demographic & Job Creation Needs Analysis



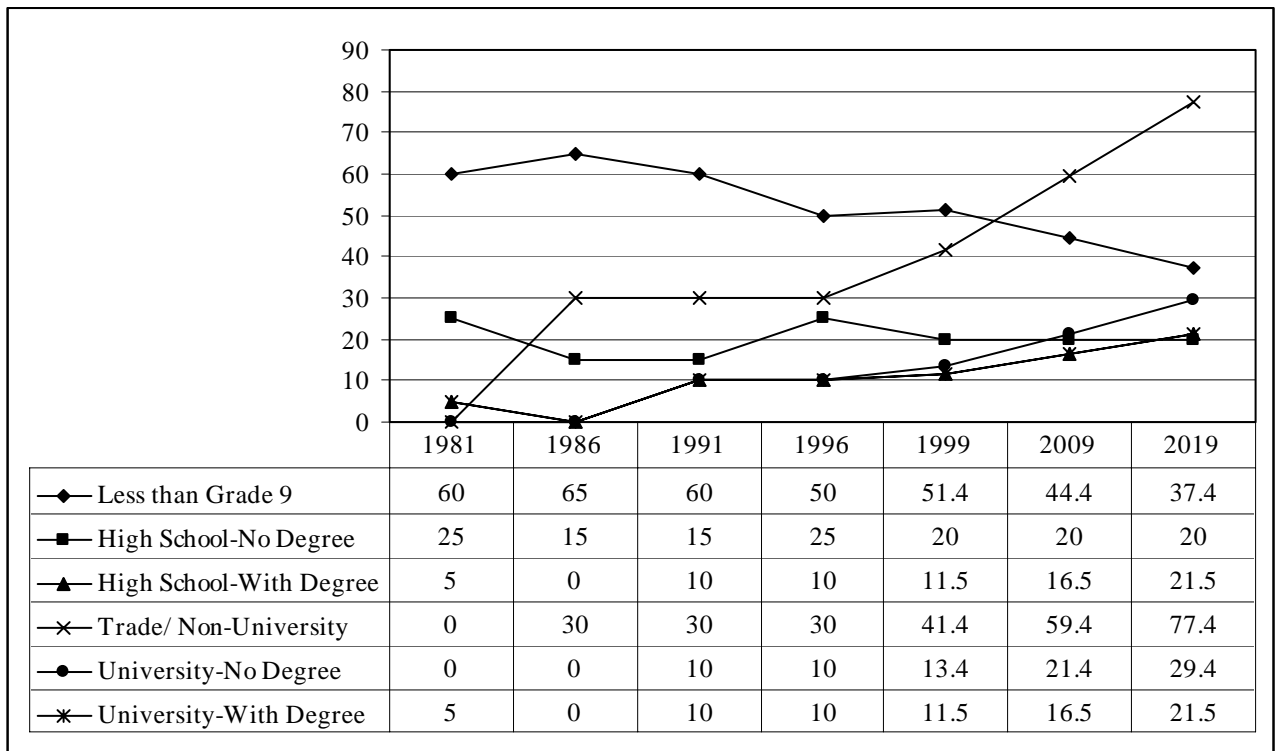
18g. Jean Marie River, Education Level Projections 1999, 2009 and 2019



18h. Nahanni Butte, Education Level Projections 1999, 2009 and 2019



18i. Trout Lake, Education Level Projections 1999, 2009 and 2019



18j. Wrigley, Education Level Projections 1999, 2009 and 2019

Original numbers are rounded to the nearest interval of 5.

Figures 18a. to 18j. Education Projections Using Linear Regression Analysis.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

The r^2 values produced in calculating potential labour force participation rates are varied, in some cases extremely low, while in other, they are quite a bit higher and approaching 1. The r^2 values are provided in the table below.

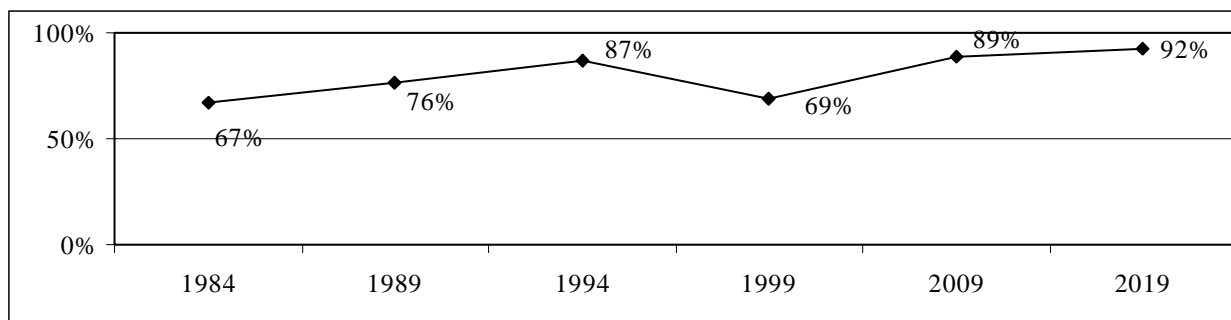
Community	Less than Grade. 9	High School Diploma	High School Without Diploma	Trade/Non-University Degree	University Without Degree	University With Degree
Enterprise	N/A	.8	.1	.1	-	.07
Fort Liard	.01	.89	.78	.44	.85	.04
Fort Providence	.005	.98	.96	.89	.85	0
Fort Simpson	.69	.85	.04	.99	.96	.26
Hay River	.80	.75	.49	.96	.86	.93
Hay River Reserve	.75	.75	1	.75	-	.75
Jean Marie River	.37	-	.45	.26	.06	-
Nahanni Butte	.6	N/A	.45	.80	.80	N/A
Trout Lake	.10	N/A	.10	.89	.07	N/A
Wrigley	.52	.45	0	.60	.45	.80

Figure 19. r^2 Values for Calculating Education Level Projections, Using Linear Regression

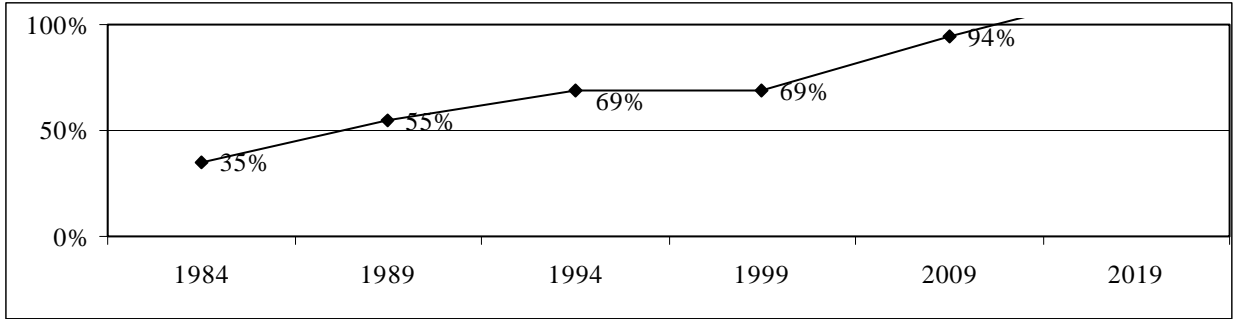
3.3 Future Projections for the Labour Force & Job Creation Needs

3.3.1 Future Labour Force Participation Rate

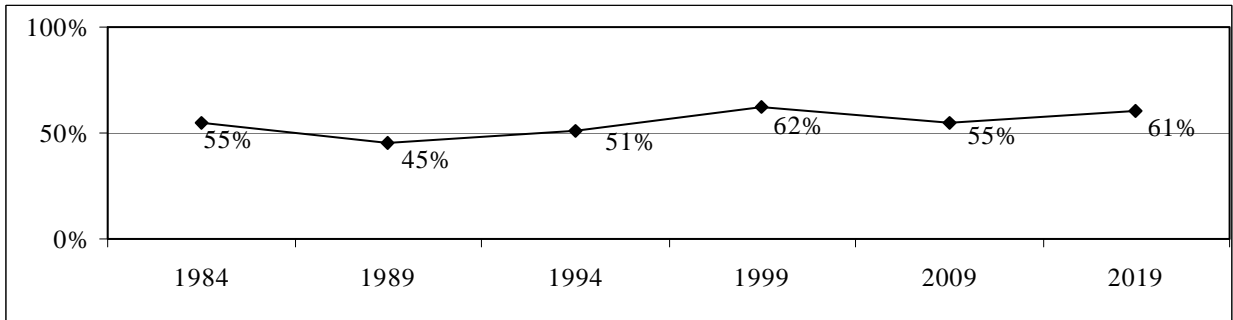
To calculate the labour force participation rate in 2009 and 2019, a linear regression analysis was conducted using data from 1984, 1989, 1994 and 1999. The results of these calculations are illustrated in figures 20a. to 20k. Here we see that the labour force participation rate is estimated to increase by 2019. In some communities such as Wrigley, Nahanni Butte, Trout Lake and Fort Liard, it is expected to reach 100%. For most communities, the increase is moderate. It is interesting to note that Fort Simpson is the only community in which the participation rate is actually expected to decrease by 2019 to 59.6% from the mid 70% mark in the previous decades.



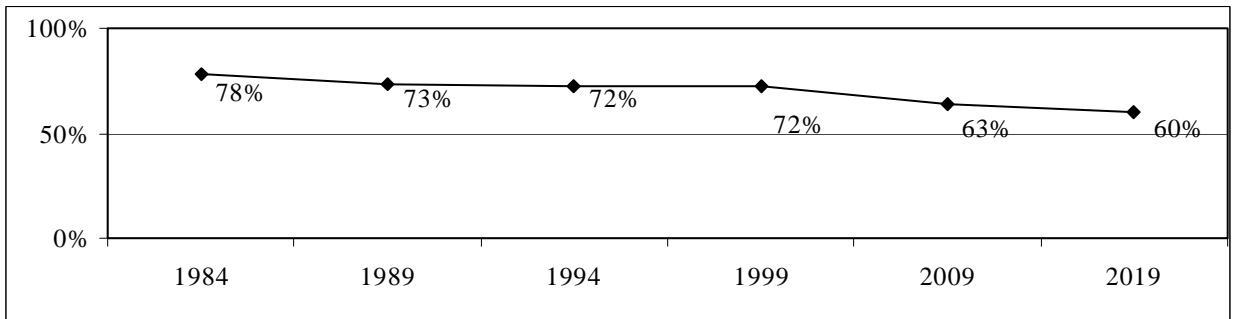
20a. Enterprise, Projected Labour Force Participation Rate, 2009 and 2019



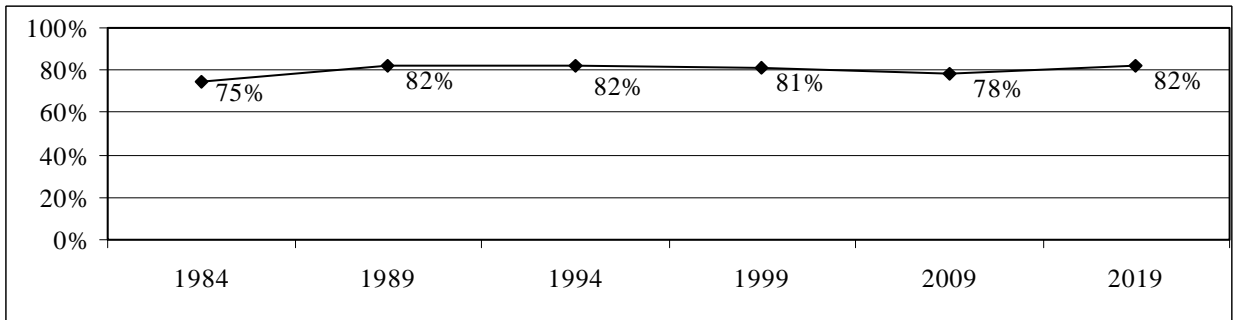
20b. Fort Liard, Projected Labour Force Participation Rate, 2009 and 2019



20c. Fort Providence, Projected Labour Force Participation Rate, 2009 and 2019

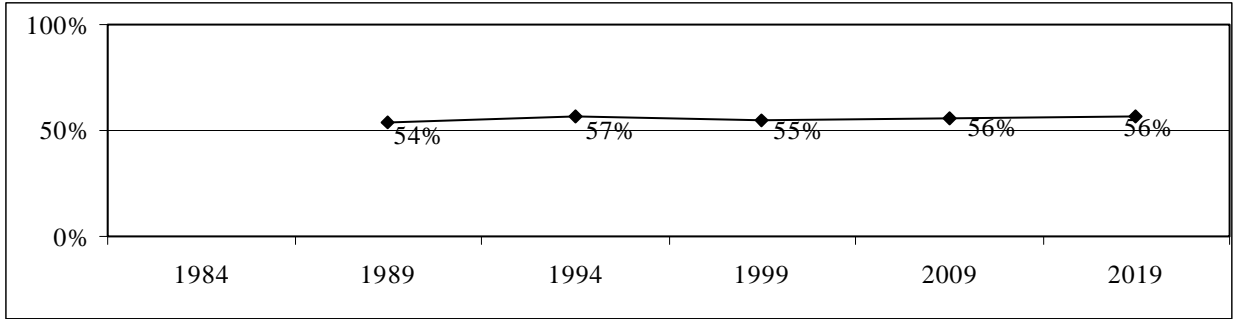


20d. Fort Simpson, Projected Labour Force Participation Rate, 2009 and 2019

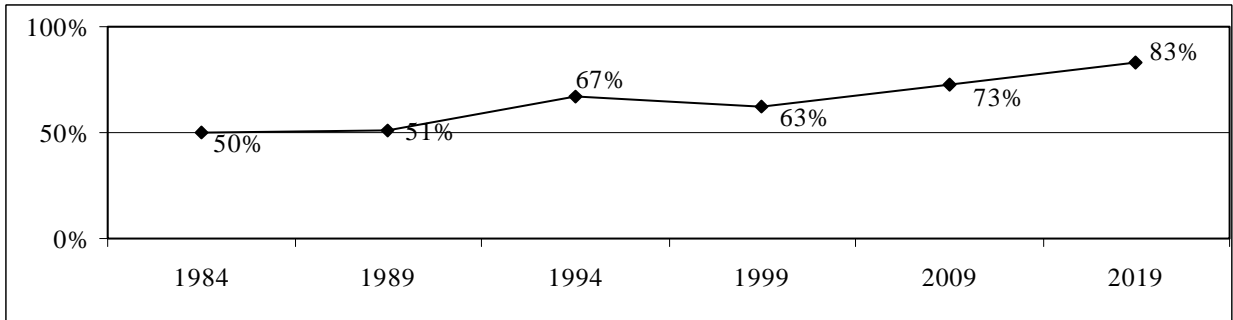


20e. Hay River. Projected Labour Force Participation Rate, 2009 and 2019

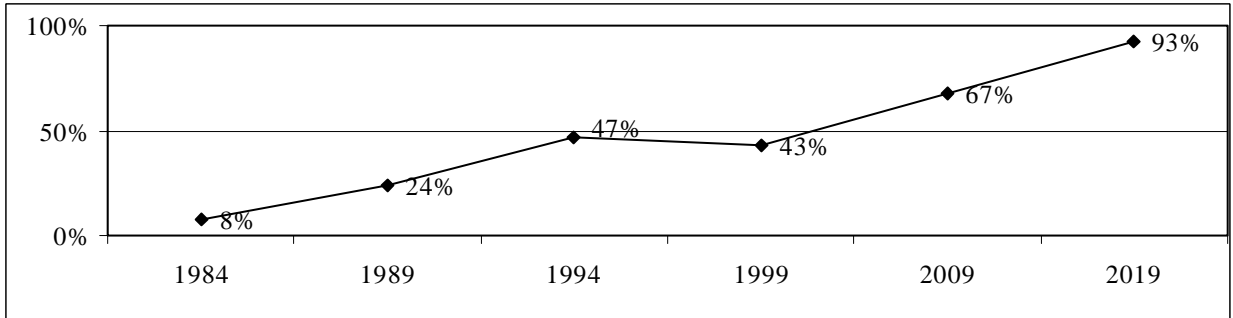
Deh Cho Socio-Demographic & Job Creation Needs Analysis



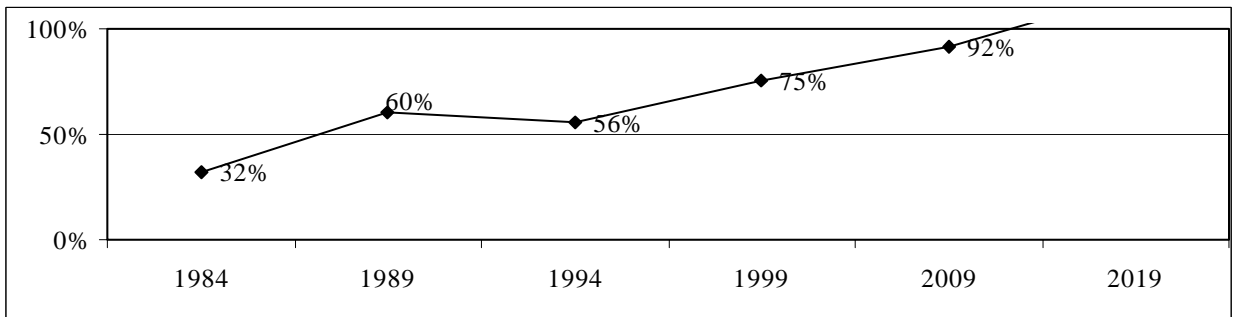
20f. Hay River Reserve, Projected Labour Force Participation Rate, 2009 and 2019



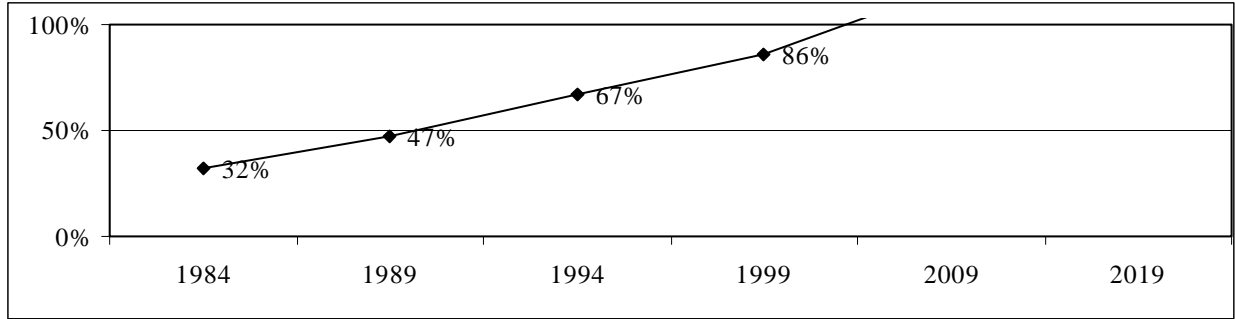
20g. Jean Marie River, Projected Labour Force Participation Rate, 2009 and 2019



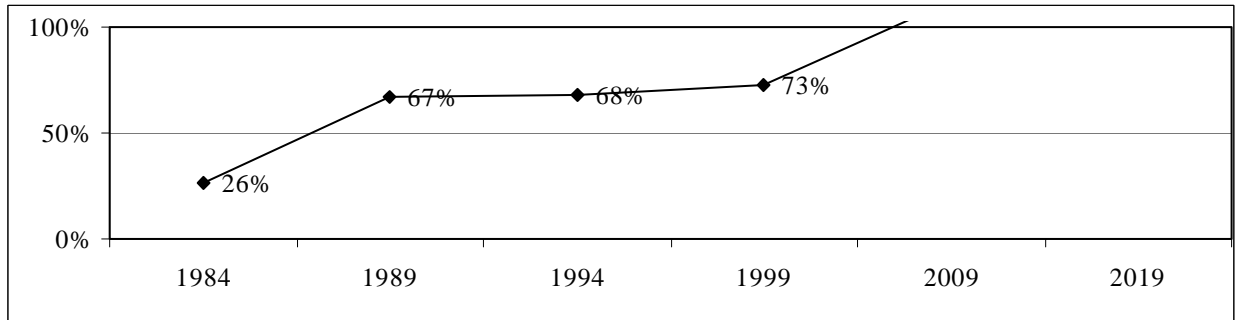
20h. Kakisa, Projected Labour Force Participation Rate, 2009 and 2019



20.i. Nahanni Butte, Projected Labour Force Participation Rate, 2009 and 2019



20j. Trout Lake, Projected Labour Force Participation Rate, 2009 and 2019



20k. Wrigley, Projected Labour Force Participation Rate, 2009 and 2019

Figure 20a. to 20k. Projected Labour Force Participation Rate for 2009 and 2019, using Linear Regression.

As with the linear regression calculations for education levels and population growth, the r^2 values produced in calculating potential labour force participation rates are, in many cases, very low. The r^2 values are provided in the table below.

Community	r^2 Value
Enterprise	.061
Fort Liard	.870
Fort Providence	.249
Fort Simpson	.703
Hay River	.463
Hay River Reserve	.024
Jean Marie River	.679
Kakisa	.837
Nahanni Butte	.822
Trout Lake	.996
Wrigley	.702

Figure 21— r^2 Values for Calculating Future Labour Force Participation Rates

Deh Cho Socio-Demographic & Job Creation Needs Analysis

3.3.2 Gross Job Creation Needs

Calculating gross job creation needs for the Deh Cho Territory takes into account 4 factors: the population 15 years of age and over, the labour force participation rate and the unemployment rate. The formula used, as provided by the Deh Cho Land Use Planning Committee, is as follows:

$$\text{GROSS JOB CREATION NEEDS} = \frac{[\text{POPULATION 15 \& OLDER} - \text{POPULATION 15 \& OLDER FOR THE PREVIOUS PERIOD}] * (\text{LABOUR FORCE PARTICIPATION RATE}) * (1 - \text{UNEMPLOYMENT RATE})}{1}$$

Three different scenarios were explored. The scenarios are as follows:

- **Scenario One** assumes that labour force participation and unemployment rates will remain at 1999 levels. It is assumed that no new jobs are needed for 1999 in the scenario;
- **Scenario Two** assumes that the labour force participation increases according to the forecast (see graphs 20a. to 20k.) and that the unemployment rate decreases to the 2003 Canadian average of 7.8% (May 2003);
- **Scenario Three** assumes that labour force participation is increased to the 1999 average for the NWT and that the unemployment rate decreases to the 2003 Canadian average of 7.8% (May 2003).

Gross job creation needs were calculated for the years 1999, 2009 and 2019 (Figure 22, 23 and 24). Population 15 and older for the larger communities was taken from the GNWT Population Projections. For the smaller communities of Enterprise, Jean Marie River, Kakisa, Nahanni Butte and Trout Lake, the population 15 and older was calculated through a linear regression analysis.⁷

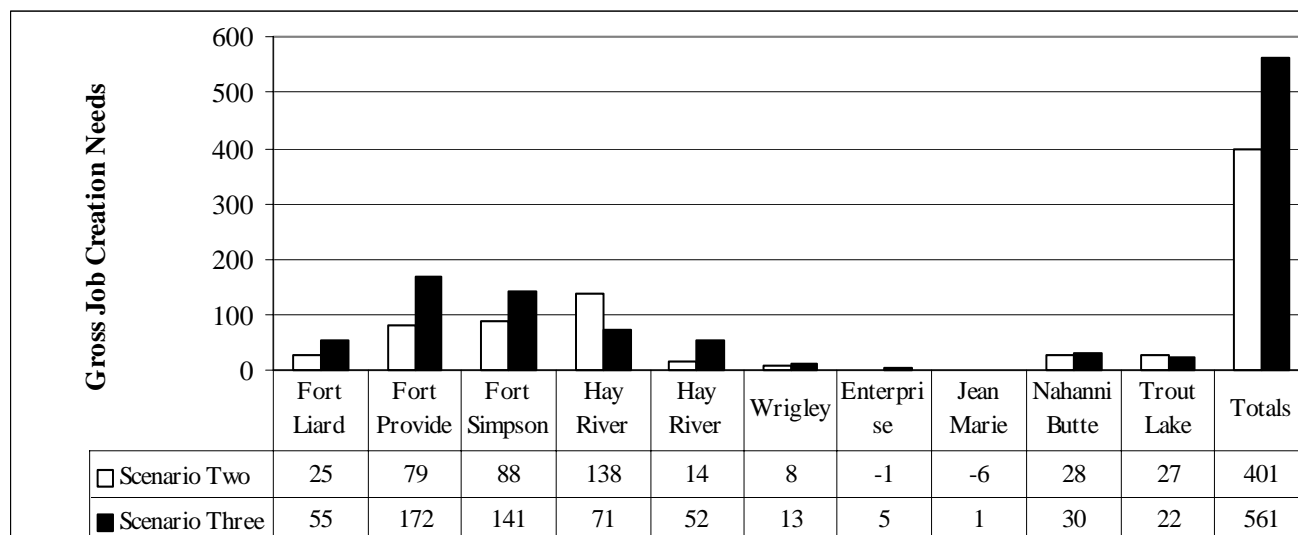


Figure 22. A Comparison of 1999 Gross Job Creation Needs for all Scenarios

⁷ GNWT population projections are not calculated on communities with populations under 100.

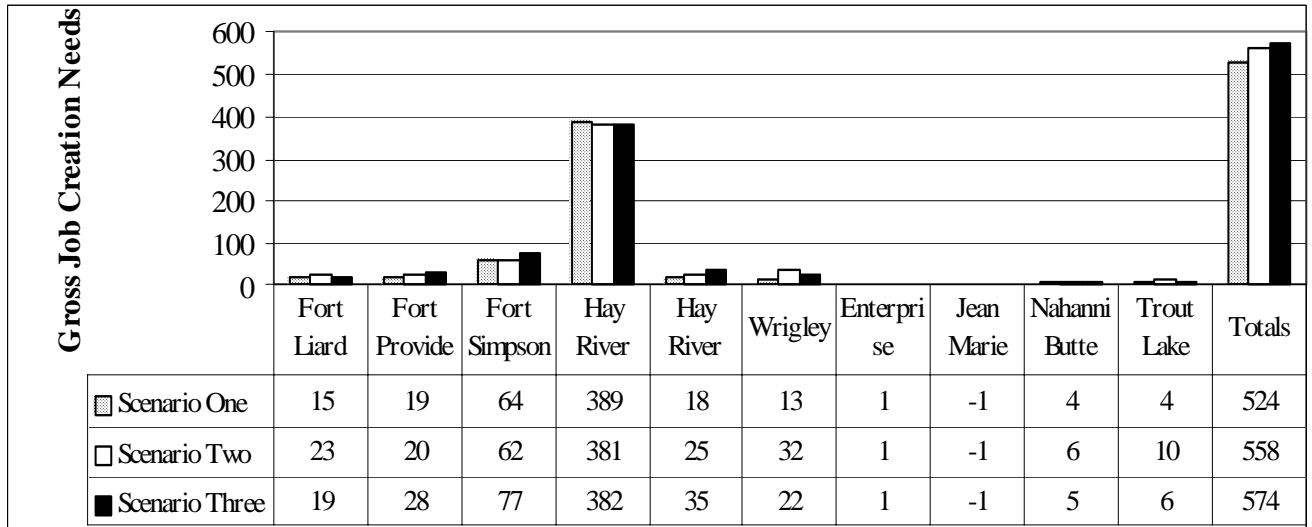


Figure 23. A Comparison of 2009 Gross Job Creation Needs for all Scenarios

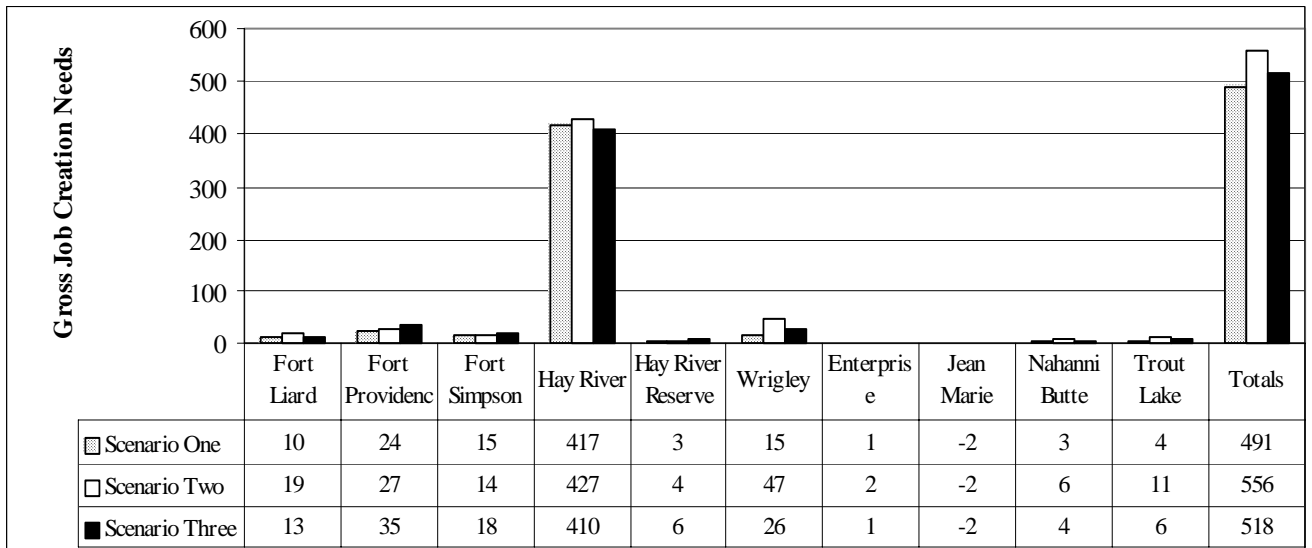


Figure 24. A Comparison of 2019 Gross Job Creation Needs for all Scenarios

	1999	2009	2019	Total
Scenario 1	• Assume no new jobs needed	524	491	1015
Scenario 2	401	558	556	1515
Scenario 3	561	574	518	1653

Figure 25. Anticipated Job Needs for the Deh Cho Territory

Deh Cho Socio-Demographic & Job Creation Needs Analysis

As illustrated in the graphs and tables above, scenario three, which assumes that the labour force participation rate will rise to the NWT average of 78.3% and the unemployment rate will decrease to the Canadian 2003 rate of 7.8% (May 2003), estimates the greatest number of jobs to be created. Scenario one, on the other hand, with assumes labour force participation rates and unemployment rates would remain at 1999 levels, estimates the fewest numbers of jobs need to be created—keeping in mind that it is assumed no new jobs are needed in 1999 under this scenario. For all scenarios, the largest numbers of jobs that need to be created are expected in 2009. In Jean Marie River, it is expected that there will in fact be a surplus of jobs, hence the negative numbers. This is true in Jean Marie River for all three scenarios for all three years, except for scenario 3 in 1999. Enterprise will require the fewest number of jobs be created, and is estimated to see a surplus in 1999 under scenario 2. Overall, the number of new jobs needed in the Deh Cho decreases with time.

3.3.3 Education Levels of Job Seekers

Calculating the education levels of job seekers takes into account several factors including: the number of new jobs needed (as calculated in the previous section), the number of people at each education level and the percentage of the population over 15 at each education level. The formula provided by the Deh Cho Land Use Planning Committee for calculating such needs follows:

$$\text{EDUCATION LEVELS OF JOB SEEKERS} = (\text{NEW JOBS NEEDED 1999, 2009 \& 2019}) * (\text{PERCENTAGE OF THE POPULATION 15 \& OVER AT EACH EDUCATION LEVEL})$$

This calculation was repeated for each of the three gross job creation needs scenarios calculated in the previous section. The results are shown in figures 26 to 31 below. Due to its small size, statistics are unavailable for Kakisa.

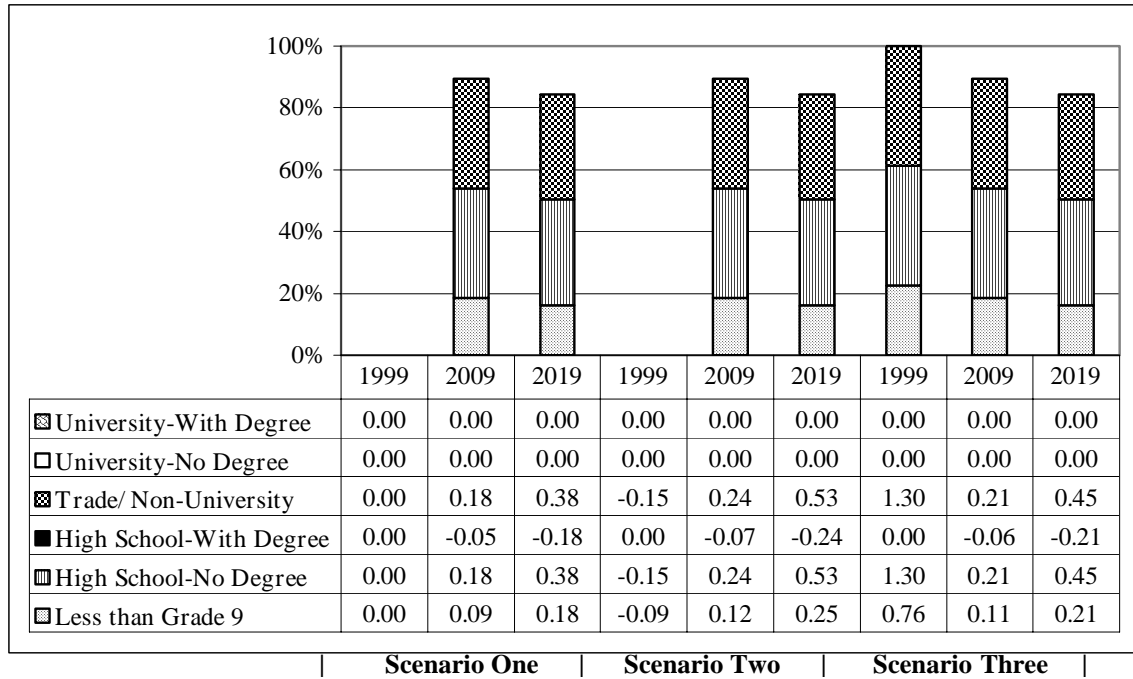


Figure 26. Job Creation Needs by Education for Enterprise for All Scenarios

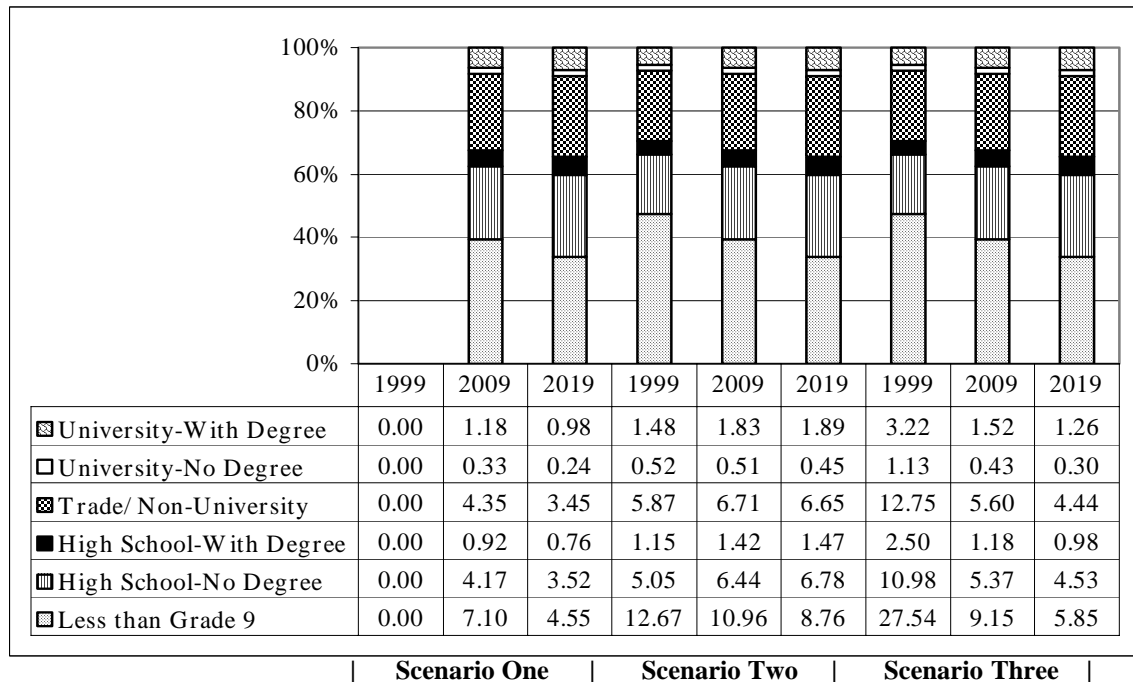


Figure 27. Job Creation Needs by Education for Fort Liard for All Scenarios

Deh Cho Socio-Demographic & Job Creation Needs Analysis

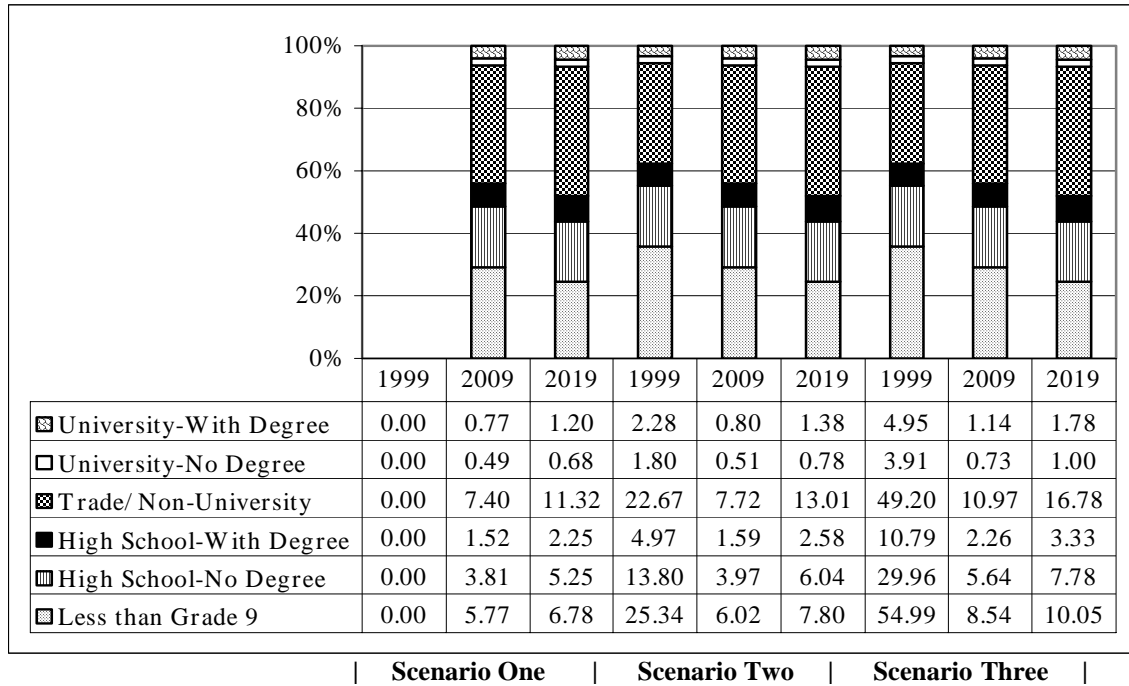


Figure 28. Job Creation Needs by Education for Fort Providence for All Scenarios

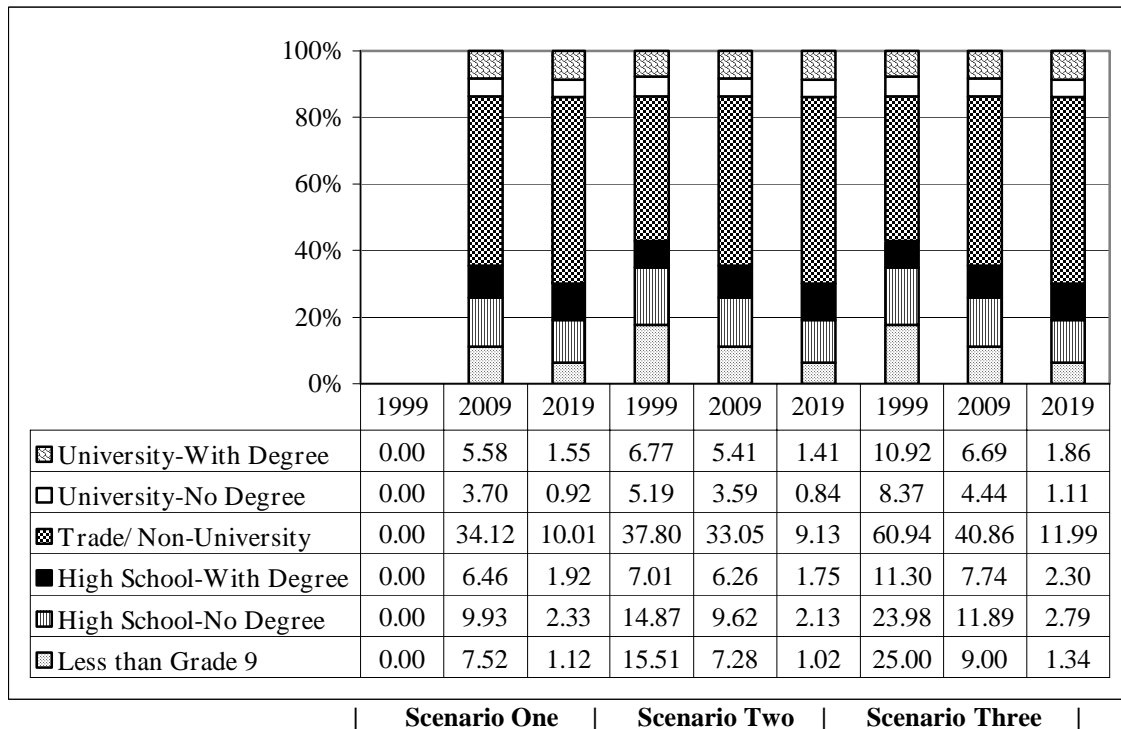


Figure 29. Job Creation Needs by Education for Fort Simpson for All Scenarios

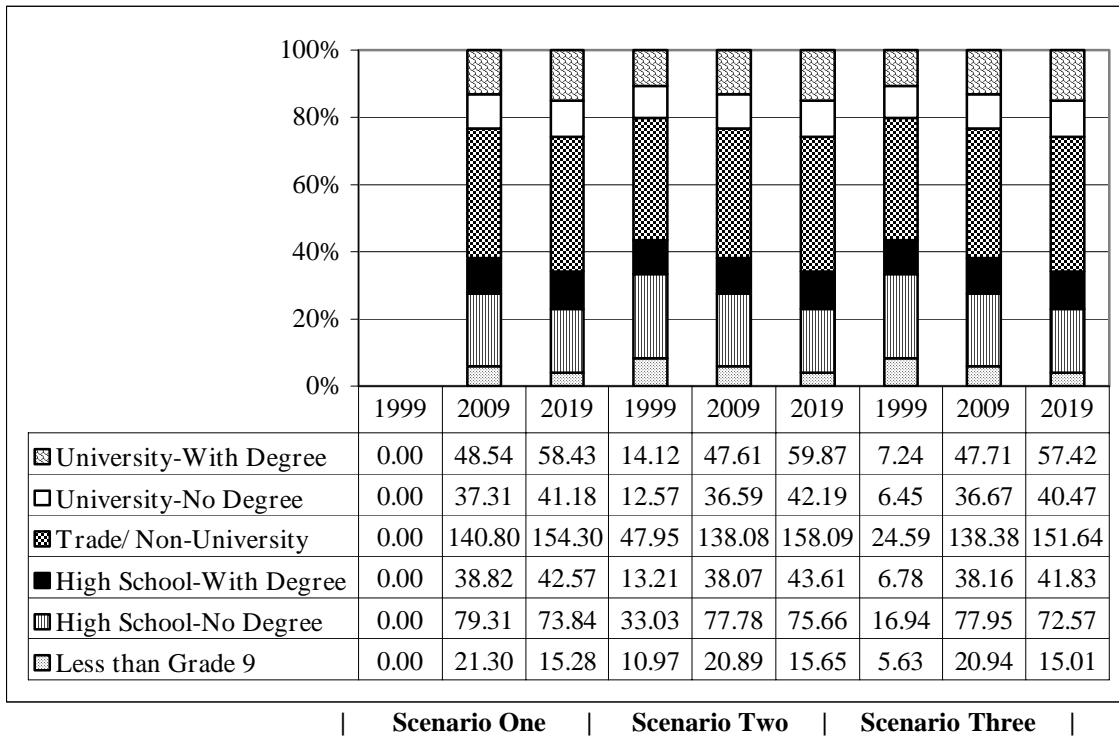


Figure 30. Job Creation Needs by Education for Hay River for All Scenarios

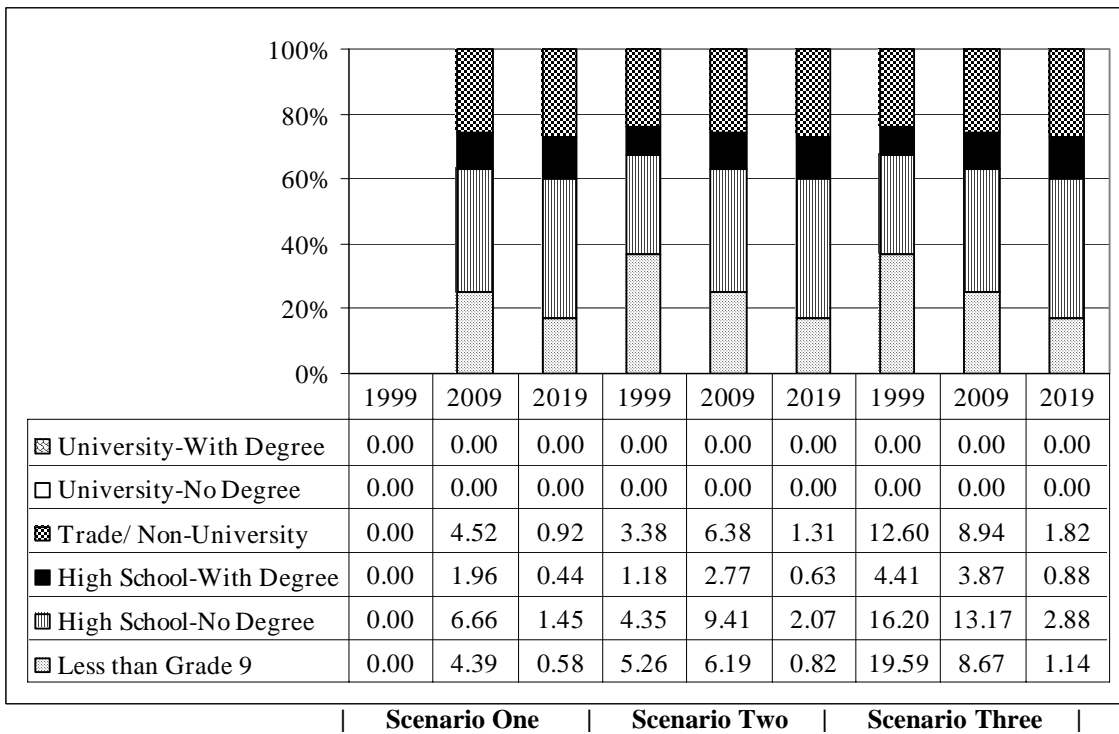


Figure 31. Job Creation Needs by Education for Hay River Reserve for All Scenarios

Deh Cho Socio-Demographic & Job Creation Needs Analysis

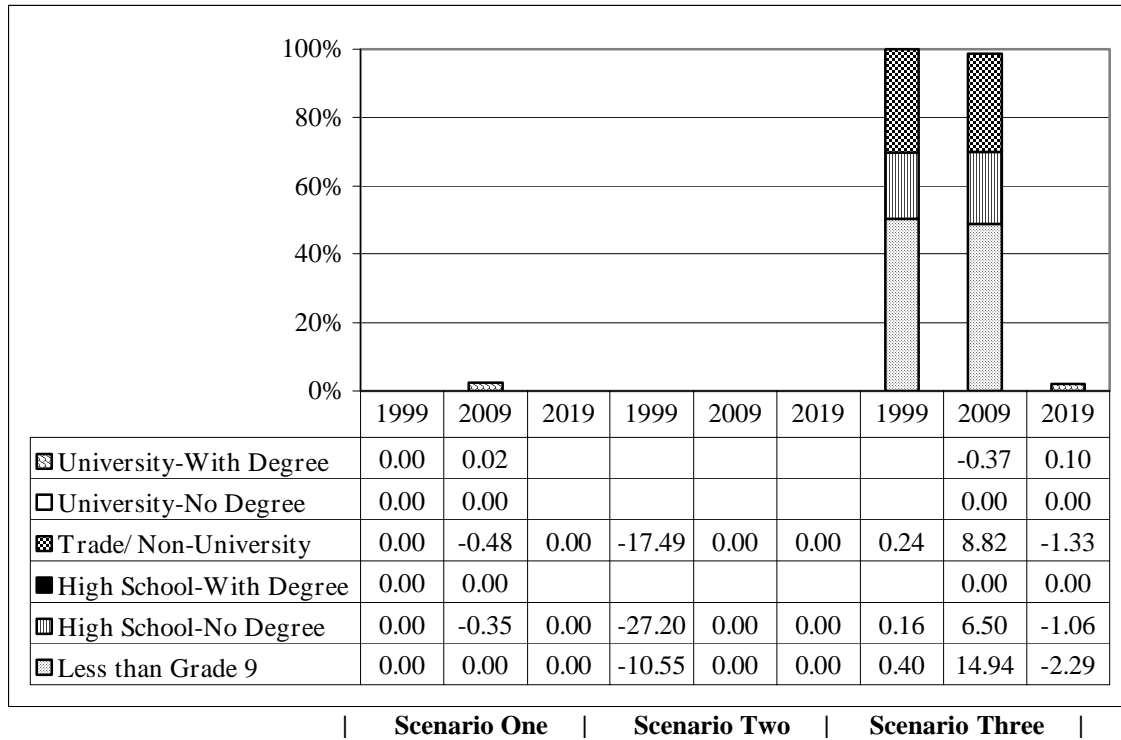


Figure 32. Job Creation Needs by Education for Jean Marie River for All Scenarios

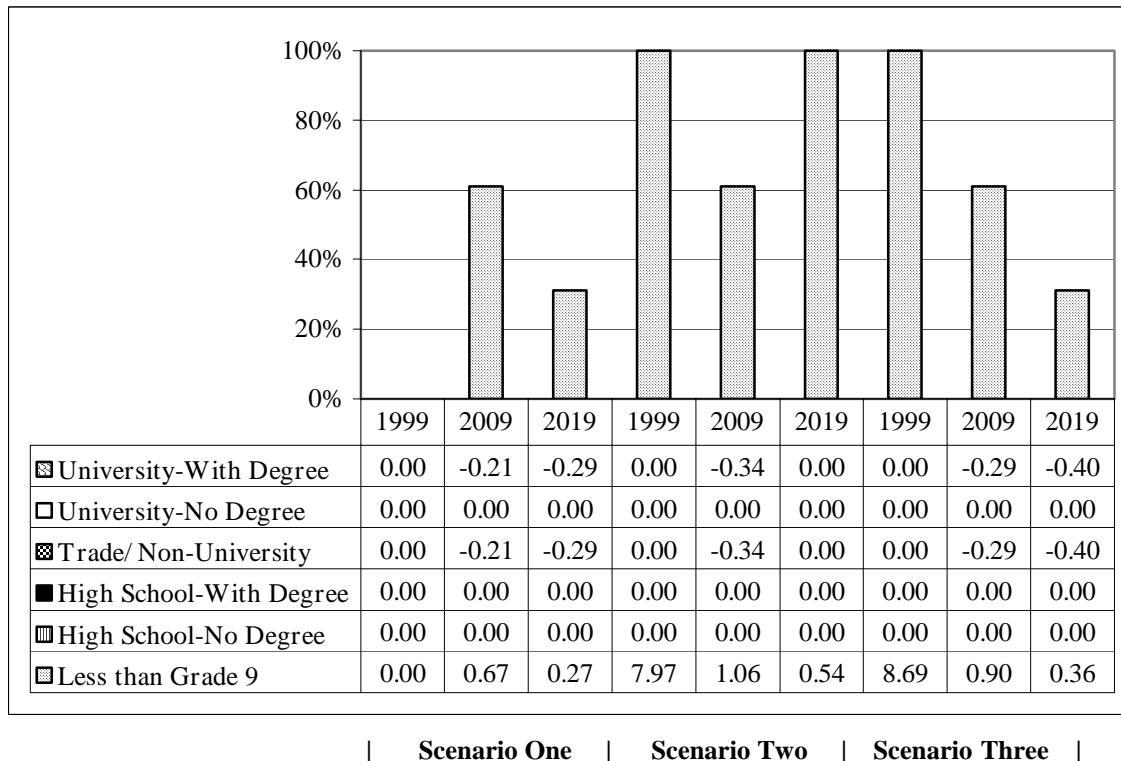


Figure 33. Job Creation Needs by Education for Nahanni Butte for All Scenarios

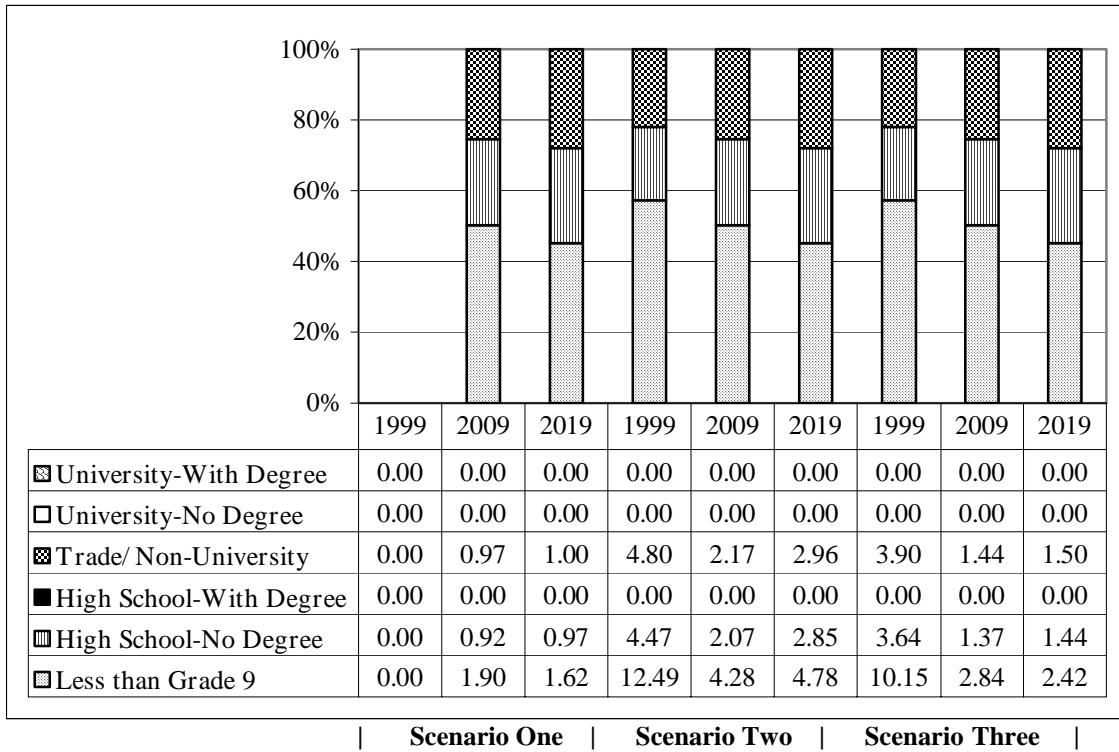


Figure 34. Job Creation Needs by Education for Trout Lake for All Scenarios

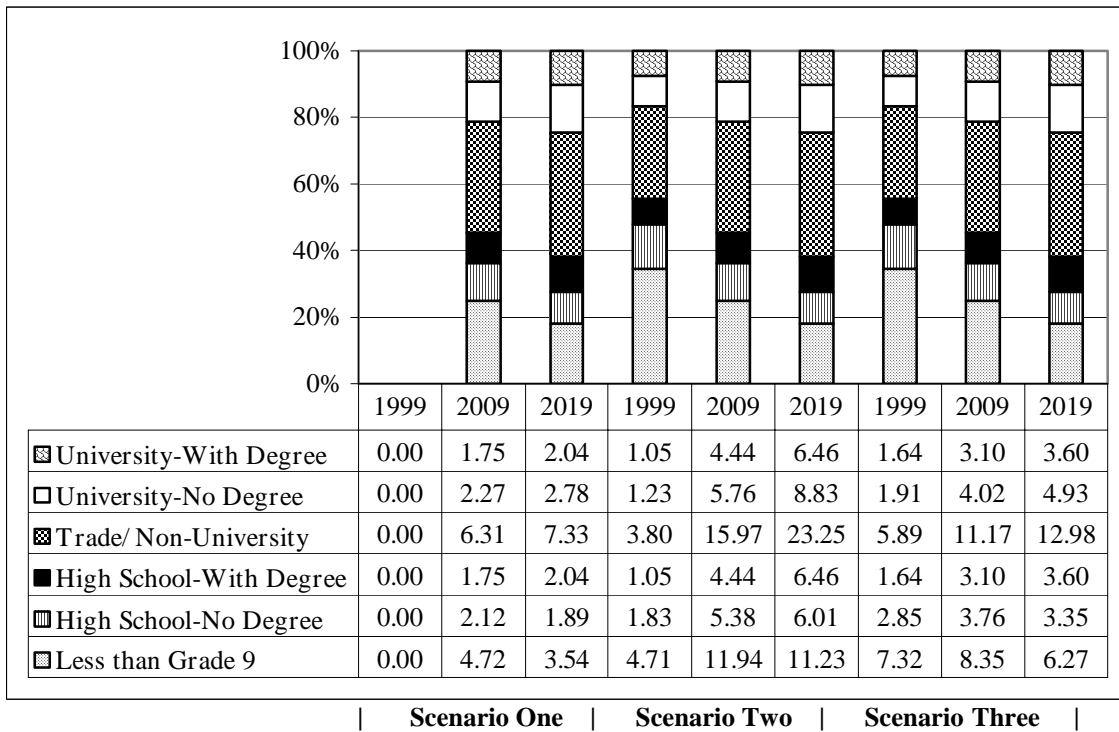


Figure 35. Job Creation Needs by Education for Wrigley for All Scenarios

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Scenario #1 Totals				
	1999	2009	2019	Total
Less than Grade 9	0	53.45	33.91	87.37
High School-No Degree	0	106.75	89.64	196.39
High School-With Degree	0	51.39	49.80	101.19
Trade/Non-University	0	197.95	188.43	386.38
University-No Degree	0	44.11	45.80	89.91
University-With Degree	0	57.64	63.90	121.54
Total	0	511	471	983
Scenario #2 Totals				
	1999	2009	2019	Total
Less than Grade 9	84.27	68.75	50.86	203.87
High School-No Degree	50.06	114.90	102.06	267.02
High School-With Degree	28.58	54.48	56.26	139.32
Trade/Non-University	108.62	209.99	214.93	533.55
University-No Degree	21.32	46.96	53.10	121.37
University-With Degree	25.71	59.74	71.01	156.46
Total	319	555	548	1422
Scenario #3 Totals				
	1999	2009	2019	Total
Less than Grade 9	160.07	83.44	40.38	283.89
High School-No Degree	105.99	125.86	94.74	326.60
High School-With Degree	37.42	56.25	52.72	146.39
Trade/Non-University	171.43	226.09	199.87	597.39
University-No Degree	21.77	46.29	47.81	115.87
University-With Degree	27.96	59.50	65.63	153.10
Total	525	597	501	1623

Note: Due to compounding errors caused by the rounding of original data to intervals of 5 to preserve confidentiality, the sums of the job creation needs by education level do not equal the job creation needs calculated in the previous section.

Figure 36. Total Job Creation Needs by Education Level for all Scenarios & all Communities

Scenario one, two and three estimate that the greatest number of jobs will need to be created for those people with a trade or non-university degree. According to scenario one, the fewest number of jobs will be needed for those with a grade 9 education or less, followed by those with some university education and those with a high school degree. Scenario two and three on the other hand indicate that the fewest number of jobs will be needed by those with some university education, but no degree, followed by those with a high school degree and those with a university degree. Under scenario two and three, those with a grade 9 level education will require a much greater number of jobs than those in scenario one.

- **Scenario One** assumes that labour force participation and unemployment rates will remain at 1999 levels. It is assumed that no new jobs are needed for 1999 in the scenario;
- **Scenario Two** assumes that the labour force participation increases according to the forecast and that the unemployment rate decreases to the 2003 Canadian rate of 7.8%;
- **Scenario Three** assumes that labour force participation is increased to the 1999 average for the NWT and that the unemployment rate decreases to the 2003 Canadian rate of 7.8%.

4.0 Economic & Labour Force Development

The following sections look at the economic development activities that are occurring in the Northwest Territories and Deh Cho, with a focus on the oil and gas industry and the opportunities that will likely be available in the future. It is not our intent to provide a detailed review of economic development opportunities or to fully describe the training opportunities available within the Deh Cho. The information presented in this section is drawn from discussions with over 20 regional and sectoral specialists as well as a review of the applicable literature. Appendix C contains a summary database of the available literature.

4.1 Economic Sectors

Economic development in the NWT is largely based on government spending and the extraction and harvesting of natural resources such as oil, natural gas, minerals and wildlife. In the 1980s the NWT had one of the fastest growing economies in Canada. Between the 1970s and 1990s the number of jobs in the NWT doubled (Education, Culture & Employment, 1989). This was followed by a slow period in the 1990s when business investment dropped to almost half of what it had been the previous decade (RWED, 1997:5). In the past years the NWT has once again begun to experience economic expansion and growth, largely based on the stores of minerals oil and natural gas. With further development of these resources planned for the coming years, the NWT will no doubt experience even further economic growth with investment, job creation and business opportunities.

The following sub-sections look at the economic sectors with greatest potential for future job creation possibilities for the Deh Cho Territory. There is little information available on the economy of the Deh Cho as a separate region, thus information on the sectors is provided for the Territory as a whole and where possible specific information is given for the Deh Cho.

4.1.1 Mining

Minerals including diamonds, gold, lead-zinc, and tungsten and oil and natural gas are key resources spurring the growth of the NWT economy. Diamonds currently constitute 50% of the NWT's total exports. Gold and diamonds together totalled \$696 million in exports in 2000 (RWED, 2001b:1). Currently the NWT has two gold mines and one producing diamond mine with another currently under construction.

For the Deh Cho, tungsten and lead-zinc are more important resources than diamonds or gold. The Cantung Mine, a post-producer of tungsten trioxide is located in the Deh Cho. Operations closed in 1986 due to the flooding of western markets with low-prices Chinese tungsten, but probable reserves still remain 1.27 million tonnes. This would be enough to create 3-4 years of production, and as the price of tungsten increases and deposits in China become depleted, the economics of re-opening this former producer have become more attractive (RWED, 2001b:3). Some of the highest grade lead-zinc deposits are also located in the Deh Cho. It is estimated that the mine in the Prairie Creek area would generate a pre-tax internal rate of return of 45.6% with pre-production capital

costs estimated at only \$40.5 million (RWED, 2001b:4). The development of both tungsten and lead-zinc deposits in the Deh Cho opens the opportunity to create jobs and secondary businesses for Deh Cho residents.

4.1.2 Oil & Gas

Increasing oil and gas exploration coupled with the proposed pipeline (the Mackenzie Valley Gas Project) from the Mackenzie Delta through the Mackenzie Valley to Northwest Alberta are making oil and gas a progressively more important resource to the NWT.

The National Energy Board estimates that the Deh Cho contains over 6 trillion cubic feet of undiscovered natural gas (Oil and Gas Human Resource Development Committee, 2000:3). Here the Liard Valley and Cameron Hills are seeing increasing activity that is estimated to almost double from 14 applications requiring regulatory approval in 2001/2002 to 24 applications in 2003/2004⁸. Investment in the Liard Valley alone has already surpassed \$10 million dollars a year and this activity is expected to remain steady through to 2011 (RWED, 2001:3; Ad Hoc Committee on Common Assumptions RWED, 2002:13). “Although exploration activity is bound to be influenced by external factors such as the price of natural gas and oil, and the availability of transportation systems, if the Deh Cho region were fully open for business, there could be renewed exploration activity similar to northern Alberta and B.C.” (Oil and Gas Human Resource Development Committee, 2000:4).

The possible Mackenzie Valley pipeline would travel south through the Deh Cho Territory in closest proximity to Wrigley, Fort Simpson, Trout Lake and Jean Marie River, but would have an impact on all communities in the Deh Cho. The development of this pipeline has already contributed to job creation and economic development to the area. According to the Mackenzie Gas Project newsletter “Focus on Jobs” (November/December, 2002), people and companies based in the Deh Cho are involved in all aspects of pipeline preparation including the collection of environmental, socio-economic and traditional knowledge, engineering and air transportation. As the Mackenzie Valley Project moves into the construction and then operational phases, numbers job creations opportunities will emerge. Thousands of person hours will be created in a variety of positions.

4.1.3 Tourism

Tourism is the NWT’s second largest private industry after mining (RWED, 2001:2). It is a growing industry. In 1998/1999, approximately 35 000 tourists visited the NWT, spending \$30 million dollars, \$13 million of which remained in the NWT (RWED, 2001a:1). Tourism consists of 4 distinct markets: summer, hunters, direct fly-in and ‘Aurora’ winter tourism. In 2000 summer tourism was valued at \$10.7 million, hunters \$8.9 million, direct fly-in \$1.5 million and Aurora winter tourism \$4.7 million (RWED, 2001a:3).

⁸ This increased activity level is based on the assumption that new lands will be opened to exploration activity starting in 2003.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Of all tourists who come to the NWT, approximately 70% travel to the southern Mackenzie area which includes the North Slave, South Slave and Deh Cho regions (RWED, 1997b). This large portion of tourists is in part due to the fact that the southern Mackenzie is connected by an excellent highway system. In the Deh Cho this highway system is called the Deh Cho Travel Connection, which includes the Liard, Mackenzie and a portion of the Alaska highways. This system allows access to and from northern Alberta and British Columbia. Nahanni National Park Reserve is located in the Deh Cho. There are also 4 territorial parks in the Deh Cho: the Blackstone, Fort Simpson, Liard River Crossing and Samba Deh Falls. According to Gerd Ficke, Regional Tourism Development Officer for the Deh Cho, the possibilities for tourism development in the region are limitless. The natural beauty of the area, combined with the current level of infrastructure development provides an excellent base to market the Deh Cho as a tourism destination (Personal communication, Gerd Ficke, Regional Tourism Development Officer, February, 2003). As tourism becomes an increasingly important part of economic growth in the NWT, the importance of the Deh Cho and job and business opportunities will only increase.

4.2 Potential Employment & Business Opportunities –Focus on the Mackenzie Valley Project

With the increasing economic development surrounding the mining, oil and gas and tourism industry planned for the coming years, it is clear that there will be many employment and business opportunities available to residents of the NWT and the Deh Cho. This is especially true for the oil and gas industry. With planning and development for a Mackenzie Valley Pipeline proceeding, government, industry and non-governmental organizations have turned their focus here, speculating on the impacts of this project on northern communities and people, the economy and social life; as such, almost all of the current literature related to economic development and job creation focuses on the construction and operation of a Mackenzie Valley Pipeline (Mackenzie Gas Project or the Project).

Employment opportunities created by the Project will fall into two general categories: direct and indirect. Direct employment is the employment resources, including contract resources, required by an entity to meet its objectives (PricewaterhouseCoopers, 2000a: 3). Indirect employment are the ripple effects that occur when the entities buy inputs, goods and services from other firms, and those firms expand to meet the demand (PricewaterhouseCoopers, 2000a:3). It is likely that opportunities will occur in bursts, occurring seasonally with the majority of jobs ending in 2009 when construction is complete.

4.2.1 Potential Direct Employment Opportunities

The Mackenzie Gas Project is conceptualized in three phases: (1) project definition, (2) construction and (3) operation. The Project is currently in the project definition phase. If the phases proceed as expected, natural gas production could start in 2008 or as early as

2007 (Mackenzie Gas Project, 2002:2). According to members of the Mackenzie Valley Producers Group⁹:

The proposed project can create many opportunities during the next several years. It is expected to generate an estimated 2,600 jobs during the peak construction period and about 50 jobs in long-term pipeline and facility operations. During the Project Definition (pre construction) phase, a number of other job and business opportunities are available. (Mackenzie Gas Project, 2002:2)

Direct job opportunities fall into three general categories (Education, Culture and Employment, 2001; Mackenzie Gas Project, 2002):

- 1. Entry Level Positions**—These positions require little related experience. On-the-job training will be provided for these jobs. Applicants usually must be able to read and write English and, in some cases, may need a grade 12 education or equivalent. Examples include labourer, cook's helper, seismic driller's helper, field assistant, and swamper.
- 2. Skilled Positions**—Job applicants for skilled positions usually require an ability to read and write English and a grade 12 education or equivalent. Employers often request a technical diploma, trade certification or enrolment in an approved apprenticeship programme. Previous work-related experience is considered an asset. Examples include seismic driller, derrick hand, compressor operator, mechanic, welder, carpenter, gas utility operator and pipefitter.
- 3. Professional Positions**—Applicants for professional positions generally require a college diploma or university degree. Examples include seismic recording technician, petroleum technician, geological technician, warehouse operator, plat foreman, drilling foreman, geologist, research analyst, and land surveyor.

The exact number of jobs available throughout different stages of the Project and the life of the pipeline (expected to be approximately 25 years) is largely unknown. Many, including the Mackenzie Valley Project (2002), Wright Mansell Research (2002) and PricewaterhouseCoopers (2000) have conducted studies to estimate the amount of employment which may be generated from the Project. These estimates are summarized below.

Mackenzie Valley Project Estimates:

The construction phase of the pipeline will begin with initial preparation. Here, the oil and gas companies involved in the project estimate 800 positions could be required to carry out all necessary activities (Mackenzie Valley Project, 2002:5). These activities include the location, transportation and preparation of granular materials, the construction of roads and the construction of temporary self-contained camps. Figure 33 outlines the type, number and skill level of estimated job opportunities during preparatory activities. Pipeline and facilities construction itself is proposed to take place over two winter seasons with crews working on clearing, grading, stringing pipe, bending pipe, digging ditches, welding pipe, back-filling, tying-in pipe, cleaning up and testing pipe. Figure 34

⁹ The Producers group includes: Imperial Oil, ConocoPhillips, Shell Canada and ExxonMobil.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

outlines the job opportunities estimated to be available during this phase. Preliminary studies suggest 2600 jobs will be created by activities associated with pipeline construction. During the operation phase, it is estimated that approximately 50 full-time employees will be required (see Figure35). Other seasonal jobs, such as maintenance of the pipeline corridor, facilities and access roads, will likely provide other opportunities.

Job Title	Entry (E), Skilled (S) or Professional (P) Level	Estimated Number of Jobs¹⁰ (over 2 seasons)
Engineering Procurement & Construction Management	S/P	195
Environmental & Socio-economic Specialists	E/S/P	45
Subtotal		240
Granular Material Supply		
Foreman	S	5
Heavy Equipment Operator	S	45
Dump Truck Driver	S	80
Granular Plant Foreman	S	10
Granular Plant Operator	P/S	20
Mechanic	S	10
Labourer	E	35
Administrative Assistant	S	10
Subtotal		215
Access Roads Construction		
Foreman & Assistant Foreman	S	10
Principal Operator	S	20
Dup Truck Driver	S	60
Flat Deck Driver	S	5
Surveyor	P	10
Mechanic	S	10
Labourer	E	15
Bus Driver	S	10
Subtotal		140
Camps & Catering		
Manager	P	5
Chef	S	5
Cooks & Bakers	E/S	25
Kitchen Staff	E	95
Camp Attendant/Utility	E	70
Pipefitter or Gasfitter	S	5
Electrician	S	5
Maintenance	E	5
Subtotal		215
TOTAL		810

Figure 33. Preliminary Estimate of Job Opportunities during Preparatory Activities

¹⁰ The number of Jobs for each position is based on estimates of jobs hours needed to complete work.

Job Title	Entry (E), Skilled (S) or Professional (P) Level	Estimated Number of Jobs ¹¹ (over 2 seasons)
Management & Supervisory		
Project Manager	P	5-10
Superintendent/Assistant Superintendent	P	20
Foreman & Assistant Foreman	S	90
Safety Coordinator	S	5-10
Subtotal		120-130
Office & Purchasing		
Office Manager	P	5-10
Clerk	E	5-10
Purchasing Agent	S	5-10
Subtotal		15-30
Specialists & Technologists		
Environmental & Socio-Economic Specialists	E/S	25-30
Engineer	P	20
Technologist	S	20
First Aid Technician		10
Subtotal		75-80
Trades		
Electrician	S	20-25
Heavy Equipment Operator	S	700-710
Mechanic	S	60-65
Mechanic's Helper	E	20
Pipefitter (facilities)	S	40
Piping & Instrument Fitter	S	10
Sheet Metal/Structural Steel Worker	S	5-10
Truck Driver	S	300-310
Welder (pipeline & facilities)	S	290-300
Welder's Helper	S/E	240-250
Other Facilities Construction Trades	E/S	15-20
Subtotal		1700-1760
Other Jobs		
Labourer/Swamper	E	520-530
Oiler	E	85-90
Parts Runner	E	10
Security (Watchman)	E	15
Warehouseman	S	15
Subtotal		645-660
TOTAL		2555-2660

Figure 34. Preliminary Estimate of Job Opportunities During Pipeline & Facilities Construction

¹¹ The number of jobs for each position is based on estimates of jobs hours needed to complete work.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Position	Number of Jobs
Foreman	3
Process/Field Operators	20
Mechanics	5
Electrical/Instrumentation	6
Technicians-General	13
Welders	3
Total	50

Figure 35. *Preliminary Estimate of Job Opportunities for Operations*

Wright Mansell Research Ltd. Estimates:

In 2002, Wright Mansell Research Ltd. was hired by the Government of the Northwest Territories and TransCanada PipeLines Ltd. to explore the economic impacts associated with the development and production of natural gas reserves in the Mackenzie Delta and the construction and operation of a pipeline down the Mackenzie Valley. Generally they conclude:

Employment and labour income impacts in the NWT are also expected to be substantial. The overall employment impact of 58000 person years translates into an average annual impact of more than 1800 jobs per year over the 2002-2033 period. This could largely eliminate unemployment in the region given current unemployment levels. However, it could be expected that many of the region's discouraged workers (who have dropped out of the labour force) would be drawn back into the labour force given the improved economic environment. Also, there would likely be labour force growth due to natural increase in population and net in-migration. (Wright Mansell Research, 2002:11)

The study concludes that during the construction period (2006-2008) approximately 2500 person years of employment would be created in 2007 and 1800 person years in 2008. Field development would create an additional 2300 person years. Total construction related employment could total 54000 person years.

The report notes that “given that over 90% of this impact would be located in the NWT and that last year the region had only 2000 officially unemployed people in total (many of whom would not have adequate skills to take the particular types of jobs that the project would create), a significant number of temporary workers from other parts of Canada would almost certainly have to be brought into the NWT to aid in pipeline construction and field development” (Wright Mansell Research, 2002:35).¹² Further, because the work must take place during the a concentrated period in the winter, a person year of

¹² As stated previously, unemployment related statistics can be misleading as they only include those persons actively seeking work. Such statistics do not account for individuals who have given up searching for work or those individuals who are receiving other social benefits as their employment benefits expired.

employment must materialize over a period of a few months, thus a significantly greater number of people would be required to complete the work on time.

Once the pipeline is constructed, it is estimated that 2300 person years of construction-related employment would be created for 25 years beyond 2008. This pattern is relatively stable and would provide opportunities for residents to participate on a more stable, reliable basis. Long-term opportunities would also exist in the operations phase. During this period direct employment is expected to exceed 14000 person years over the 25 year operations phase. This number could increase if the number of gas fields increase.

PricewaterhouseCoopers Estimates:

PricewaterhouseCoopers (2000) offers yet another forecast of the direct employment opportunities available in the construction phases of a pipeline and its associated compressor stations. The report estimates that the construction of the gas pipeline, gas compressor stations and the parallel oil pipeline and pumping stations is estimated to be between 3000 to 4000 people: 251 in 2006; 3345 in 2007; and 3328 in 2008 (PricewaterhouseCoopers, 2000:27-31). Further, they look at the employment estimate for construction of the gathering system: 16 jobs in 2006; 798 jobs in 2007; and 798 jobs in 2008 (PricewaterhouseCoopers, 2000: 21-22). For the construction of gas processing plants employment estimates are as follows: 1068 in 2006; 2017 in 2007; and 1885 in 2008 (PricewaterhouseCoopers, 2000:25). When the gathering systems and processing plants are included in the direct employment estimates, the numbers jump dramatically. A separate report by PricewaterhouseCoopers states (PricewaterhouseCoopers, 2000a:3), “when the Mackenzie Valley Pipeline proceeds there will be a peak of 6721 direct employment jobs in 2007.” Further, “in the Mackenzie Valley Pipeline scenario the main requirements will be for Trades Helpers and Labourers (1846), Welders (808), Heavy Equipment Operators (742), Cleaners (358), Drivers (308), Electrical Trades (245), Carpenters (224), Mechanics (224), Chef and Cooks (159)” (2000:3). Again, many more people will be required as the majority of jobs will take place in the shorter winter seasons, rather than throughout the entire year.

While the construction phase of the pipeline project will bring incredible employment opportunities to the people of the Northwest Territories, these are temporary jobs with the majority ending in 2009. PricewaterhouseCoopers estimates that only 200-300 permanent jobs will be created by the pipeline project, with an additional 168 permanent jobs in the gas fields and gas processing plant that will feed the pipeline (PricewaterhouseCoopers, 2000:15).

Deh Cho Socio-Demographic & Job Creation Needs Analysis

4.2.2 Potential Indirect Employment Opportunities

As mentioned previously, direct employment is will not be the only means by which people in the Deh Cho might benefit from the Mackenzie Valley Project; many indirect employment opportunities will be available in the form of business opportunities for Northern and Aboriginal businesses. These opportunities will be available in both the construction and operation phases.

For example, during the construction phase, there will be an increased need for goods and services which will be supplied largely through the use of subcontractors. Subcontracting businesses pose a business opportunity for people in the North. In fact, many of the jobs listed previously will be supplied through contractors and suppliers. Potential opportunities may be found among the following (Mackenzie Valley Project, 2002:6-7)¹³:

- Accommodations
- Forms, rebar, cribbing, cement finishing, masonry products
- Travel service arrangement
- Taxi
- Drilling equipment
- Banking
- Restaurants
- Building supplies
- Safety and medical
- Laundry
- Electrical contracting & supplies
- Transportation & logistics
- Water delivery
- Carpentry & finishing
- Heavy equipment rental, repairs & service
- Sewage treatment
- Plumbing contracting & supplies
- Fuels & fuel storage
- Garbage disposal
- Heating, ventilation & air conditioning
- Office related needs
- Snow removal
- Power supply & generation
- Office administration
- Communications
- Welding contractors & supplies
- Community consultation coordinators
- Granular materials
- Environmental monitors
- Employment & training counsellors

¹³ See Crosscurrent Associates 2000 for additional business opportunities that may be available to the people of the Deh Cho.

- Renewable resource technicians
- Small engine repair, supply & rental
- Industrial supplies
- Traditional knowledge specialists

PricewaterhouseCoopers (2000:17) further note that there will also be business opportunities surrounding conducting environmental impact assessments and archaeological surveys, constructing and managing barge landing sites and airstrips, road and air transportation services, providing social service workers to address community needs, and first aid and emergency medical services. Maru Management (2002:61) suggests that the “business opportunities that will most likely match the capabilities and capacities of the NWT business community will involve:

- Support service to the material supply chain
- Support to operate, or repair light or heavy equipment
- Services needed by the work forces
- Complementary construction services in the many pipeline construction processes
- Supply of material and resources origin in the area.”¹⁴

It is estimated that anywhere from 250 to 1400 lasting secondary jobs will be created by the pipeline, including jobs associated with further exploration activities encouraged by the pipeline’s existence (PricewaterhouseCoopers 2000:15). The major effects of indirect and induced employment will likely be felt in larger centers rather than in the smaller communities.

4.3 Labour Force Development

The ability of NWT residents to participate in, and benefit fully from, resource development opportunities such as the Mackenzie Valley Pipeline, is limited in part by educational achievement and skill level. “Northerners do not have the access to Northern jobs because they lack the necessary formal education. The skill requirements of our economy are high and rising. In addition to addressing the skill deficits of its population, the NWT has to train its workforce just to keep up with the changing needs of the workplace” (Education Culture and Employment, 1989:3).

A key challenge for the Deh Cho and the NWT is to ensure that when considering the development of natural resources, the employment created by such projects reflects the skill level that local people possess. “Failure to recognize or identify the labour force and their skill levels, and to engage in meaningful training will result in reduced employment, and restriction into menial and limited labour positions” (Maru Management, 2002:78). In the case of the pipeline project, local people have the skills to do some of the jobs, but many, and most of the stable, long term positions, require a much greater skill level; thus, a great deal of energy on the part of industry, government and local communities, is being put into developing education and training programmes specific to the oil and gas

¹⁴ See “Pipeline Prospects and Insights” (2002) by Maru Management and PricewaterhouseCoopers (2000) for more detailed information on potential business opportunities.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

industry. This is a critical step in ensuring the benefits of development in the north remain in the north.

The skills developed/offered in training programmes most often emphasize the need to develop knowledge and a skill base around a specific industry or position. These programmes are aimed at quickly filling positions that already exist; however, there is also a need to develop the most basic skills such as reading, writing and math and skills that can be used in a variety of positions or industries in the north. The development of natural resources often follows a boom-bust cycle, thus it is important to possess skills that allow flexibility in employment options. For example, as, “to develop business opportunities in the North as they present themselves, emphasis on business administration and accounting skills will be essential. [For the pipeline] it is recommended that training be targeted to provide skilled trades people including heavy equipment operators, electricians, instrumentation specialists, pipe fitters, plumbers, millwrights...” (PricewaterhouseCoopers, 2000:18). Further, Education, Culture and Employment (200b:1) point out that “Many individuals seeking entry into Apprenticeship and unsuccessful due to a lack of skills and knowledge in the areas of reading comprehension, math and science.” These basic skills are essential in developing a strong, adaptable workforce. They are skills that can be of long-term benefit to people, ensuring that once the boom of pipeline construction is complete, people will have skills that will allow them to move into a different position, perhaps in a different economic sector.

In the Deh Cho and throughout the Northwest Territories, training is already occurring. Much of the training programmes focus on the oil and gas industry, while others are aimed at providing a more general educational base. In many cases educational programmes are being carried out by a partnership between industry, government and academic institutions to ensure students are being properly trained to best fulfill positions available. The following is a list of some of the courses and programmes available:

- Academic Preparation (Aurora College) & General Education Development (Aurora College & Petro-Canada)
- Pre-Technology(Aurora College)
- Trade Access(Aurora College)
- Management studies (Aurora College)
- Natural Resources Technology(Aurora College)
- Various Apprenticeship Programmes in Carpentry, Electrical, Heavy Duty Mechanics, Housing Maintainer and Plumbing(Aurora College)
- Heavy Equipment Operator(Aurora College)
- Community Airports (Aurora College)
- Cooking (Aurora College)
- Observer/Communicator(Aurora College)
- Pre employment programmes in heavy duty mechanics and welding(Aurora College)
- Safety Training (Aurora College)
- Truck-training (Aurora College)

- Floor-hand Training and Service Rig Training (Aurora College in Cooperation with the Petroleum Industry Training Services)
- Safety Certification & Drill Rig Training (Community Mobilization)
- Safety Certification & Job Readiness (Community Mobilization)
- Camp Management & Catering (Community Mobilization)
- Safety Recertification (Community Mobilization)
- Supervisor Programme (Community Mobilization)
- Drill Rig & Seismic Orientation (Community Mobilization)
- Petroleum Industry Training Services (PITS) (Aurora College & Petro-Canada)
- EOS Pipeline & Facilities & Training Programme (EOS Pipeline with students sponsored by Education, Culture & Employment)—to provide participants exposure to what is involved in pipelining and with the type of work and requirements of EOS.
- Class 5, 3 & 1 Driver Training (Education, Culture & Employment /Aurora College)
- St. Johns Ambulance Instructor Certification (Education, Culture & Employment /Aurora College)
- WHMIS (Education, Culture & Employment /Aurora College)
- TDG (Education, Culture & Employment /Aurora College)
- Entrepreneurial Training (Education, Culture & Employment /Aurora College)
- Office Administration (Education, Culture & Employment /Aurora College)
- Contract Administration (Education, Culture & Employment /Aurora College)
- Cross-Cultural Communication (Education, Culture & Employment /Aurora College)
- Floorhand Rig Training (Education, Culture & Employment /Aurora College)
- Accounting Courses (Education, Culture & Employment /Aurora College)
- Computer Courses (Education, Culture & Employment /Aurora College)
- Project Management (Education, Culture & Employment /Aurora College)
- Service Rig Training (Education, Culture & Employment /Aurora College)
- Carter/Snowcat Training (Education, Culture & Employment /Aurora College)
- Training On-The-Job (Education, Culture & Employment)
- Apprenticeship Training Assistance (Education, Culture & Employment)
- Schools North Apprenticeship Programme (Education, Culture & Employment)—a secondary school programme where students can become registered apprentices a trade
- Working Together: Providing Opportunities for Students & Youth Programme (Education, Culture & Employment)—to help people make transitions to employment, wage subsidies are available to employers to help offset costs of hiring students and youth with limited skills
- Building & Learning Strategy (Education, Culture & Employment)—aimed at delivering certifiable, competency-based construction training

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Additional training is also planned for the Deh Cho and NWT, with the goal of enabling the maximum participation of Northerners in the development of natural resources. For instance, in 2000 the Oil and Gas Human Resource Development Committee (GNWT, 2000) submitted a proposal to RWED identifying a three-year schedule of activities to promote human resource planning, career development, short-term industry specific training, basic education and longer-term career training, evaluation and fiscal supports. The funding required to carry out these initiatives would total over \$3.5 million dollars.

In summary, economic development, job creation and labour force development are all interconnected. A skilled labour force is better prepared to fill existing jobs, to compete for new jobs and to create more jobs through self-employment or by employing others. When northerners lack the appropriate skills, employers must look for trained employees outside of the north and northerners miss valuable opportunities. A focus on job creation then must be to “strengthen the capacity of the Northern workforce to meet the demands of the labour market by ensuring that northern workers have the skills and knowledge needed to secure wage employment” (Education Culture & Employment, 1989:3).

5.0 Conclusions, Data Gaps & Research Priorities

5.1 Conclusions

This study, “A Socio Demographic & Job Creation Needs Analysis for the Deh Cho Territory”, identified, collected, reviewed, and summarized existing information about the current and future socio-demographics of the study area and estimated job creation needs to the year 2019. Some basic information about economic development and training initiatives in the area has also been discussed. What is clear is that if a large-scale development project such as the Mackenzie Valley Pipeline proceeds, it will create a large number of jobs throughout the NWT. According to the forecasts, many more jobs will be created than unemployed people in the Northwest Territories. Many of these jobs will require a higher level of education than the people in the Deh Cho currently possess, or are expected to possess in the future; consequently many jobs will go to workers who come from the south who poses a higher level of education and skill. The jobs that people in the Deh Cho are qualified for will likely only last for a few short years during the construction phase of the pipeline, producing a boom-bust employment cycle.

At the same time, however, the construction and operation of the Mackenzie Valley Pipeline will offer the opportunity for people to achieve training and education. As shown, there are name training initiatives occurring and planned for the Deh Cho and NWT. These initiatives are both industry specific, and are aimed at providing people with basic skills that will be of benefit in almost any industry. Additionally, this type of development project allows the opportunity for Aboriginal business to grow and prosper and find their niche in the marketplace. Many business opportunities that will arise can, with the proper planning, continue long after the initial boom caused by the construction of the pipeline. What is clear then is that, while the pipeline, in and of itself, may not provide long term employment opportunities, it does provide the prospect for build an educated, experienced workforce that is better able to participate in and develop the economy.

5.2 Data Gaps & Research Priorities

During the preparation of this report a number data gaps and priorities for further research were noted as follows:

- Statistical information on the Deh Cho as an inclusive territory or region is not available or produced by responsible government agencies. While totals for the territory are provided at various points throughout this report, these do not include any unorganized communities that may exist and were calculated from individual community data. It is thus recommended that the Committee approach the NWT Bureau of Statistics and ask them to make future data compilations available for the Deh Cho Territory;
- Statistical information on the smaller Deh Cho communities is unavailable. Due to issues of confidentiality and privacy, government agencies do not release all statistics about communities with populations less than 100. While the total population of these communities constitutes approximately 5% of the total population of the Deh Cho, it is important to consider all communities as one often

Deh Cho Socio-Demographic & Job Creation Needs Analysis

sees the greatest difference in socio-economic status between small and larger communities. The Committee may wish to lobby the NWT Bureau of Statistics to release this information to them in separated or aggregate form, or the Committee may wish to engage in primary research activities in these communities.

- As there are differences in education levels, employment opportunities and other factors between large and small communities, the forecasts and other projections made herein are affected by the inclusion (or exclusion) of certain communities. For instance the forecasts and other calculations for the Deh Cho as a whole include the community of Hay River, a community which has significantly different characteristics than other communities in the Territory. It is recommended that the Committee review the communities included in this study.
- Much information about economic development is available for the NWT as a whole; however, more specific information on economic development activities in the Deh Cho Territory and the impacts of larger, NWT wide development on the Deh Cho is not available;
- The majority of information on economic development opportunities and job creation needs focus on the oil and gas industry; similar information on about different sectors of the economy, such as mining and tourism, is much more limited. Such information would be useful in land use planning and would offer a broader information base for decision-making.

Bibliography & Works Cited

2001: Deh Cho First Nations Interim Measures Agreement.

2001: Pre-Feasibility Study of the Pipeline Construction Industry; Prepared for the Indian Resource Council of Canada.

2000: NWT Tourism—The 2006 Challenge, Towards a Tourism Strategy.

Ad Hoc Committee on Common Assumptions

2002: Common Assumptions about Oil & Gas Activity in the Northwest Territories; Government of the Northwest Territories, Yellowknife, NWT.

Aurora Research Institute & K.W. Putt Consulting Inc.

2000: Secondary Industries & Value Added Activities Study; Prepared for the Mackenzie Valley Development Planning Committee Secondary Industries and Value Added Activities Subcommittee.

Bureau of Statistics

2002/2003: www.stats.gov.nt.ca.

2001: 2001 NWT Socio-Economic Scan Draft; Government of the Northwest Territories, Yellowknife.

1999: 1999 NWT Labour Force Survey: Overall Results & Community Detail; Government of the Northwest Territories, Yellowknife.

1989: 1989 NWT Labour Force Survey; Overall Results & Community Detail; Government of the Northwest Territories; Yellowknife.

1989: 1989 NWT Labour Force Survey: Labour Force Activity, Education & Language; Government of the Northwest Territories, Yellowknife.

1989: 1989 NWT Labour Force Survey Wage Employment & Traditional Activities; Government of the Northwest Territories, Yellowknife.

Canadian Energy Research Institute

2002: Activity North of 60°: Forecast Prepared for the Department of Indian Affairs and Northern Development; Prepared for the Department of Indian Affairs and Northern Development.

Crosscurrent Associates

2000: Hay River Hydrocarbon Business and Employment Strategy Project Final Report; Submitted to Hay River Economic Development Authority, Hay River, NWT.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Deh Cho Business Development Centre

2002: Deh Cho Business Development Centre Annual Report 2001/2002.

Deh Cho First Nation Nahehdeh

1995: The Deh Cho Means Business. A Framework for Economic Development in the Deh Cho; Report on the Deh Cho Economic Development Conference.

Donihee, John

2001: An Overview of the Implementation of Land Claims Based Regulatory and Benefits in the NWT; Prepared for the Pacific Business & Law Institute Conference, Calgary Alberta, November 2001.

Education, Culture & Employment (ECE)

2002: Oil & Gas Update: Volume 1 Issue 4 (January); Government of the Northwest Territories, Yellowknife.

2002A: Oil & Gas Update; Volume 1, Issue 9 (November); Government of the Northwest Territories, Yellowknife.

2001. Jobs in Oil and Gas; Career Opportunities Series; Government of the Northwest Territories, Yellowknife.

1989. Education Culture and Employment Labour Force Development Plan...A Workable Approach; Government of the Northwest Territories, Yellowknife.

Government of the Northwest Territories (GNWT)

2000: A Human Resource Development Plan Related to Non-Renewable Resources in the NWT; Government of the Northwest Territories, Yellowknife.

2000a: Towards a Better Tomorrow: A Non-Renewable Resource Development Strategy for the Northwest Territories; Government of the Northwest Territories, Yellowknife.

Harbour, Dave

2002: Arctic Gas Projects: An Overview; Northern Gas Pipelines, Anchorage.

Kennett, Steven A.

2000: Aboriginal Communities & Non-Renewable Resource Development: State of the Debate Report; Prepared for the National Round Table on the Environment and the Economy.

Mackenzie Valley Producers Group

2002: Mackenzie Gas Project: Potential Job and Business Opportunities.

Mackenzie Gas Project

2002: Focus on Jobs; November/December Issue.

Maru Management

2002: Pipeline Prospects and Insights; Prepared for Altaf Lakhani, Manager, Aboriginal Economic Development, Department of Indian Affairs and Northern Development.

Northwest Territories Business Development Corporation

2002: Business Development Corporation 2002 Annual Report; Business Development Corporation, Yellowknife.

Northwest Territories Development Corporation

2002: Northwest Territories Development Corporation 2001-2002 Annual Report; NWT Development Corporation, Yellowknife.

Oil and Gas Human Resource Development Committee

2000: Training Initiatives for the Oil & Gas Industry: A Proposal for the Oil and Gas Industry in the NWT; Prepared for Chuck Parker, Co-ordinator, Mackenzie Valley Project, Resources, Wildlife and Economic Development.

Price Waterhouse Coopers

2000; Mackenzie Delta Energy Development Business and Employment Opportunities; Prepared for the Inuvialuit Regional Corporation.

2000a: Oil and Gas Human Resources Strategic Plan Final Report; Prepared for the Inuvialuit Regional Corporation Human Resources Department.

Resources, Wildlife and Economic Development (RWED).

2002: Business Development Fund Annual Report 2001/2002.

2002a: Business Development Fund Recipients Report.

2002b: Investment and Economic Analysis Business Survey 2001/2002; Government of the Northwest Territories, Yellowknife.

2002c: Regional Business Trends in the NWT. Notes gathered by RWED Investment & Economic Analysis.

2001: NWT 2001: The Northwest Territories Economy at a Glance; Government of the Northwest Territories, Yellowknife.

2001a: NWT 2001: Tourism in the NWT; Government of the Northwest Territories, Yellowknife.

2001b: NWT 2001: Mining in the NWT; Government of the Northwest Territories, Yellowknife.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

2001c: NWT 2001: Oil & Gas in the NWT; Government of the Northwest Territories, Yellowknife.

1997: Northwest Territories Economic Framework: A Coordinated and Integrated Approach to Economic Development; Government of the Northwest Territories, Yellowknife.

1997a: Northwest Territories Economic Framework Sector Profile: Oil & Gas; Government of the Northwest Territories, Yellowknife.

1997b: Northwest Territories Economic Framework Sector Profile; Travel & Tourism; Government of the Northwest Territories, Yellowknife.

Wright Mansell Research Ltd.

2002: An Evaluation of the Economic Impacts Associated with the Mackenzie Valley Gas Pipeline and Mackenzie Delta Gas Development; Prepared for the Government of the Northwest Territories and TransCanada Pipelines Ltd.

Appendix A

Socio-demographic & Job Creation Needs Proposal

Deh Cho Socio-Demographic & Job Creation Needs Analysis

A Proposal to undertake:

A Socio-Demographic and Job Creation Needs Forecast for the Deh Cho Territory, NWT

Proposal Closing Date: October 16, 2002

Submitted by:

PACTeam Canada

Project Team: Barry Hunter, and Sara Geirholm

**PACTeam Canada
Suite 200, 10720 – 113 Street
Edmonton, AB T5H 3H8
Tel/Fax: (780) 944-2701
info@pacteam-ca.org
www.pacteam-ca.org**

1.0 Introduction and Background

The Deh Cho Land Use Planning Committee is responsible for developing a land use plan for the Deh Cho territory, pursuant to the Deh Cho Interim Measures Agreement. To assist in the completion of this work, the Committee is seeking specialized services, as outlined in the request for proposals (Appendix 1). Generally, the Committee requires the preparation of a literature review and accompanying community statistics that will contribute to the information base to be utilized in the development of the land use plan for the Region.

The purpose of this proposal is to outline the background and experiences of our project team, and to describe our methods, the deliverables and to outline the schedule associated with the provision of “A Socio-Demographic and Job Creation Needs Forecast”.

2.0 Objectives

As identified in the project terms of reference, the objectives of the work are:

- ♦ To identify, collect, and summarize existing information,
- ♦ To review and analyze the existing literature in order to document the current state of academic, government, NGO, and industry knowledge that will support the preparation of an accurate socio-demographic forecast for the Deh Cho, including current status, data gaps, and research priorities,
- ♦ To consult with officials with research and management responsibilities for activities relevant to job creation and training in the Deh Cho territory, and/ or those who are involved either currently or are planning to engage in work, or related research in the area of job creation and training in the Deh Cho,
- ♦ To prepare tables, charts, graphs, and projections that form part of a socio-demographic maps and jobs creation forecast, and,
- ♦ To prepare reports documenting the above tasks and results.

3.0 About PACTeam Canada

The proposed works will be undertaken by a project team whose members are drawn from the firm PACTeam Canada. With project team members selected specifically for their specialized skills that contribute to the project, the Deh Cho Land Use Planning Committee is ensured the best project team possible.

The lead firm for this project is: PACTeam Canada:
Suite 200, 10720 – 113th Street
Edmonton, AB T5H 3H8
Tel/Fax: (780) 944-2701
info@pacteam-ca.org

The designated contact person is: Sara Geirholm MA

A general descriptions of our firm can be found below.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

3.1 PACTeam Canada

PACTeam Canada is an innovative group of professionals dealing in integrated social and environmental resource management, community and institutional development and governance issues. We have experience in many parts of Canada and the world. We have significant experience within the Northwest Territories.

Our approach is both holistic and participatory. We combine our technical knowledge of the social and natural sciences with a joint learning perspective to facilitate government, organizations, communities and industry in working more effectively with each other and their resource base.

PACTeam Canada is 100% Canadian owned and operated business. We are affiliated with PACTeam GBR, a European based consultancy group that has complementary specialization. We value this cooperative arrangement, and others, believing that this contributes to assuring the highest of standards.

PACTeam derives its name from the phrase 'Partners for ACTION.' The resultant acronym is a symbol of our commitment to working together.

PACTeam Canada offers its expertise in a concept formulation, policy analysis and development, process accompaniment, evaluation and strategic studies, in the following fields:

- Land use planning
- Integrated social and environmental resource management
- Traditional land use and environmental knowledge studies
- Communications, extension & training
- Citizen participation and cooperative management
- Organisational and community capacity building

Additional details about PACTeam Canada can be found on our web-site, www.pacteam-ca.org.

PACTeam Canada serves clients throughout western and northern Canada from offices in Edmonton, AB.

PACTeam Canada is a well established business and is fully supported with appropriate human, material and financial resources. In addition, the Firm carries insurances suitable to their needs and related to the services they provide.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Durham, UK). Barry has worked with governments, industry, non-governmental organizations, as well as aboriginal groups in many parts of Canada and internationally. As the former Senior Planner for the Sahtu Land Use Planning Board, Barry is very familiar with the NWT regulatory process and the active players in the job creation and community statistics and land use planning sectors. In addition, Barry has completed similar studies in the Sahtu Region and is conversant with the planning models that would utilise the results of studies such as this

Barry will provide research, reporting and backstopping services to the team.

3.3 Project Examples

The balanced experiences and skills of project team members ensure that we are able to deliver cost effective and practical solutions to the Deh Cho Land Use Planning Committee. Our team members have completed numerous projects for government, Aboriginal groups, non-governmental organizations and industry that are relevant to the proposed works. Some of the most relevant and recent project examples are noted below.

Sahtu Land Use Planning Board (SLUPB)

Various Projects

The Sahtu Land Use Planning Board is a co-management board established pursuant to the Sahtu Dene and Metis Comprehensive Land Claim Agreement. PACTeam Canada partners were intimately involved in the operations of this Board, including all aspects of the land use planning process. Specifically, we were involved in identifying information sources, collecting data, extracting relevant data for incorporation into the land use plan, as well as in the development of research projects to fill information gaps. The information collection phase involved over 100 government, industry and other organizations as well as over 900 people from five communities.

Athabasca Denesuline Negotiating Team (ADNT)

Land Claim Negotiations Preparation

The Athabasca Denesuline Negotiating Team is in the process of negotiating a land claim agreement with Canada, and the Governments of Nunavut and the Northwest Territories. To assist the ANDT, PACTeam partners conducted an in-depth analysis of the resource management systems and governance issues within of a number of comprehensive land claim settlements in Canada and internationally. Relevant information was collected via an extensive literature search and discussions with key players. The goals and aspirations of our clients and the information collected were then discussed in a workshop/planning session. The final product was a comprehensive report that summarised the relevant information as related to the needs of our clients.

Ducks Unlimited

Ramparts River and Wetlands Protection Initiative

The community of Fort Good Hope expressed an interest in seeking long term protection of a series of wetlands located near their community. To help facilitate this Ducks Unlimited provided the funding to hire PACTeam Canada who were responsible for gathering all existing information on the site, compiling summaries, creating a series of maps (using a geographic information system (GIS)) and creating a written report. This information binder was discussed at a community workshop.

4.0 Methods

4.1 Preamble

The vision is to create not only a set of maps, but a data base and a set of methods that allow the land use planning committee to perform further analysis. Creating a land use plan is a multi year undertaking and it is quite possible that the committee will find it necessary or desirable to reassess some of the findings.

4.2 Specific Tasks

Using the above points and the tasks listed in the RFP the following steps are envisioned:

1. Attend the project initiation meeting to ensure that the Deh Cho Land Use Planning Committee and the project team are aware of each other's concerns and expectations.
2. Consult with appropriate job creation and training, and other officials, tourism industry, NGOs and regulatory agencies to identify possible sources of information, to discuss existing and potential job creation opportunities, ongoing and past initiatives, available statistics and other considerations.
 - Consult with the land use planner to establish a list of officials to be included in this study.
 - Consult officials through a combination of on site visits and telephone or other interviews.
 - While telephone interviews may be more cost efficient, face to face meetings often yield the best results. We will visit as many officials as possible and contact through other means those that were unavailable.
 - Summarize key findings from the consultation phase with an emphasis on the status of existing knowledge and on information gaps identified by officials.
3. Gather information (literature and data) from government, academia, and other sources including planning studies, statistics, forecasting models, and other reports. Others may include:
 - Officials consulted
 - Academic literature database (e.g. Carl Uncover).
 - Aurora Research Institute Annual Reports.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

4. Summarise the information collected.
 - Use existing summaries or abstracts for literature to avoid unnecessary costs. Analyse only articles that are expected to provide important information beyond that gathered in the consultation exercise
 - Enter literature references and summaries into data base.
 - List key findings and research gaps.

5. Compile graphs, charts, tables and other tools that will describe past, present and future community profiles that describe:
 - A. Current Population 1996 and 2001 (existing Canada Census Data)
 - a table showing total the Deh Cho population, individual community populations, and percentage of regional population in each community (Hay River, Hay River Reserve, Enterprise, Kakisa, Fort Providence, Fort Simpson, Trout Lake, Fort Liard, Nahanni Butte, Wrigley).
 - a pie graph showing percentage of Deh Cho population by community
 - tables and pyramid graphs showing population according to age cohorts for each community and for the Deh Cho territory as a whole

 - B. Past and Future Population
 - tables and line graphs showing historical population growth in each community and Deh Cho territory for Census years 1971-2001, GNWT population model estimate and forecast 1999-2019, and population forecast 1999-2019 using linear /exponential regression (for comparative purposes)

 - C. Current Labour Force Participation, Unemployment, Employment by Sector, Education Level
 - tables and bar graphs showing labour force participation and unemployment as percentages for each community and the Deh Cho territory using 1999 NWT Labour Force Survey
 - tables and bar graphs showing employment by sector, education levels, unemployment levels according to education level, as percentages for each community and the Deh Cho territory using 1996 Census data

 - D. Gross Job Creation Needs Forecast

- Using NWT Labour Force Survey data for 1999, 1994, 1989, and 1984, a linear regression analysis will be conducted on the Labour Force Participation Rate. These data will be projected to the years 2009 and 2019 for each community and the Deh Cho territory.
- Using the GNWT population forecast, gross job creation needs will be calculated for 1999, 2009, and 2019 for each community and the Deh Cho territory using the following formula:
 - $\text{GROSS JOB CREATION NEEDS} = ((\text{POP. OLDER THAN 15 YEARS}) - (\text{EMPLOYED PERSONS IN 1999})) \times (\text{LABOUR FORCE PART. RATE}) \times (1 - \text{UNEMPLOYMENT RATE})$
- Three calculations will be made for 1999, 2009, and 2019 for each community and the Deh Cho territory:
- will assume that labour force participation and unemployment rates remain at 1999 levels
- will assume that labour force participation increases according to the forecast and that the unemployment rate decreases to the 1999 Canadian average
- will assume that labour force participation is increased to the 1999 NWT average and that the unemployment rate decreases to the 1999 Canadian average

E. Job Creation Needs Forecast for Each Education Level

- Using Census data for 1996, 1991, 1986, and 1981, a linear regression analysis will be conducted on the number of working-age population at each education level. These data will be projected to the years 1999, 2009, and 2019 for each community and the Deh Cho territory.
- Job creation needs for each education level will be calculated using the following formula:
 - $\text{JOB CREATION NEEDS FOR EACH EDUCATION LEVEL} = ((\text{POP. OLDER THAN 15 YEARS}) - (\text{EMPLOYED PERSONS IN 1999})) \times (\text{LABOUR FORCE PARTICIPATION RATE}) \times (\text{PERCENTAGE OF WORKING-AGE POPULATION AT EACH EDUCATION LEVEL}) \times (\text{EMPLOYMENT RATE FOR EACH EDUCATION LEVEL})$

Deh Cho Socio-Demographic & Job Creation Needs Analysis

- Three calculations will be made for 1999, 2009, and 2019 for each community and the Deh Cho territory:
 - will assume that labour force participation remains at the 1999 level and that the employment rate at each education level remains at the 1996 level
 - will assume that labour force participation increases according to the forecast and that the employment rate at each education level increases to the 1999 Canadian average
 - will assume that labour force participation increases to the 1999 NWT average and that the employment rate at each education level increases to the 1999 Canadian average
6. Write and submit draft report.
 7. Optional presentation of draft report to the Deh Cho Land Use Planning Committee.
 8. Finalize report after receipt of comments.

4.2 Deliverables

As per the terms of reference, we will submit the following to the Project Manager:

- ♦ six hard copies of the draft report,
- ♦ six hard copies of the final report, addressing comments provided on the draft report,
- ♦ one electronic copy of the final report,

5.0 Time and Cost Estimates

The total professional fees associated with this project are estimated to be \$17,600. Travel and miscellaneous expenses are estimated to be \$4,168. The addition of an optional presentation of the draft report to the Deh Cho Land Use Planning Committee would cost approximately \$1,400 in professional fees and \$1,950 in expenses. The following table highlights the project team members, fees and estimated expenses by task.

Table: Cost Estimates.

Task	Project Team Member	Professional Fees	Estimated Expenses¹⁵
Project Initiation Meeting	Sara Geirholm – 2 days Barry Hunter – 2 days	\$2,400	\$2,300
Consultation Meetings	Sara Geirholm – 3 days Barry Hunter – 3 days	\$3,600	* included with project initiation meeting
Consultation follow-up, data collection, summary and compilation	Barry Hunter – 3 days Sara Geirholm – 10 days	\$7,450	1,368
Write Draft Report	Barry Hunter – 1 days Sara Geirholm – 2 days	\$1,750	250
Optional Presentation	Barry Hunter – 2 days Sara Geirholm – 2 days	\$1,400	\$1,950
Finalise Report	Barry Hunter – 2 days Sara Geirholm – 2 days	\$2,400	250

Please note that the expenses indicated are estimates only and that actual costs will be billed to the client.

¹⁵ Expenses are based on return airfares Edmonton to Hay River, mileage at \$0.41/km, meals at \$50 per person, accommodation at \$100 per night (Fort Providence, Snowshoe Inn) and photocopying charges

Deh Cho Socio-Demographic & Job Creation Needs Analysis

6.0 Schedule

Provided that the contract is awarded by October 21, 2002, the following timeline is possible:

Table: Project Schedule

Task	Timeline
Initiation meeting and consultation exercise	November
Consultation follow-up, data collection, summary and compilation	November, December, January and February
Produce draft report	Complete by February 14
Optional presentation of draft report	February
Produce final report	Complete by March 31

Please note that it may be possible to accelerate this schedule, subject to timely approval of the project by the Deh Cho Land Use Planning Committee and the availability of consulting team members.

7.0 Deh Cho Content

PACTeam Canada and Victory Point FX recognize the need for local capacity building. As such we propose to assist in the development of the Region's human resources by staffing a training position with a Deh Cho resident. The trainee would be exposed to research methods, geographic information systems, reporting and other aspects of this project. The costs associated with this position would be in addition to those presented herein.

Appendix B

Resource People & Contact List

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Initial Contact List:

In January 2003, PACTeam made initial contact with potential resource people through a combination of telephone calls and emails. These people are listed below, in no particular order:

- **Barbara Beck**
Socio-Economic Researcher, Resources, Wildlife & Economic Development, GNWT
- **Sherry Lovely**
Health & Social Impacts Sub-Committee, Resources, Wildlife & Economic Development, GNWT
- **Deana Twissell**
- **Krista Rivet**
Education, Culture & Employment, GNWT
- **Sharon Hopf**
Resource Coordinator, Dene Nation
- **Kerry Robinson**
Manager of Program Development, Aurora College
- **Robert Redshaw**
Senior Advisor, Mackenzie Valley Development Planning, Resources, Wildlife & Economic Development, GNWT
- **Clay Buchanon**
Incentives Consultant, Industrial Initiatives, Resources, Wildlife & Economic Development, GNWT
- **Otto Olah**
Investment & Economic Analysis, Resources, Wildlife & Economic Development
- **Claudia Kelly**
Canada/NWT Business Centre
- **Charles Jacobson**
Fort Simpson Career Centre
- **Dan Westman**
Investment & Economic Analysis, Resources, Wildlife & Economic Development, GNWT
- **Wilma Field**
Economic Development Officer Fort Providence, Resources Wildlife & Economic Development, GNWT
- **Vishni Peares**
Bureau of Statistics, GNWT
- **Dennis Nelner**
Regional Petroleum Advisor, Resources, Wildlife & Economic Development, GNWT
- **Tom Stubbs**
Private Consultant
- **Peter Redvers**
Cross Currents Consulting, Hay River

- **Sean Whelley**
Deh Cho Business Development Centre
- **Suza' Tsetso**
Deh Cho Business Development Centre

Once initial contact was made, if both parties felt it necessary, face-to-face meetings were held during PACTeam's trip to the Deh Cho Territory. Members of PACTeam travelled to Yellowknife, Hay River, Fort Providence and Fort Simpson in February 2003. Meetings were held with the following people, in no particular order:

- **Gerd Fricke**
Regional Tourism Development Officer, Resources, Wildlife & Economic Development, GNWT
- **Dan Westman**
Investment & Economic Analysis, Resources, Wildlife & Economic Development, GNWT
- **Scott Wray**
Investment & Economic Analysis, Resources, Wildlife & Economic Development, GNWT
- **Richard Zieba**
Investment & Economic Analysis, Resources, Wildlife & Economic Development, GNWT
- **Bruce Ashley**
Investment & Economic Analysis, Resources, Wildlife & Economic Development, GNWT
- **Dennis Nelner**
Regional Petroleum Advisor, Resources, Wildlife & Economic Development, GNWT
- **Robert Redshaw**
Senior Advisor, Mackenzie Valley Development Planning, Resources, Wildlife & Economic Development, GNWT
- **Clay Buchanon**
Incentives Consultant, Industrial Initiatives, Resources, Wildlife & Economic Development, GNWT

Appendix C

Annotated Bibliography

Author	
Title	NWT Tourism--The 2006 Challenge, Towards a Tourism Strategy
Publisher	
Place	
Date	2000
Summary	This report provides guidance to stakeholders involved in the tourism sector to enable them to better work together to make tourism a stronger economic and social force in the NWT. Tourism expenditures have declined in the last decade and faces a number of challenges to development.

Author	
Title	Pre-feasibility Study of the Pipeline Construction Industry
Publisher	Indian Resource Council of Canada
Place	
Date	2001
Summary	The purpose of this report is to review the opportunity presented by a Mackenzie Valley pipeline, and to discuss the strategies of the parties associated with this initiative. IT focuses on the MOU negotiated between the Producer Groups and Aboriginal communities, to assess how the equity portion of the Aboriginal groups could be financed, and to what additional benefits relating to construction have been secured.

Author	Ad Hoc Committee on Common Assumptions
Title	Common Assumptions About Oil & Gas Activity in the Northwest Territories
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2002
Summary	Common Assumptions about the impacts of oil and gas activity in the NWT include: ~during the construction period there will be an economic boom across the NWT with more jobs than available workers, more business opportunities than entrepreneurs ~development activities could lead to stressful aboriginal-community-industry-government relationships

Author	Aurora Research Institute & K.W. Putt Consulting
Title	Secondary Industries & Value Added Activities Study
Publisher	Mackenzie Valley Development Planning Committee Secondary Value Added Activities
Place	
Date	
Summary	The subcommittee is set up to look ways increased value might be added from primary oil and gas activity. This study outlines potential secondary value added initiatives.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Bureau of Statistics
Title	Labour Force Survey Northwest Territories December 1984 Preliminary Report
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1984
Summary	This report shows the results of the 1984 Labour Force Survey. This survey, compared to the later surveys, is short, examining only a limited number of variables including: labour force activity by ethnicity, gender, sex, region, age, community and constituency.

Author	Bureau Of Statistics
Title	2001 NWT Socio-Economic Scan Draft
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2001
Summary	The 2001 Socio-Economic Scan provides an overview of current and past social and economic conditions in the NWT. The report stresses that it should be used in business planning; however, the information it provides on the economic and social well-being of the population should be a factor in the planning of development activities and the management of natural resources. A statistical supplement is available from the Bureau of Statistics, and includes many of the statistics available on their website (http://www.stats.gov.nt.ca).

Author	Bureau of Statistics
Title	1989 NWT Labour Force Survey: Overall Results & Community Detail
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1989
Summary	This report represents the overall results of the 1989 NWT Labour Force Survey. Included is a copy of the survey administered, highlights of the results and a series of tables with all statistical data.

Author	Bureau of Statistics
Title	1989 NWT Labour Force Survey: Labour Force Activity, Education & Language
Publisher	Government of the Northwest Territories
Place	Yellowknife, Northwest Territories
Date	1989
Summary	The second in the series on the 1989 Labour Force Survey, this report focuses on labour force activity for each ethnic group by sex and age category; it looks at the relationship between labour force activity and highest level of schooling and examines languages spoken and labour force activity among native people. Tables are provided for the NWT

Author	Bureau of Statistics
Title	1989 NWT Labour Force Survey : Wage Employment & Traditional Activities
Publisher	Government of the Northwest Territories
Place	Yellowknife, Northwest Territories
Date	1989
Summary	The final report in the series on the 1989 NWT Labour Force Survey. This report looks at patterns of employment, involvement in traditional activities and the relationship between those activities and wage earning employment.

Author	Bureau of Statistics
Title	1999 NWT Labour Force Survey: Overall Results & Community Detail
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1999
Summary	The Labour Force Survey was conducted January to March 1999 in all communities in the NWT. Information collected includes: i) characteristics of employed ii) characteristics of unemployed iii) activities during the previous year including months of wage employment, participation in traditional activities, education, language, etc. Many of these statistics are included in the "Socio-demographic & Job Creation Needs Assessment" produced by PACTeam Canada in April 2003.

Author	Canadian Energy Research Institute
Title	Activity North of 60: Forecast Prepared for the Department of Indian Affairs & Northern
Publisher	Department of Indian Affairs & Northern Development
Place	
Date	2002
Summary	This study was conducted to provide a forecast of oil and gas activity North of 60 to assist in predicting workload for regulators in the North. The report predicts that in 2003/2004 activity is to double from 14 to 24 applications, and remains steady at this level to the end of the forecast period. Additionally they run a scenario where BC investment activity drifts north to the Deh Cho. They estimate that with a 1% shift, there would be 2 new wells and 3 in 2007/2008, with a 5% shift there would be 10 wells and 11 in 2007/2008, and with a 10% shift there would be 10 wells in 2003/2004, 11 in 2004/2005, 12 in 2005/2006, and it keeps increasing slowly from there until 2010/2011 when it is estimated that there would be 20 wells. Section 6.3 provides more information specifically on the Deh Cho Fort Liard

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Canadian Energy Research institute
Title	Activity North of 60: Forecast Prepared for the Department of Indian Affairs and Northern Development
Publisher	Department of Indian Affairs & Northern Development
Place	
Date	2002
Summary	A study undertaken to provide a forecast of oil and gas activity North of 60 to assist in predicting workload for regulators in the North. This report provides a most likely forecast scenario and a discussion of how a number of critical variables affect it.

Author	Crosscurrent Associates
Title	Final Report--Kakisa Community Needs Assessment Project
Publisher	Kaagee Tu First Nation
Place	Kakisa, Northwest Territories
Date	2000
Summary	In fall of 1999, the Kaagee Tu First Nation (KTFN) received funding from the Community Development Fund of the Department of Municipal and Community Affairs to carry out a comprehensive needs assessment in the community of Kakisa. The intent of this needs assessment was to identify the needs, attitudes and aspirations of community members so that KTFN could plan and deliver effective programs and services within the community and to provide the information needed for the KTFN to lead the community on a course of renewal and self-sufficiency. This report provides the results of that needs assessment.

Author	Crosscurrent Associates
Title	Hay River Hydrocarbon Business & Employment Strategy Project
Publisher	Hay River Economic Development Authority
Place	Hay River, NWT
Date	2000
Summary	The Hay River Hydrocarbon Business and Employment Strategy was initiated by the Town of Hay River and the Hay River Chamber of Commerce in response to increased activity in the oil and gas sector in the north. This report provides a detailed look at the project and its activities.

Author Crosscurrent Associates
Title Ka'agee Tu First Nation Community Wellness Report
Publisher Ka'a'gee Tu First Nation
Place Kakisa, NWT
Date 2001
Summary In the fall of 1999, the Ka'a'gee Tu First Nation (KTFN) received funding from the Community Development Fund of the Department of Municipal and Community Affairs to carry out a comprehensive needs assessment in the community of Kakisa. Following this assessment, a Community Wellness plan was developed for the community.

Author Deh Cho Business Development Centre
Title Deh Cho Business Development Centre Annual Report 2001/2002
Publisher Deh Cho Business Development Centre
Place Fort Simpson, NWT
Date 2002
Summary The Deh Cho Business Development Centre is mandated to enhance the economy and stimulate employment through business development in the Deh Cho. The Centre provides assistance to all stages of business start-up and expansion. In 2001/2002 the Centre approved loans totaling \$296 805, most of which went to businesses in Fort Simpson. The majority of loans went to the services and construction industry.

Author Deh Cho First Nation Nahehdeh
Title The Deh Cho Means Business: A Framework for Economic Development in the Deh Cho,
Publisher Deh Cho First Nations
Place Fort Simpson
Date 1995
Summary A report on the proceedings of the Deh Cho Means Business Conference, including statement of recommendations for the development of the Deh Cho economy.

Author Donihee, John
Title An Overview of the Implementation of Land Claims Based Regulatory & Benefits Regimes
Publisher
Place
Date 2001
Summary Proceedings of a presentation given to the Pacific Business Conference hosted by the Pacific Business and Law Institute. Looks at the regulatory and benefits regimes established under various land claims in the NWT

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Education, Culture & Employment
Title	Jobs in Oil and Gas
Publisher	Government of the Northwest Territories
Place	
Date	2001
Summary	Information on different types of jobs available in the oil and gas industry, including where to get training, how to apply for a job and a definition of the various aspects of the oil and gas industry.

Author	Education, Culture & Employment
Title	Oil & Gas Update Newsletter
Publisher	Government of the Northwest Territories
Place	
Date	2002
Summary	The Oil & Gas Update provides an overview of different education and training activities that are occurring in the oil and gas industry in the NWT.

Author	Government of the Northwest Territories
Title	Towards a better Tomorrow: A Non-Renewable Resource Strategy for the Northwest
Publisher	GNWT
Place	Yellowknife, NWT
Date	2002
Summary	This strategy outlines 19 specifications designed to position the NWT and Canada to benefit from NWT resource potential, and to promote economic self-sufficiency for the NWT. The strategy is based on the principles of partnership, sustainable development, economic diversification and fiscal sustainability

Author	Harbour, Dave
Title	Arctic Gas Projects: An Overview
Publisher	Northern Gas Pipelines
Place	
Date	Anchorage, Alaska
Summary	This report offers some background on the Alaska and Mackenzie Delta pipelines, the evolution of Aboriginal involvement in the project, the current status of projects and a look to the future of oil and gas pipelines.

Author	Hay Riuver Economic Development Authority
Title	Summary of the Proceedings Regional Oil & Gas Information Workshop
Publisher	Hay River Economic Development Authority
Place	Hay River, NWT
Date	2000
Summary	A report of the proceedings of a workshop held in Hay River on the oil and gas industry, future developments and the role of Aboriginal communities and businesses in the development of oil and gas resources in the Deh Cho.

Author	Human Resources Development Steering Committee
Title	A Human Resource Development Plan Related to Non-Renewable Resources in the NWT
Publisher	Government of the Northwest Territories
Place	
Date	2000
Summary	This report describes a training proposal for 2000/2001 that will enable the maximum participation of Northerners in the non-renewable resources sector of the labour market. Proposed actions include: funding to ensure new northern businesses have human resources function and are staffed with people who have the necessary skills; support programs to broaden the impact to the maximum number of community residents; develop a series of community delivered training programs; select career oriented programs to be delivered at the Regional level; and introduce staff retention services like Cross cultural awareness programs for supervisors and Employee Assistance Programs. Appendix A offers a list of current industry specific training initiatives offered in each region of the NWT including the Deh Cho. The Plan is related to the 'Towards a Better Tomorrow' document.

Author	Kennett, Steven A.
Title	Aboriginal Communities & Non-Renewable Resource Development, State of the Debate
Publisher	National Round Table on the Environment and the Economy & University of Calgary
Place	Calgary
Date	2000
Summary	In 1988, the National Round Table on the Environment & the Economy (NRTEE) launched the Aboriginal Communities and Non-Renewable Resource Development Program. This program was designed to explore the relationship between Aboriginal communities and non-renewable resource development from the perspective of sustainability. This report is the result of NRTEE's examination.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Mackenzie Gas Project
Title	Focus on Jobs
Publisher	
Place	
Date	2002
Summary	A look at different job opportunities and the money spent on them in various regions of the NWT. In the Deh Cho 292 person hours were spent on environmental and socio-economic work. 27% of total aircraft leasing (Totalling about \$3 million in the NWT) is spent in the Deh Cho with Great Slave Helicopters

Author	Mackenzie Valley Producers Group
Title	Mackenzie Gas Project: Potential Jobs and Business Opportunities
Publisher	
Place	
Date	2002
Summary	Various pamphlets describing the variety of job in different categories found in the oil and gas industry, including information on required education and salary.

Author	Maru Management
Title	Pipeline Prospects & Insights
Publisher	Aboriginal Economic Development, DIAND
Place	Yellowknife, NWT
Date	2002
Summary	This booklet provides an overview of the opportunities for labour and business that may be available to the residents of the NWT, and especially in the communities located in the path of the Mackenzie Valley Gas Pipeline. The focus is on the opportunities that may arise from all stages of pipeline operation and construction. It was prepared DIAND's Aboriginal Economic Development Sector.

Author	NWT Business Credit Corporation
Title	Business Credit Corporation 2002 Annual Report
Publisher	Resources, Wildlife & Economic Development, GNWT
Place	
Date	2002
Summary	The BCC aims to stimulate economic development and employment by making and guaranteeing loans and providing bonds, when regular financial institutions are not prepared to participate. Loans in the Deh Cho totalled \$1 318 and 11 submitted and approved applications. (Linked to the NWT Development Corp, and the Business Incentive Programme.)

Author NWT Development Corporation
Title NWT Development Corporation Related Business
Publisher <http://www.ntdevcorp.com>
Place
Date 2003
Summary Pages from the NWT Development Corporation website, including a list of business in partnership located in the Deh Cho; these businesses include Acho Dene Native Crafts in Fort Liard, Nahanni Butte General Store, Dene Fur Clouds in Fort Providence. There are many other joint ventures (ADK Petroleum Limited Partnership, North Nahanni Naturalist Lodge and Nats'enelu). Still other businesses are provided project funding to aid in development.

Author NWT Development Corporation
Title Northwest Territories Development Corporation 2001-2002 Annual Report
Publisher NWT Development Corporation
Place Yellowknife, NWT
Date 2002
Summary The NWT Development Corporation is a Crown Corporation created to assist business in overcoming obstacles to development in small northern communities. Provides both management services and equity investment capital.

Author Oil & Gas Human Resource Development Committee
Title Training Initiatives for the Oil & Gas Industry--A Human Resource Development Proposal for the Oil & Gas Industry
Publisher
Place
Date 2000
Summary This proposal is designed to provide a coordinated and effective approach to human resource development associated with oil and gas activities. It stresses the maximum participation of Northerners in the industry labour market. Recommendations focus on human resource planning, career development promotional activities, industry specific training initiatives, career specific training initiatives and evaluation. Appendix A looks at the Deh Cho Region and the education and training happening in the region.

Author Pipeline Operations Training Committee
Title Pipeline Operations Training Committee Terms of Reference
Publisher
Place
Date 2002
Summary The pipeline operations training committee focuses on training for employment in the area of pipeline operations, including opportunities at compressor stations and liquid recovery facilities.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Price Waterhouse Coopers
Title	Mackenzie Delta Energy Development Business and Employment Opportunities
Publisher	Price Waterhouse Coopers
Place	Calgary, Alberta
Date	2000
Summary	This report gives estimates, lists types and numbers of people required for each segment of pipeline development, including seismic surveys, exploration drilling, collection of design and environmental data, drilling, construction, etc. It also offers a list of potential business and employment opportunities.

Author	PricewaterhouseCoopers
Title	Oil & Gas Human Resources Strategic Plan
Publisher	Price Waterhouse Coopers
Place	Calgary, Alberta
Date	2000
Summary	Prepared for the Inuvialuit Regional Corporation, this report looks at the oil and gas activity in the Mackenzie Delta and the associated human resources needs and availability in the Region.

Author	Resources, Wildlife & Economic Development
Title	NWT Economic Framework Sector Profile: Travel & Tourism
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1997
Summary	A Profile of different aspects of the travel and tourism industry including human resource development, investment, infrastructure, markets, sales and regulation and taxation.

Author	Resources, Wildlife & Economic Development
Title	NWT Economic Framework Sector Profile: Oil & Gas
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1997
Summary	This report looks at the oil and gas industry in the NWT. Section 3.2.1 focuses on the Deh Cho Region, specifically Fort Liard. However, as this report was published in 1997, thus the most current information about present activities in the Region are not included.

Author	Resources, Wildlife & Economic Development
Title	NWT 2001: The Northwest Territories Economy at a Glance
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2001
Summary	A fact sheet highlighting the development of various sectors of the economy including mining, oil and gas and tourism.

Author	Resources, Wildlife & Economic Development
Title	NWT 2001: Tourism in the NWT
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2001
Summary	A fact sheet on the tourism industry in the NWT, including some challenges it currently faces.

Author	Resources, Wildlife & Economic Development
Title	NWT 2001: Mining in the NWT
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2001
Summary	A fact sheet on the mining industry in the NWT, including the challenges it currently faces.

Author	Resources, Wildlife & Economic Development
Title	NWT 2001: Oil & Gas in the NWT
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2001
Summary	A fact sheet on the oil and gas industry in the NWT.

Deh Cho Socio-Demographic & Job Creation Needs Analysis

Author	Resources, Wildlife and Economic Development
Title	Northwest Territories Economic Framework: A Coordinated & Integrated Approach to
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	1997
Summary	Provides an overview of 13 sectors of the NWT economy, along with pertinent issues. Published in 1997, much of this information is now out of date, but is useful to compare with current economic sector information.

Author	Resources, Wildlife and Economic Development
Title	Investment and Economic Analysis Business Survey 2001/2001
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2002
Summary	The Business Survey asked about business conditions, challenges and expectations, and energy consumption, cost, building conditions, attitudes and business conservation practices. Results show that the cost of electricity, heating and air freight are the 3 costs that are posing the largest problems to NWT businesses. 68.7% plan to hire more employees, and 38.7% are planning on expanding while 39.9% are not. There is a general shortage of skilled and unskilled labour and there is a difficulty in attracting new workers north.

Author	Resources, Wildlife and Economic Development
Title	Business Development Fund Annual Report (April 1, 2001 - March 31, 2002)
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2002/2001
Summary	This annual report examines the contributions made to Northwest Territories businesses in 2001/2002 under the RWED Business Development Fund. The fund aims at stimulating employment and economic development in the NWT. Total funding was \$1.6 million. The program contains the following programs: planning and other development costs, pilot or demolition projects, business creation or expansion, venture capital, market and product development, business skills, business relief and community initiatives.

Author	Resources, Wildlife and Economic Development, NWT
Title	Business Development Fund Recipients Report
Publisher	Government of the Northwest Territories
Place	Yellowknife, NWT
Date	2002/2001
Summary	This report provides a list of all Business Development Fund recipients. There were over 150 respondents and more than \$1.6 million in funding. Sixty-one of these recipients are businesses in every community in the Deh Cho. Funding reaching the Deh Cho totalled \$748 388.

Author	Wright Mansell Research Ltd.
Title	An Evaluation of the Economic Impacts Associated with the Mackenzie Valley Gas Pipeline
Publisher	GNWT & Trans Canada Pipelines Lit.
Place	
Date	2002
Summary	This study evaluates the economic impacts associated with the development and production of natural gas reserves in the Mackenzie Delta, and the construction and operation of a pipeline down the Mackenzie Valley. Evaluated for the period 2002-2033 and for 2 gas price scenarios, it is concluded that the overall Canadian impacts would be substantial and spread across all regions of the country.