Regional plan within the framework of

northern development

Conseil Cri de la santé et des services sociaux de la Baie James

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Cree Board of Health and Social Services of James Bay

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Chapter 1 – Clients served and the socio-economic picture

The territory

The territory known today as Eeyou Istchee had already been occupied for more than 5000 years before it was first seen by Europeans, and archeologists can show that the Crees and their ancestors were there for the last 2000 years at least.[1]

Today, the focus on trying to predict potential impacts on health and services from mining and road developments is a priority. It is worth remembering that the Cree have been living with the impacts of economic development throughout the modern period. Systematic mapping and prospecting in the territory date from the late 19th century. Impacts from the construction of the transcontinental railroad, further to the south, in the 1910s were felt by the peoples of Waswanipi and Washi Sibi. Then, from the mid-1920s, Northern Québec, like the rest of northern Canada, was opened to southerners with the arrival of bush aircraft which brought isolated aboriginal communities into direct contact with medical and freight services.

Mining impacts for the peoples of Waswanipi and what would become Oujé-Bougoumou were first experienced for a few years in the 1930s with the fast and furious copper exploration boom which created Chibougamau. Later, from the early 1950s, they suffered greater and sustained impacts with the second mining boom which also opened the area to forestry. The earlier mining boom happened without any mitigation for the impacts, unlike the hydro-electric developments which started in the 1970s. The great achievement of the Cree in the 1970s was to force themselves to the table to begin to negotiate their role in the affairs in Eeyou Istchee.

The Cree Territory of Northern Quebec covers the James Bay eastern watershed as well as southeastern Hudson Bay. This territory is roughly that covered in the *James Bay and Northern Québec Agreement* (1975), but without an exact correspondence. [2]

Four categories of lands are recognized in the *Agreement*: Categories IA and IB, II and III. The eight Cree communities at the time of the *Agreement* sit on Category IA lands, while those of Oujé-Bougoumou, the ninth community, are in the process of being transferred to Category IA status. Under the terms of the *Agreement*, “administration, management and control” of Category IA lands were transferred to Canada. The communities are administered under the provisions of the Cree-Naskapi (of Québec) Act.

Adjacent to Category IA lands, Category IB lands are held in ownership by Cree landholding corporations and administered by village corporations under Québec legislation.

Within Categories I and II lands, the Cree have exclusive wildlife harvesting rights. Category III are public lands where the Cree have rights of occupancy and use for purposes of the traditional hunting economy. Eeyou Istchee is divided into Cree hunting

[1] Girard R, Auger R, Collette V, Denton D, Labrèche Y, Perron N. 2012. "Les Cris d'Eeyou Istchee avant le XVIIe siècle". In, *Histoire du Nord-du-Québec*. Québec: Presses de l'Université Laval. pp. 101-139.

[2] For more information about Eeyou Istchee, and the use and occupation of the Cree territory, see *Cree Vision of Plan Nord, February 2011*. www.gcc.ca/pdf/**Cree-Vision-of-Plan-Nord**.pdf. This 116-page document presents the point of view of the Cree Nations of Eeyou Istchee concerning their treaty rights, the governance of their territory, economic development, and the protection of the natural environment and the well-being of Cree communities.

territories (Figure 1), and Cree hunting camps are distributed throughout the different land categories.

The James Bay Municipality is responsible for the administration of the vast territory comprising Categories II and III lands through Québec municipal legislation. It currently functions as a Jamesian organization because the Cree-Jamesian Zone Council established by the *Agreement* for the administration of Category II lands was never implemented. In 2012, the Crees and Québec finalized a new joint Cree-non-Cree governance structure for this Québec municipality, but its enabling legislation is only at the drafting stage.

According to the Institut de la statistique du Québec (ISQ), Québec's vast Region 10 includes the Cree territory (Eeyou Istchee) as well as the Inuit territory to the north (Nunavik). The southern limit of Region 10 is to the north of the southern limit described in the *Agreement*.

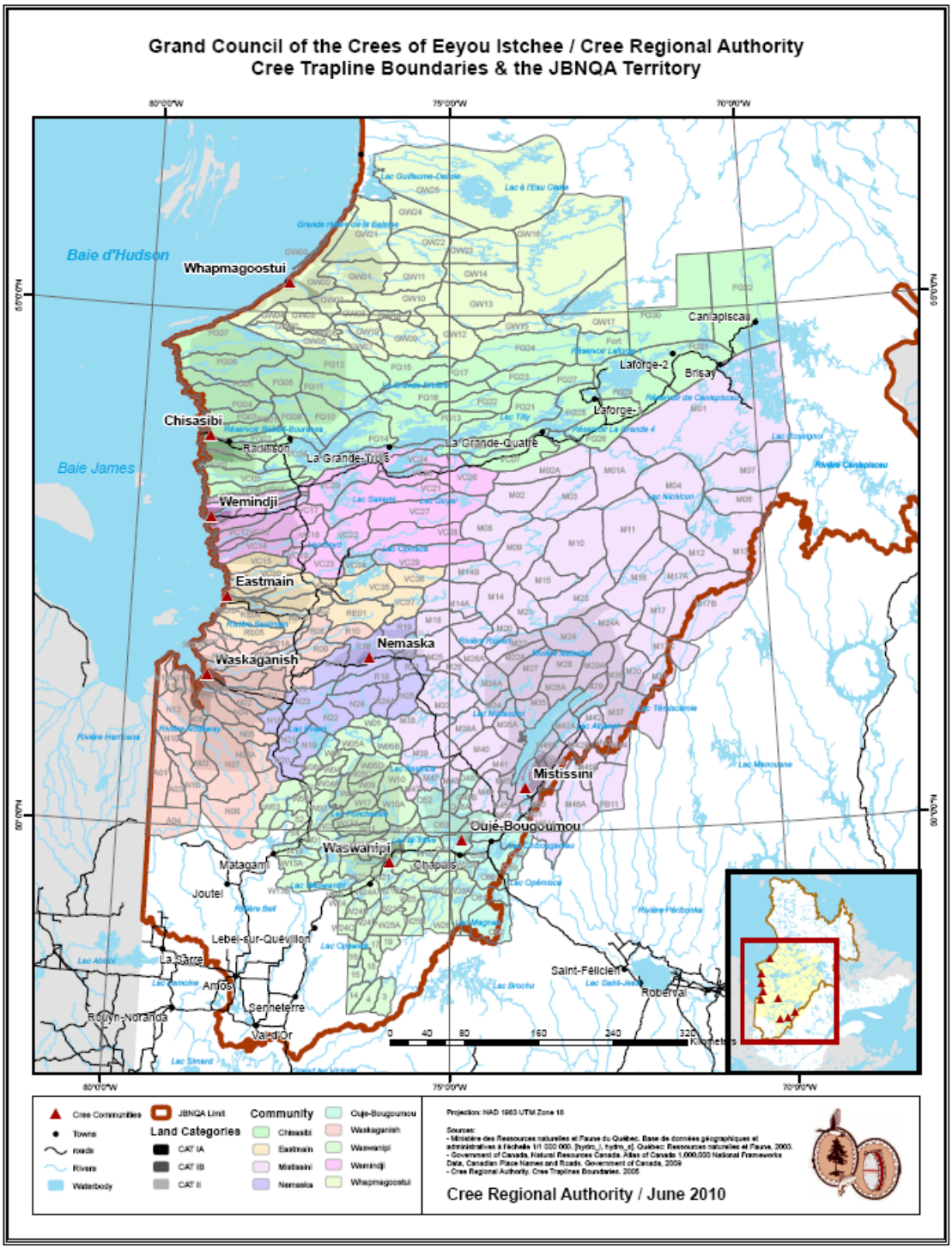
One of the consequences for Region 10 is that the ISQ has never produced specific statistical information for the Eeyou Istchee region, the Cree territory. This has obvious political and practical consequences. Specifically, the Cree Board of Health and Social Services of James Bay (CBHSSJB) cannot base its planning on regional data, which is available for other socio-sanitary regions.

However the ISQ has made demographic projections for the 18 socio-sanitary regions (SSR/RSS) as requested by the Ministère de la Santé et des Services sociaux du Québec (MSSS). Administrative region 10 includes 3 socio-sanitary regions, RSS 10, 17 and 18. In spite of some considerations, the quality of projections for RSS 18 has greatly improved.

According to Chapter 22 of the *James Bay and Northern Quebec Agreement*, the CBHSSJB is defined as having jurisdiction over Category 1 land, which corresponds to the immediate vicinity of the Cree communities. (The CBHSSJB must supply services to permanent and temporary residents of this land). Consequently, the jurisdiction of RSS 18 covers 9 "islands" at the heart of a vast territory which includes RSS 10.

This structure continues to generate legal problems for the CBHSSJB and RSS 10 which have still not been resolved. Whose ambulance should be called in case of an accident outside Category 1 land? How can preventive health services for the workplace (provided by les Directions de santé publique and CLSCs, and financed by the CSST) be provided for development projects in Region 10 near the Cree communities and by whom? Should the Cree take part in organizing second-line health services supplied by RSS 10 and 8? Who is responsible for medical emergencies and the medical evacuation of Cree beneficiaries outside Cree communities? Who is responsible if the individual is not a Cree beneficiary?

Figure 1: Cree hunting territories (traplines)



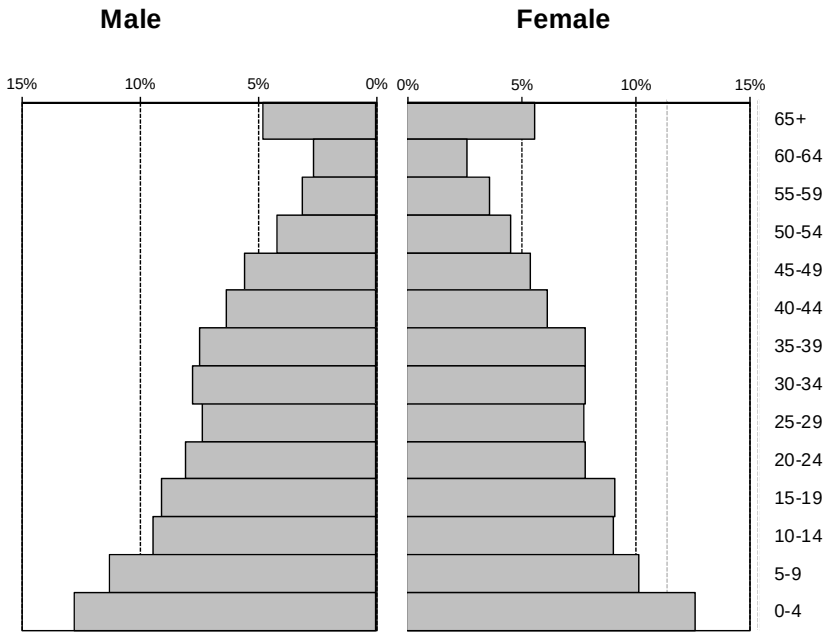
The territory's population[3]

According to Institut de la statistique du Québec projections, in 2011 there were 15,922 people living in RSS 18, 8,089 men and 7,833 women. Based on information from the last four Statistics Canada censuses available (1991 to 2006), 5% of the region's population is non-aboriginal.

The population of RSS 18 is relatively stable, as only 9.9% have moved out of their community over the past 5 years compared to 17.6% for the rest of Québec.

This population is younger than the Québec population in general. In fact, most of the population (57%) of RSS 18 is under the age of 30 years (Figure 2). On the other hand, people aged 65 years and over only represent 5% of the population. In the rest of Québec these proportions are 35% and 16% respectively.

Figure 2: Population age pyramid by gender, Eeyou Istchee, 2011



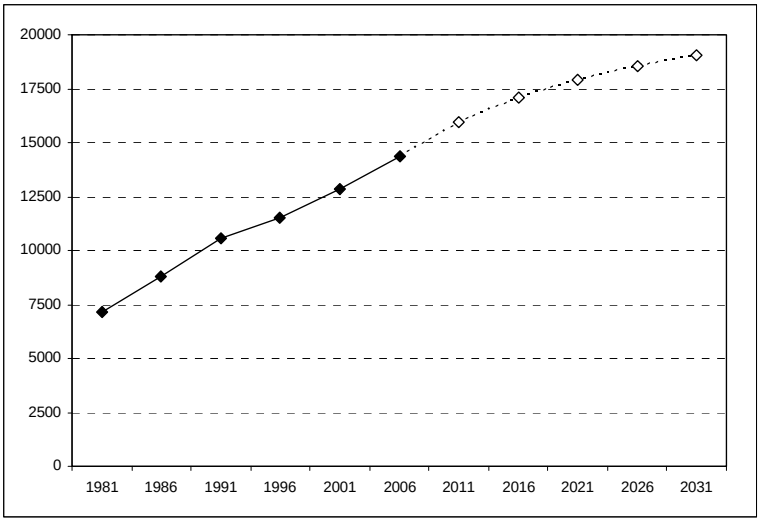
Source: MSSS, Service du développement de l'information, January 2010, based on data provided by the ISQ, Direction des statistiques sociodémographiques

[3] The discussions concerning methodological questions about the population can be found at http//www.creehealth.org and include: Lejeune P, Torrie J. *The current and projected Cree population.* Public Health Department Analysis Paper, Update to December 2012; and Torrie J, Bobet E, Webster A, Kishchuk N. 2005. *The Evolution of Health Status and Health Determinants in the Cree Region (Eeyou Istchee): Eastmain-1-A Powerhouse and Rupert Diversion Sectoral Report.* Volume 1: Context and Findings. Series 4 Number 3: Report on the Health Status of the Population. Public Health Department of the Cree Territory of James Bay, Cree Board of Health and Social Services of James Bay, Chapter 2: Methodology.

Future trends for population size

An estimate of the population growth is an essential element for planning services and programs intended for the population. However, estimates that apply to small populations are less reliable than those related to large populations.

Figure 3: Population estimate from 1981 to 2006 and projections up to 2031 for the total population in RSS 18



Source: MSSS, Service du développement de l'information, January 2010, based on data provided by the ISQ, Direction des statistiques sociodémographiques

Presently, the model used for predicting the population growth in RSS 18 is based on structural changes of the population in administrative region 10 (Nord-du-Québec) that combines sociosanitary regions 10 (Nord-du-Québec), 17 (Nunavik) and 18 (Cree Territory of James Bay). It is quite possible that the ISQ projection overestimates the growth of the population over 65 and underestimates the growth of younger groups.[4]

As far as RSS 18 is concerned, no population growth has been projected, bearing in mind the small population sample. However, a potential growth can be estimated. It takes into account fertility calculations and data that define the future population growth entered into the system.

According to various scenarios, methods and sources, the population in RSS 18 may reach between 19,000 and 21,450 in 2031. It will therefore be between 20% and 35% higher than the present population.

Taking into account the above factors, the population by 2031 could be between 19,033 as projected by the ISQ, or 21,450 based on the direct projection in the increased number of beneficiaries, from 1981 to 2011, of the *James Bay and Northern Québec Agreement*.

The following other factors may play a role in predicting the composition of the future population: economic conditions in the communities and the region, which could limit or

[4] Public Health and RSS 18 are in communication with the ISQ concerning this problem.

encourage emigration, in particular that of young people; an influx of new residents in communities within the region due to regional development; an increase in predicted mortality based on the early diagnosis of chronic diseases – prevalent in a large part of the population – in young people. Nevertheless, in spite of the uncertainty in future projections, it is evident that the population of RSS 18 will increase in size and age independently of northern development. Consequently, these factors will have to be considered in the planning of health care.

1.3 First Nations: Socio-economic portrait

Based on the Statistics Canada 2006 census (the complete 2011 results have not yet been published), 95% of the Region 18 population identify themselves as North American Indians (Table 1). The great majority of the region's population speaks Cree (95%) and the predominant majority (83%) speak only Cree in their homes. English is also spoken by 84% of RSS 18 residents, French by 22.7%, while 12.3% speak neither French nor English (they probably speak only Cree).

The population grows much more rapidly in RSS 18 than in Quebec (11.9% between 2001 and 2006, then 15.7% between 2006 and 2011, compared to 4.3% and 4.7% in Quebec, respectively). This results in a total dependency rate (0 to 19 years, + 65 years, and + / 20 at 64 years) that is much higher than the province's in 2006 (91.3% vs. 59.3%).

The educational level has increased during the last few years. The proportion of population aged 15 or older that does not have a high-school leaving certificate has decreased by 74.4% by 1991 and by 56.0% by 2006, however it is still below the provincial average of 25.0%. On the other hand, the school drop-out rate in RSS 18 is the highest in Quebec and remains more than worrisome. Between 2009 and 2010, this rate was 90.1% (95.4% for boys and 85.2% for girls) compared to 17.5% in the entire Quebec and 15% in RSS 10 (MELS, 2012). One also has to be aware that as a consequence of Northern Development, the few young people who still attend school may drop out to get well-remunerated jobs that require few demands or qualifications.

The proportion of single-parent families is high (30.1%), however it is comparable to the rest of Québec (27.8%). The 16.6% proportion of multifamily households is greater than in the rest of Québec (0.8%). The average number of people per household (4.4 vs. 2.3), people per family (3.8 vs. 2.9), children per family (2.1 vs. 1.0) and people per room (0.7 vs. 0.4) are all indicators of an overpopulation problem in dwellings. The proportion of households with 6 or more people is greater in RSS 18 (28.7% vs. 1.7% for the province).

Table 1: Some population characteristics, RSS 18 and Québec, 2006 Census

Indicators	Eeyou Istchee	Quebec
Different characteristics of the population, in %		
North American Indian identity	95.1	0.9
Métis or Inuit identity	1.0	0.5
Non-Aboriginal identity	3.5	98.5
Of Cree mother tongue	90.5	0.2
Speaks Cree	94.6	0.2
Speaks only Cree at home	82.9	0.2
Speaks English	65.0	11.9
Speaks French	4.0	84.2
Speaks English and French	18.7	2.9
Speaks neither English nor French	12.3	0.9
Population change rate, in %		
Population change, 2001-2006	11.9	4.3
Population change, 2006-2011*	15.7	4.7
Total dependency indicator, in %		
Total dependency indicator**	91.3	59.3
15 years and over without a high school certificate	56.0	25.0
Different characteristics of the families, households and dwellings, in %		
Lone-parent families***	30.1	27.8
One-family households	70.7	64.9
Multiple-family households	16.6	0.8
Non-family households	12.7	34.3
Private households with 6 persons or more	28.7	1.7
Dwellings in need of major repairs	30.5	7.7
Different characteristics of the population and of the dwellings, in numbers		
Average # of persons in private households	4.4	2.3
Average # of persons per census family	3.8	2.9
Average # of children at home per census family	2.1	1.0
Average # of persons per room	0.7	0.4
Average # of rooms per dwelling	6.0	5.8
Average # of bedrooms per dwelling	3.4	2.5

* : 2011 census figures
** : (0 to 19 yrs + 65 yrs and over) / 20 to 64 yrs * 100
*** : (total lone-parent families / total families with children) * 100

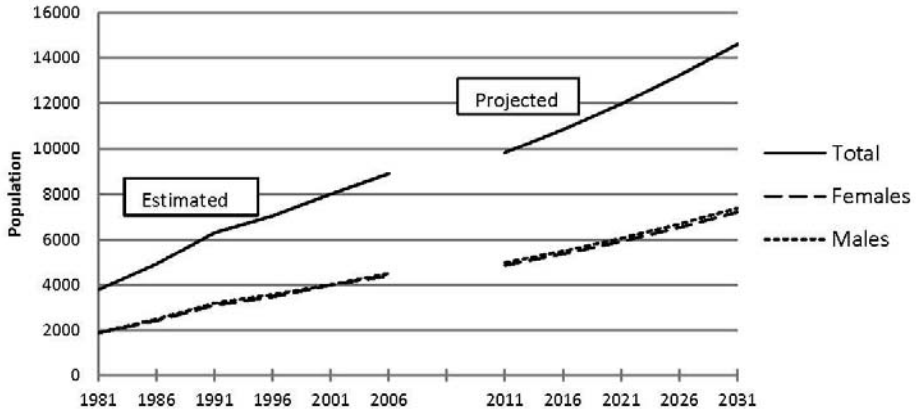
Sources: - Statistics Canada, 2006 Census
- Statistics Canada, 2011 Census on population growth between 2006 and 2011

Concerning housing, many dwellings need major repairs (30.5% vs. 7.7%, in Québec). Finally, although the average number of rooms per dwelling in RSS 18 is quite similar to the rest of Québec (6.0 vs. 5.8), the number of bedrooms per dwelling is greater in RSS 18 (3.4 vs. 2.5), and consequently there is less common living space for family members.

Workers

Although precise information on the non-aboriginal work force is not available, approximately 5% of the regional population (about 800 persons) are non-aboriginal and the majority of these people come to the region for work. The active Cree population[5] (that is people between the ages of 15 and 64 years) is very young: 29% of people of working age are 15 to 24 years old, 49% are between 25 and 44 years and only 22% are between 45 and 64 years (Moar, 2009). From 1981 to 2006, the active Cree population went from 3,781 to 8,897, which represents an average increase of 3.5% per year. In 2009, the CHRDD anticipated an annual growth rate of less than 2.4% for the period 2008-2013 (Moar, 2009). This contrasts with the projections of the MSSS which anticipates an annual growth rate of 1.7% for the same period from 2008-2013 (MSSS, 2010). Considering the young dynamic nature of the population of RSS 18, one can predict an annual growth of 2% for the period 2006-2031. Consequently, one can estimate that from 2006 to 2031, the active population will grow from 8,897 to approximately 14,600. There will be almost as many women as men, with a workforce of approximately 7,200 and 7,400 respectively.

Figure 4: Trends of the Cree Labor Force, 1981 to 2031



Source: MSSS, Service du développement de l'information, January 2010, based on data provided by the ISQ, Direction des statistiques sociodémographiques

[5] Most of the information on workers are from two existing reports, the 2010 Cree health determinants survey (Hydro-Québec, 2012), and the survey about the active population conducted by Cree Human Resources Development (CHRD) (Moar, 2009). These two reports are based, among other things, on MSSS estimates for 2006 concerning the active Cree population and the 2001 and 2006 censuses. The CHRD report excludes workers who are not beneficiaries according to the James Bay agreement, that is temporary non-aboriginal residents of the region.

These active population projections show the problematic need for new jobs in years to come. Already, a survey of the active population (Moar, 2009) reveals the need to create 700 new jobs per year in order to maintain the 2008 employment rate. In this context, any initiative to create new jobs, as suggested by Northern Development, is welcome. However, available studies show that Crees ability to take advantage of Northern Development is limited. For example, concerning the mining sector in Québec, Simard et coll. (2012) estimate that 57% of the 18,570 jobs created will be in Northern Québec (RSS 10, 17 and 18), but that only 10% of job vacancies will be filled by local manpower (Table 2).

Table 2: Needs and distribution of job vacancies, Québec mining sector, 2012-2021

	By work location	By workers' region of origin
	Absolute workforce	
Abitibi-Témiscamingue	1,530	8,091
North Shore	4,925	2,246
Northern Québec	10,677	1,971
Rest of Québec	1,438	5,892
Outside Québec	0	370
Total	18,570	18,570
	Relative workforce (%)	
Abitibi-Témiscamingue	8.2	43.6
North Shore	26.5	12.1
Northern Québec	57.5	10.6
Rest of Québec	7.7	31.7
Outside Québec	0.0	2.0
Total	100.0	100.0

Source: Simard et coll., 2012

Employment rate[6]

According to the 2001 and 2006 censuses, the employment rate in RSS 18 went from 48% to 57%, an increase of 9 percentage points. But these statistics are not uniform across the territory. In 2001, the difference between two communities with the lowest and the highest rates was 19% (63% vs. 44%). In 2006, the difference between communities increased to 24% (66% vs. 42%), a ratio of 64%. Northern Development may exacerbate the disparity between communities in RSS 18. It will also offer fewer opportunities to women, given the nature of jobs typically created in the mining and forestry industries, typically considered masculine. In this case, it would help reduce the growing gap between men and women regarding the employment rate. Indeed, the rate among women is higher than men in 2001 (54% vs. 48%), and the gap has widened further in 2006 (59% vs. 49%).

[6] The employment rate designates the number of people employed during the week (from Sunday to the Saturday preceding census day), expressed as a percentage of the total population aged 15 years and more (Statistics Canada, 2012a online).

Jobs and employability

According to data from the 2001 Census, as well as the 2008 survey of the active population, most salaried jobs are connected to the government services sectors of health and education. The 2006 Census shows that 60% of the active population in Eeyouch communities held jobs in sales and services, social sciences, education and public administration. Hunting, fishing and trapping are also important activities for the population at 22% (Moar, 2009). Even if Crees work in development projects, they usually end up with temporary jobs that do not require specific skills, which limits the positive effects of large development projects on employment in the region.

In order to get the most benefits from northern development projects, concerning employment, Cree workers' skills must be in line with the competency profiles for future jobs. According to Simard et coll.(2012), in the mining sector, the jobs in greatest demand in Northern Québec are presented in Annex A1. But the competency profiles of Cree workers do not seem to meet expectations. Indeed, the active population survey (Moar, 2009) reveals that 66% of Cree workers do not have any diplomas or certificates: only 12% have a high-school degree and 16% have a postsecondary diploma or certificate. For those with postsecondary education, training areas are essentially in:

- Teaching, counseling and recreational services
- Commerce and administration
- Social sciences and related fields
- Civil engineering, applied sciences and technology

Income

The importance of socio-economic status as a health determinant need not be demonstrated. Income is an important indicator of this status. But if the level of income contributes to improving the health of individuals, it is the equitable distribution of that income, or not, in a given population that determines the relative health of the population. In RSS 18 there is a significant gap between the average incomes of its residents compared to Quebecers in general. Indeed, in 2000, income in the Cree context was approximately 23% less than in the rest of Québec. In 2005, it was reduced to 16%. One must also remember that the RSS 18 region is far from large urban centres, where the prices of basic consumer goods are often very high compared to the rest of the province. In 30 years, the various development projects and the development of government and community services have contributed to increasing the share of salaried income in total income, which has gone from 32% in 1971 to 73% in 2001. In absolute terms, average personal income has gone from $20 813 to $26 949 between 2000 and 2005, an increase of 29%. This increase is in large part due to the increase of income of the female population. The median income has also increased from 16,941 to 21,148. This is where the difference between men and women is most apparent. Whereas median income in men increases from 18,705 to 20,479, the increase for women is from 13,784 (in 2000) to 21,616 (in 2005).

Chapter 2 – Health status linked to northern development

The population of RSS 18 is very young. Health needs reflect the demographic profile, especially maternal and child health as well as the challenges associated with youth (e.g. high school drop-out rates, teenage pregnancies, sexually transmitted diseases, mental health problems, alcohol and drug consumption, trauma, etc.).

In 1996, the two main health problems identified by the Cree Board were mental health and diabetes. In addition to the diabetes epidemic, public health in this region has identified a second potential epidemic: cardiovascular disease. Unfortunately, chronic diseases indentified in the population aged 30 years and over are developing at an increasingly younger age. Diabetes has already been identified as a common health problem in those who are under 30. And of course, diabetes and cardiovascular disease risk factors exist at the community level for all age groups. These risk factors are aggravated by mental health problems.

The goal of this chapter is to describe the impact of Northern Development on the health of residents of the Cree Territory. We will first present the main differences between Cree health problems compared to the population in the rest of Québec.

2.1 Main differences between present Cree health status compared to the population in the rest of Québec

Global health status

As mentioned in Chapter 1, the region's population is approximately 15,000 people, of which 95% are aboriginal. The population is young due to a high birth rate. Life expectancy at birth is lower than in the rest of Québec (based on data from 2005-2008):

- Men have a life expectancy of 74.9 years compared to 78.3 years for the rest of Québec (a difference of 3.4 years)
- Women have a life expectancy of 81.3 years compared to 83.1 years for the rest of Québec (a difference of 1.8 years)[7]

The main causes of death in Eeyouch are: cancer (21.2%), cardiovascular disease (17.9% of all deaths), injuries (7.9%) and suicide (5.9%). In the rest of Québec, cancer rates are higher (32.8% of all deaths), cardiovascular disease rates are about the same (19.8%), and there are fewer injuries (3.8%) and suicides (2.1%). These differences are due to the younger average age of the Cree population and the fact that the incidence of diabetes increases the incidence of cardiovascular disease.

[7] Portrait de santé du Québec et de ses régions. INSPQ, 2011.

The annual hospitalization rates in the region are more than twice the rates in the rest of Québec, except for cancer.[5]

Table 3: Hospitalization rates, RSS 18 and Québec

	Cree (RSS 18)	Québec (in total)
Cancer	55	61
Cardiovascular disease	257 (+)	120
Respiratory disease	250 (+)	77
Digestive system diseases	203 (+)	81
Musculoskeletal system diseases	76 (+)	37
Genitourinary diseases	88 (+)	42
Trauma	123 (+)	63
All causes	1,780 (+)	792

(Age-adjusted rates per 10,000 population)

Source: Pour guider l'action – Portrait de santé du Québec et de ses régions – 2011. Québec, MSSS.

Maternal and child health

The infant mortality rate in RSS 18 has plummeted from 50 for 1,000 live births in 1976 to 10.6 for 1,000 between 2005 and 2008, which represents an average of three deaths per year. In spite of this improvement, the region's rate is three times higher than in the rest of Québec.[1] One third of deaths in excess of the rate for Quebec are due to incurable genetic diseases.

The birth rate among adolescent mothers and women with less than 11 years of schooling are 4 to 5 times higher in the Cree region than in the rest of Québec.[1]

A survey of oral health, conducted in 2001, reveals that Cree children were disproportionately affected by caries compared to children in the rest of Québec. Among 7 and 8 year-olds, 98% showed the effects of dental caries, with one or more lesions at the cavity stage. For children in this age group, an average of 24.5 dental surfaces had caries, were missing or filled, which is 3.8 times higher than the average for the rest of Québec.[8,9]

Sexually transmitted diseases (STD)

Since 2000, the signaled chlamydia infection rates have not stopped increasing. Between 2006 and 2008, if the regional rates had been the same as the province's, the region would have had a total of 25-30 cases. The reality is very different with an annual average of 215 observed cases. For example, in 2009, there were 241 declared cases. The following table presents the adjusted incidence for 2005-2009.[5]

[8] Véronneau J, Sirhan H. Rapport sur la santé dentaire crie en Eeyou Istchee (Nord du Québec). Montréal: Direction de la Santé publique, Conseil cri de la santé et des services sociaux de la Baie James; 2002.
[9] Brodeur JB, Olivier M, Benigeri M, Bedos C, Williamson S. Étude 1998-1999 sur la santé buccodentaire des écoliers québécois de 5-6 ans et de 7-8 ans. Québec: Ministère de la santé et des services sociaux; 2001.

Table 4: STD rate, RSS 18 and Québec

	Cree (RRS 18)	Québec
Chlamydia	1,465.3 per 100,000	181.7 per 100,000
Gonorrhea	136.3 per 100,000	18.5 per 100,000

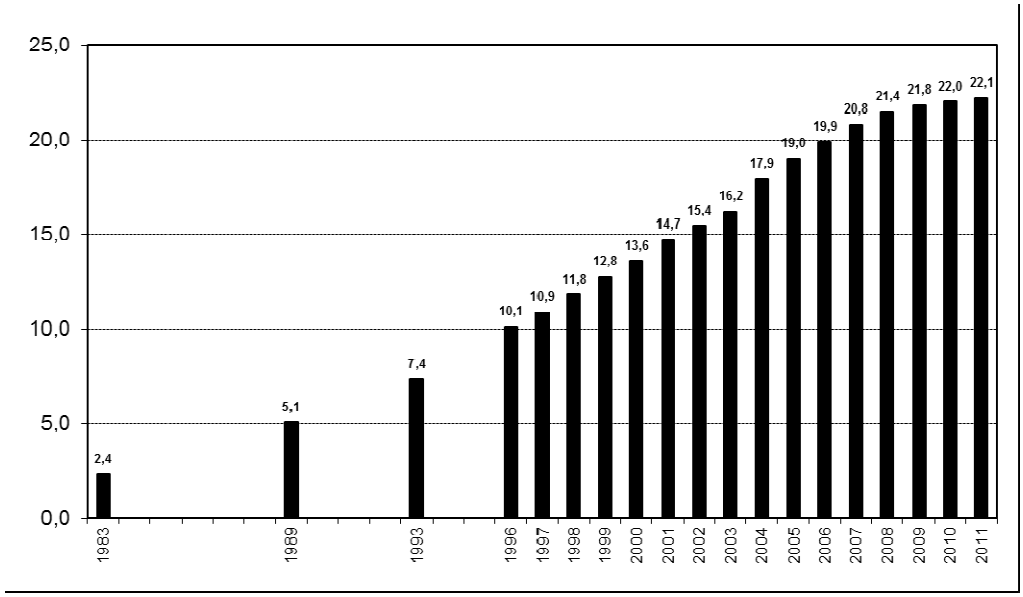
Source: Pour guider l'action – Portrait de santé du Québec et de ses régions – 2011. Québec, MSSS.

Diabetes and its complications

In 1983, only 2.4% of Eeyouch had diabetes. Less than 30 years later, in 2011, 22.1% of the population 20 years old and over is affected.[10] More than one in five adults suffers from diabetes, which is almost four times the rate for the rest of Québec. Diabetes continues to affect women more than men but there is less of a difference than in the past. As well, 40% of people with diabetes have also been diagnosed with cardiovascular disease.

Babies born to women who have diabetes while they are pregnant (gestational diabetes or type 2 diabetes) are at a much greater risk for childhood obesity and developing diabetes at an early age. Cree Board internal data shows that, according to the diagnostic characteristics used, the rate of complications in pregnancy due to type 2 diabetes, prediabetes and gestational diabetes is 27 to 39%.

Figure 5: Crude prevalence (%) of diabetes, Crees aged 20 and over, RSS 18, 1983 to 2011



Source: CBHSSJB. Diabetes Update 2011. Chisasibi. 2012.

[10] CBHSSJB 2012.

Eeyouch are being diagnosed at an increasingly younger age, exposing them to an increased risk of developing diabetes complications during their lifetime. Half of people with diabetes have some degree of kidney disease. Renal dialysis services to compensate for kidney failure, caused largely by diabetes, have been implemented within the territory, in Chisaibi, as well as in Region 10, in Chibougamau.

Obesity rates are high, and the incidence of diabetes is linked to obesity.

Table 5: Percent of population overweight, RSS 18 and Québec, 2003

	RSS 18	Québec
Total (18 years and over)	84.0 (+)	47.4
Men (18 years and over)	83.3 (+)	55.6
Women (18 years and over)	84.9 (+)	39.2

Source: Portrait de la santé: le Québec et ses régions. INSPQ 2006. The + symbol means that results are statistically significant compared to those for Québec.

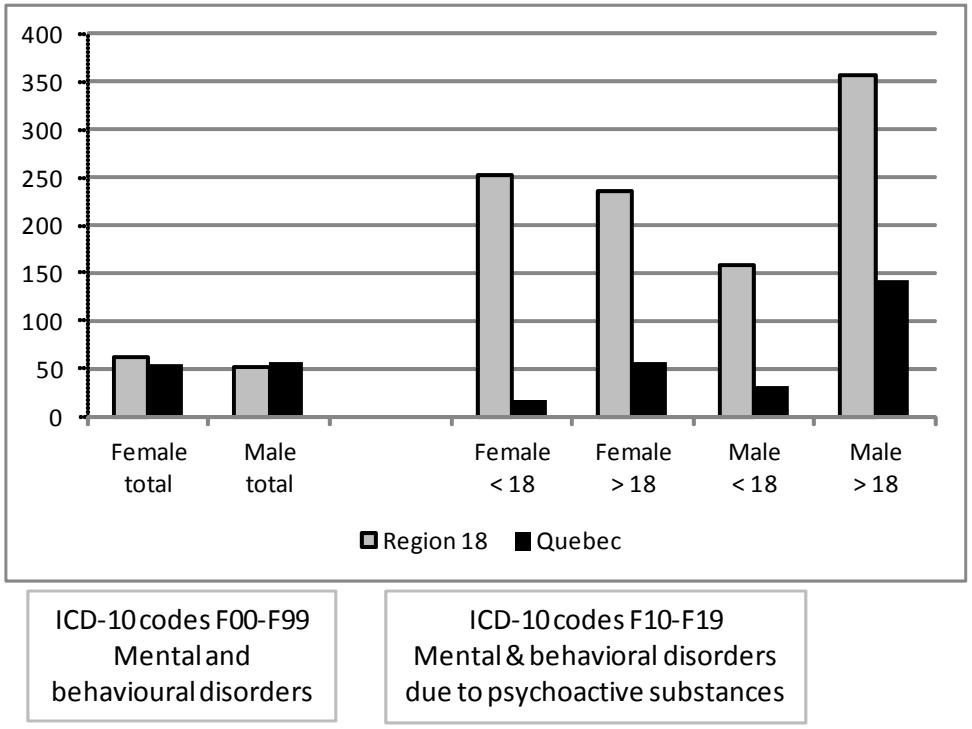
In general, it is not clear how the health care system will manage the growing number of people with diabetes and its complications. Indeed, this trend is unlikely to change without first addressing the underlying social problems and prevention.

Mental health and psychosocial problems

Although the Cree Board of Health had identified mental health as a priority health problem in 1996, the public health surveillance data concerning states of mental/social disorders is weak compared to what is known about physical health problems.

As shown in the figure below, people from Region 18 are hospitalized at about the same rate as others for all mental and behavioural disorders. However, the number of hospitalizations due to the use of psychoactive substances is highly disproportionate in Region 18. The gap with the Quebec rate is most extreme concerning the hospitalization of females under the age of 18.

Figure 6: Comparison of hospitalisations for mental and behavioural disorders, by gender, age group and region: average of 2006-7 to 2010-11 by 100,000 inhabitants



Source: MSSS, Med-Écho Database, 2006-7 to 2010-11.

In RSS 18, the age-adjusted rate for suicide mortality is 10 per 100,000 persons compared to 16 per 100,000 persons in the rest of Québec. Rates for suicide mortality within Region 18 are comparable to those of Québec and Canada. However, in Region 18, the hospitalization rate for suicide attempts is 20 times higher than the mortality rate. This is in contrast to Quebec as a whole, where the hospitalization rate for attempted suicide is 3 times higher than the suicide mortality rate.

The annual average non-adjusted rates for suicide attempts and suicide ideation in Eeyou Istchee are 459.4 per 100,000 persons, compared to 56.1 per 100,000 persons for the rest of Quebec. The group with the highest rates for suicide attempts was females 10-19 years old who represent 50% of all female hospitalizations in Eeyou Istchee and 33% of all suicide attempts and related hospitalizations.

In 2013, a review of medical records for mental health and addiction problems involving psychotropic substances in the two largest communities will be finalized. It will contain data on the nature and the extent of problems faced by primary care service providers on a daily basis. Given the lack of health professionals with mental health expertise working for the Cree Board, this analysis will document the pressures felt by local services and the need to develop programs and training in this field within primary care.

In the social domain, for years, studies have shown that Crees say that they have strong social support and that they identify with their communities. However, social problems are a major preoccupation.

The last general health survey in RSS 18 showed the prevalence rate for gambling addiction at 9.2% compared to 1.7% for Québec.[11] A study on gambling and mental health in 2006-7 classified 3.2% at high risk but 27% at moderate risk.[12] In general, moderate and high-risk gamblers are at a significantly higher risk of severe psychological problems than non gamblers or those at low risk. They also have significantly higher rates for alcohol use, drug use and psychiatric status.

In addition, even more surprisingly, of all respondents questioned, 44% of men and 50% of women claim to have been victims of physical aggression in their lives, and 23% of men and 35% of women have been the victims of sexual violence.

Since 2002, youths under the age of 18 represent approximately 40% of the population of Region 18, and their rates of care within Youth Protection are the highest in Quebec. Between 2003-2004 and 2005-2006, 21% of all youths were involved in Youth Protection. This rate decreased to roughly 17% after 2007-2008. Since 2003, there has not been much change in the number of cases signaled and cases retained. The average number of cases signaled is 1042, 85% of which (880 cases) were retained. Relative to the growing youth population in Eeyou Istchee, the number of cases reported has remained constant.

2.2 The impact of Northern Development on the health of the residents of the Cree Territory

Cree have suffered the impact of hydro-electric development since the end of the 1970s. The unemployment rates have gone down and revenues have increased, but, according to key informants, social inequality within Cree communities has increased. At the same time, differences with the rest of Quebec in terms of life expectancy and infant mortality have decreased but remain significant. On the other hand, the rates for diabetes and sexually transmitted infections have increased and are several times higher than the rates for the rest of Québec. Diabetes and obesity are linked to lifestyle changes, automobile use, being sedentary and the availability of unhealthy foods.

The health of workers and their families

Hydro-electric development starting in the late 1970s brought concerns about workers' health and safety to Eeyou Istchee. Due to their familiarity with the territory, many Crees played a key role in the construction of dams and generating stations.

Increasingly, young Crees will work in the mining industry which will require them to stay near their workplace for 2-3 weeks out of 4. Workers in the mining industry are known to suffer high injury rates and pulmonary disease due to their work; the CSST has classified the industry in category priority 1. Working conditions are physically arduous, hours and weeks of work are extended. There is also psychosocial stress; if just the man goes to work outside the community, the separation from his family can be difficult for him, his wife and his children. If both parents go to work in the camps at the same time, the extended family and the children suffer the consequences. (These problems have been reported by health care workers in Cree community clinics). These stressful factors are linked to mental health problems such as depression, anxiety, and alcohol and drug consumption.

[11] Anctil et al 2008.
[12] Gill et al, forthcoming. See also http://www.creehealth.org/, search: "gambling"

The experience of Hydro-Québec camps exposed the following problems:

- Racism towards aboriginal workers who represent a minority in the camps
- Alcohol and drug abuse when the worker returns to the community with his paycheque. Alcohol abuse increases the incidence of trauma and violence
- Disagreements about responsibility for the repatriation of sick or injured workers who are sent to hospitals in neighboring regions

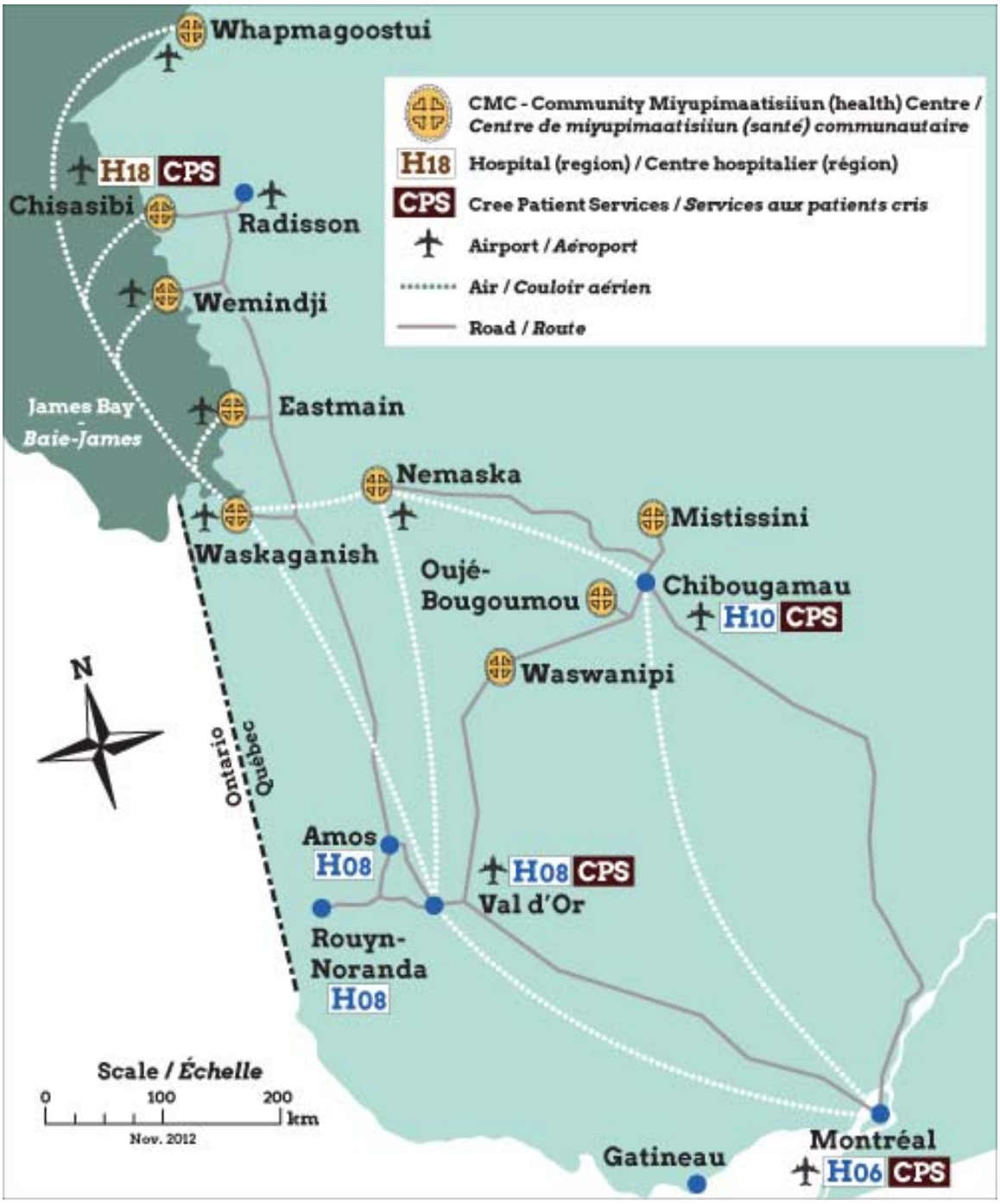
With new developments, the Cree Board will have to strengthen its social services and mental health services and have them focus on these particular problems. However, solutions have been developed by employers; for example, cultural activities and social services for aboriginal workers in the camps. The Cree Board will have to increase social services and mental health services to take these problems into account.

Chapter 3 – Description of existing services

In practice, the CBHSSJB is similar to a CSSS, with the addition of the regional functions of an agency, including the regional direction of public health. Chisasibi Regional Hospital mainly serves the community of Chisasibi but also offers services to the nearest coastal communities. However, most second-line services are provided outside the region, especially in RSS 10 and 8. The CBHSSJB maintains Cree patient services in Chibougamau, Val d'Or and Montréal in order to provide the link between the communities and second- and third-line services outside the communities. This programme is part of the Non-Insured Benefits Programme of the CBHSSJB, which is similar to Health Canada's non-insured medical insurance program for other First Nations people in Canada. These services are only available to Cree beneficiaries described in the *Agreement*, not for non-beneficiaries, even if they have access to other services offered by the CBHSSJB.

Thus, despite the fact that the CBHSSJB offers very few second-line services to its population, it is obliged to offer or be involved with numerous other health and social services to its population while outside the Cree communities. In addition to the programs mentioned above, some examples include: the bush kit program for Cree beneficiaries while in bush camps, participating with industries on the co-ordination of care for Cree workers in work camps, and more recently, the issue of Crees on the streets in Val d'Or and Montréal.

Figure 7: Main service corridors



3.1 Chisasibi Hospital

Chisasibi Hospital is a health centre, offering general and specialized care, which has 32 beds. Of these 32 beds, 15 are reserved for short-term hospital services. The remaining available beds are mainly used by clients experiencing a lack of autonomy. Since no other long-term care homes are available, Chisasibi Hospital is used in part for this purpose. Although designated a regional centre, the Hospital is used primarily by residents of Chisasibi (roughly 9 of 10 hospitalisations) with the rest coming from neighbouring communities. The following table shows the main service statistics for Chisasibi Hospital.

Table 6: Chisasibi Hospital statistics

	2008-2009	2009-2010	2010-2011
Admissions	654	663	751
Hospitalization days	3,269	3,631	3,472
Bed occupation rates	70%	67%	67%
Transfers to other health centres	48	50	59
Average stay acute care patients	5.15	5	4.56
Departures	635	665	742
Deaths	11	11	10
Clinic visits	17,495	18,389	18,838
Specialist visits	1,305	920	1,160
Observation hours	1,888.13	3,564.50	4,644.23
Radiology technical units	165,594	N/A	116,155
Total laboratory tests completed	205,278	226,917	232,280
Dialysis treatments	2,123	2,405	2,781
Pre-dialysis	32	52	55

The significant increase of more than 30% in the number of dialysis treatments between 2008-2009 and 2010-2011 should be noted. This trend is still currently evident. The number of clients receiving pre-dialysis increased by more than 70% over the same period.

The lack of certain health professionals remains the main preoccupation of the Cree Board. For example, due to a severe shortage of technicians during the summer of 2010, the laboratory almost had to shut down. Similarly, due to the lack of radiologists in Québec, no X-rays were read between May 2009 and September 2010. This led to a backlog of 4,000 X-rays that had to be read. Thanks to the support of the Fédération des médecins spécialistes du Québec (FMSQ) and the Centre Hospitalier Hôtel-Dieu d'Amos, this delay was completely corrected.[13]

[13] Chisasibi Regional Hospital Centre PM 15 July

3.2 Service corridors for access to hospital services unavailable on Cree Board territory

The following table shows the main reference hospital centres as well as the number of beds occupied by Cree clients (80%) referred by the Cree Board. A total of nearly 40 beds were used by beneficiaries outside the RSS 18 territory for the year 2011-2012.

Table 7: Reference hospital centres for Cree patients, 2011-2012

	Beds used*		
	100%	**Average number per day**	**Number of beds required*** **
Chisasibi Hospital**	2,836	7.8	9.7
Hôpital de Val-d'Or and Val-d'Or CLSC	2,949	8.1	10.1
Centre se Santé de Chibougamau	2,729	7.5	9.3
Montreal General Hospital	1,494	4.1	5.1
Centre Hospitalier Hôtel-Dieu d'Amos	792	2.2	2.7
Royal Victoria Hospital	867	2.4	3.0
Montreal Children's Hospital	677	1.9	2.3
Douglas Hospital	705	1.9	2.4
Other	1,246	3.4	4.3
Total	14,295	39.2	49.0
Total outside region	11,459	31.4	39.2

*: The number of beds occupied includes day surgeries and short-term hospitalizations.

**: Chisasibi Hospital data includes 10 residents from other regions.

***: The number of beds required is based on an occupation rate of 80%.

Source: MSSS, Med-Écho Database, 2011-2012.

The McGill University Health Centre (MUHC), with its three installations (MGH, RVH and MCH), the Centre hospitalier de Val d'Or and the Centre de santé de Chibougamau, with 10 beds each respectively, are the most important reference hospital centres. These three hospital centres account for more than 75% of Cree patient hospitalizations outside RSS 18. The other reference hospital centres are used to a lesser extent.

According to data, it is clear that the Cree Board is far from being self sufficient in terms of short-term care and must rely upon services in regions such as Montréal, Abitibi-Temiscamingue and the Regional Centre for James-Bay to respond to the demands of its population.

If the demand for short-term care increases due to Northern Development, one can predict that these same establishments will be in greater demand. Short-term care

services must be consolidated and available on the Cree territory in collaboration with the establishments that offer services to the population of this territory.

3.3 Health and social services offered by Miyupimaatisiiun Community Centres (MCCs) and Multi-service Day Centres (MSDCs)

The strategic regional plan adopted in 2004 recognized the need to establish a MCC in each community in order to provide as many first-line health and social services as possible.

- Primary health care is offered in MCCs and MSDCs in each community. These services are the following:
    - Minor medical emergency services
    - Information/orientation
    - Nursing (ex.: Information, family planning, changing bandages, injections, etc.)
    - Diagnostic support services
    - Nutrition services
    - Physiotherapy
    - Psychosocial services for youth and adults
    - Short-term home services
    - Emergency disaster relief services
    - Community action services
    - Maternal follow-up services

The following table presents the main service statistics for Community Miyupimaatisiiun Centres (CMCs) and Multi-service Day Centres (MSDCs) for the year 2011-2012.

Table 8: Main service statistics for Community Miyupimaatisiiun Centres (CMCs) and Multi-service Day Centres (MSDCs) for the year 2011-2012

Communities	Chisasibi	Mistissini	Waskaganish	Waswanipi	Wemindji	Whapmagoostui	Oujé-Bougoumou	Nemaska	Eastmain	TOTAL
Population (2011)	4,091	3,441	2,097	1,685	1,374	871	786	717	683	15,745
Clients seen by MDs and specialists										
Doctors	0	5,414	1,981	640	1,397	32	624	899	578	11,565
Pediatrician	0	298	87	53	119	78	58	66	90	849
Psychiatrist	122	53	0	0	40	29	22	27	0	293
Ophtalmologist	0	325	451	0	58	26	91	0	54	1,005
ENT (Ear-Nose-Throat)	0	0	69	0	0	0	0	0	65	134
Optometrist	0	0	0	0	143	0	112	0	0	255
Other specialists	0	40	0	0	87	305	0	34	0	466
Visits in Current Services (6307)										
For nurse in walk-in clinic	0	21,059	14,348	8,630	11,173	10,152	3,939	7,061	8,567	84,929
For medication refills	0	0	1,193	4,861	3,307	3,611	2,092	0	0	15,064
For clinical lab tests	0	3,563	581	1,638	1,884	1,880	748	0	0	10,294
Total of nursing acts	0	24,622	16,122	15,129	16,364	15,643	6,779	7,061	8,567	110,287
Client transport										
Emergency Medivacs (7401)	N/A	274	84	114	53	N/A	98	45	40	708
Transport (elective) (7404)	N/A	3,188	1,407	2,221	695	N/A	688	614	536	9,349
Visits in Awash Program (6307)										
Nurse (including vaccination)	8,182	1,576	529	2,922	1,221	2,124	283	338	440	17,615
CHR (individual visits)	1,513	473	497	176	881	76	123	408	0	4,147
CHR (group interventions)	168	0	0	0	263	19	0	0	0	450
Community worker (individual visits)	0	82	764	111	65	10	0	114	145	1,291
Social worker (individual visits)	0	0	0	0	0	0	0	0	0	0
Visits in Uschiniichisuu Program (6307)										
Nurse (including vaccination)	400	453	0	0	155	2,659	250	0	0	3,917
Nurse curative	267	526	0	0	42	0	0	0	0	835
School nurse	0	526	0	0	0	0	0	0	0	526
Total of nursing acts	667	1,505	0	0	197	2,659	250	0	0	5,278
CHR (individual visits)	0	657	0	0	111	15	64	0	0	847
CHR (group interventions)	0	119	0	0	1,301	5	0	0	0	1,425
Community worker (individual visits)	335	778	396	132	105	53	0	0	0	1,799
Social worker (individual visits)	0	0	0	0	0	0	0	0	0	0
School Social worker (individual visits)	0	0	0	123	0	0	0	0	0	123
Visits in Chishaayiyuu Program (6307)										
Nurse (incl. vaccination and women's health)	221	2,293	0	923	1,118	737	564	338	382	6,576
Footcare nurse	316	573	76	112	54	0	34	0	77	1,242
Total of nursing acts	537	2,866	76	1,035	1,172	737	598	338	459	7,818
CHR (individual visits)	0	1,514	1,297	844	282	340	214	7	459	4,957
CHR (group interventions)	0	22	0	0	30	0	0	0	35	87
Community worker (individual visits)	303	1,235	1,099	93	55	0	236	10	144	3,175
Social worker (individual visits)	0	0	0	0	0	0	0	0	0	0
Allied Health										
Physiotherapist (hrs. of service)	1,168	679	114	0	902	150	220	N/A	169	3,402
Occupational Therapist (hrs. of service)	1,686	728	455	0	0	50	0	0	0	2,919
Psycho-educator (hrs. of service)	900	0	N/A	0	201	0	0	0	0	1,101
Nutritionist (hrs. of service)	6	406	0	243	169	0	547	N/A	0	1,371
Speech Therapist (hrs. of service)	N/A	0	0	0	0	0	0	0	0	0
Psychologist (total consultations)	486	236	545	161	224	0	0	194	0	1,846
Multi Service Day Centre (MSDC)										
Number of participants	26	18	21	56	35	24	11	17	13	221
Meals	1,203	1,021	1,437	2,223	66	192	768	0	2,158	9,068

Notes:
1. Numbers in brackets refer to the measuring unit of the activity centre of the MSSS "Manuel de gestion financière".
2. N/A indicates that services were given but statistics were not provided.
3. "0" indicates that either there is no position filled in this community or no services were provided.
4. In Chisasibi, current services are provided by the Hospital.
5. Chisasibi and Mistissini are the only communities with a Pharmacy.
6. Nemaska and Eastmain: no data available for refills of medications, labs and vaccinations.
7. Whapmagoostui: No data available for medevacs and elective transportation.

As well as offering the services mentioned above, CMCs offer the following services:

- Dental Services. The following services are offered:
  - Prevention services
  - Diagnosis services
  - Restoration services
  - Specialized services:
- Services for at-risk youth. The following services are offered:
  - Psychosocial services (first line)
  - Evaluation reports (protection)
  - Referrals to specialized rehabilitation services

Table 9: Budget for Community Miyupimaatisiiun Centres (including MSDCs), 2012-2013

Eastmain	$3,714,297
Oujé Bougoumou	$3,265,185
Nemaska	$3,929,489
Mistissini	$8,935,961
Chisasibi	$6,782,614
Waskaganish	$5,671,546
Waswanipi	$5,561,916
Wemindji	$5,311,795
Whapmagoostui	$4,301,156
Total	**$47,473,959**

3.4 Physicians

3.4.1 Number of positions authorized

The Cree Board identifies the number of required positions by considering several determinants such as: medical practice in isolated regions which differs considerably from practices in an urban area; the absence of specialists established in the region which requires general practitioners to consult specialists from a distance; and advisory duties towards nurses and other health professionals who work in communities without the presence of a doctor.

The remuneration of physicians as per agreements reached between professional associations and the RAMQ/MSSS does not always provide sufficient remuneration according to the medical needs identified. For example, the number of per diems approved by the Ministère de la Santé et des Services sociaux on January 1, 2013 was 7,451, whereas in order to meet additional needs and provide adequate health services to communities, a bank of 10,985 is required. This negative difference of 3,534 per diem is to be discussed by the MSSS and the Cree Board.

In section 3 of the 2004-2009 Funding Framework Agreement between the MSSS and the Cree Health Board, it was stipulated that the funding allocated for doctors during the term of the agreement should not be less than the equivalent of 24 full-time positions.

3.4.2 Number of positions occupied

Medical Department:

- 14 permanent full-time doctors (including one newcomer)
- 10 permanent part-time doctors (including five newcomers)
- 81 "dépanneur" doctors (including 12 newcomers) of which 18 have completed more than 8 weeks for a total of 220 weeks
- Medical students (2/month Chisasibi, 2/month Mistissini)

The Cree Board has no choice but to count on dépanneur doctors to provide the complement of necessary services in several communities. In fact, Eastmain, Oujé-Bougoumou and Waskaganish do not have full-time or part-time doctors. In addition, the number of full-time doctors in the communities that have them is not sufficient to meet the increasing demands of these communities' populations. This situation puts several communities at risk of breaks in service continuity. .

If projects linked to Northern Development are developed in this region and the Cree Board is called upon to offer additional services due to the implementation of such projects, the Cree Board will face a major capacity issue in ensuring medical personnel.

3.5 Public Health Services of the Cree Board of Health

Northern development has had and will continue to have an impact on the CBHSSJB's public health department. For example, the Certificate of Authorization[14] (2006) for the Eastmain-1-A/Sarcelle/Rupert diversion hydro-electric project required the project proponent, Hydro-Québec, to collaborate with the Cree Board of Health in several areas. Two of these mandates involved public health and have required the department to work with Hydro-Quebec to monitor the project's impact on health determinants, and to inform the population about the health impacts of mercury and changes in mercury levels in fish in waterways affected by the project. Both of these areas of activity are ongoing, requiring the time and resources of the public health team.

Also, the public health department receives regular requests from the Ministry of Health of Québec to provide an opinion on the health and social impacts section of environmental and social impacts studies carried out by companies planning development projects. For example, requests have been received regarding the Eleanor gold mine, the Strateco advanced uranium exploration project, the Renard diamond mine and the Blackrock mine. The studies can be thousands of pages long and the delays given by the Ministry are short. All of these projects are on Cree traplines, but on Category III lands, raising jurisdiction questions again. The Ministry's procedures regarding projects in northern Quebec are different from those for projects in southern Quebec; less support is provided to public health departments for the northern projects, and the timeframe is shorter. To properly consider the health and social impacts of development projects, the public health department needs to find out about and study these projects earlier in their development; this involves obtaining the necessary resources.

[14] Authorization from the Ministry of the Environment of Quebec (MDDEP) allowing Hydro-Quebec to go ahead with diversion of the river and the construction of new power generating stations.

Chapter 4 – Key issues for the Cree Board concerning the demand for health and social services with regards to economic effervescence

4.1 Services requiring consolidation and development

When the CBHSSJB settled its outstanding claims with the MSSS in 2004, the negotiations took place in the context of a mutual recognition by all parties that the CBHSSJB had been seriously under-funded since its inception in 1978. However, what was not explicitly acknowledged at that time was that during this period of over twenty years, the CBHSSJB had also been dealing with major impacts from development.

The Cree Board is still catching up in the consolidation of its health and social services in order to be able to respond to the increasing demands of a growing population that has many health and social problems. In spite of significant investments over the past seven (7) years, the development of basic services in each community is taking place, but has not been completed. Since 2004, investments were made to improve and increase first-line services at the local level. A second agreement (*Agreement*), involving the Québec government, the Grand Council of the Crees (Eeyou Istchee), the Cree Regional Authority and the Cree Board, signed in August 2012, will make it possible to improve, increase and develop regional services for the next five (5) years. Catching up with other regions in the field of health care information technologies is also important, as the present situation has a major impact on reporting outcomes and volumes of services.

It is clear that if there is greater demand for health and social services linked to the economic effervescence associated with Northern Development over the next 5 to 10 years, the Cree Board will have to implement the new resources mentioned in the *Agreement* in order to satisfy the need for health and social services for its resident population as well as develop additional services, or establish service corridors with other regions. We must first and foremost improve the level of services in order to respond to the increasing population, then increase this level somewhat in order to be ready to respond to potential additional demand in connection with Northern Development projects.

The challenge of human resources is central to the Cree Board's ability to catch up and consolidate its services. This capacity is dependent on the availability of health professionals and social services. However, the shortage of health professionals affects the Cree Board's rate of development. In spite of improvements over the past few years, nursing positions remain difficult to fill completely. This is reflected in the demand for independent workers. Health professionals, other that doctors and nurses are hard to attract and keep as they are not offered attraction and retention premiums.

Covering medical services as well as the region's dependence on other Québec regions for health and social services remains problematic.

One solution would be to count on a greater number of Cree professionals in all employment categories available. Cree authorities have used several incentives to get Cree youth interested in professions and jobs in all areas of community activities. Fourteen (14) Cree nurses graduated in 2012, which is a big step forward. However, a solution to the shortage of professional manpower does not seem possible in the short term.

4.2 Program to improve the health and social services infrastructure and provide housing to eligible personnel

The program to improve health facilities and social services is a second important issue to improve services to the population that face the increasing demand due to Northern Development. Over the past five years, five (5) MCCs have been built to replace outdated facilities. This program will be implemented over the next 7 years. The construction of a new regional hospital to replace the existing one in Chisasibi is being planned. As well as institutional installations, the construction of residential units to house eligible personnel must also be synchronized. These measures are necessary in order to catch up and consolidate services for the population. Improving the facilities will also make it possible to adequately face the increase in the demand for health services linked to Northern Development.

4.3 Homelessness: a growing problem

Reports from the Abitibi-Temiscamingue and Montréal regions show that an increasing number of people from the Cree regions move to these two regions, and that due to mental health problems, substance abuse or various other problematic situations find themselves homeless. This situation should be documented and closely examined. Indeed, if this phenomenon already exists, could it become more serious due to the impacts of Northern Development on Cree communities? This question should be addressed with the participation of the main regions affected by this problem.

4.4 The Cree Board's jurisdiction over Category II and Category III land

The question of the Cree Board's jurisdiction over Category II and Category III land is the third issue in the context of Northern Development. Presently, the Cree Board only has jurisdiction over Category I land. Which organisation will have the responsibility of supplying health and social services on Category II and Category III land which is where the Northern Development projects will take place? In the next few months, additional discussions between the Cree Board and the MSSS will be necessary in order to answer this question.

4.5 The future impacts of development projects on health and its determinants

- The loss of hunting territory and subsequent impact on the wild game population will lead to a decreased availability of traditional food, which is highly nutritious, as well as to stress and psychosocial problems.
- Contamination of waterways and of the traditional food chain with industrial pollutants, either from the industrial site itself or from road transport of large amounts of diesel fuel, for generating electricity, or of other chemicals, may occur, leading to either long-term toxic effects or environmental emergencies. Will the Ministry of the Environment (MDDEP) be able to ensure that developers carry out the proper surveillance?
- Increased road traffic near the Cree communities requires that adequate policing and emergency responses, in case of injuries, as well as improved facilities in the communities, be in place.
- Increased availability of drugs and alcohol will necessitate a strengthening of both traditional and conventional services aimed at these problems.

- In addition to the already high incidence of chlamydia and gonorrhea, it is likely that certain more serious sexually-transmitted diseases, such as those already being seen in the Abitibi-Temiskaming area, will spread to the Cree communities.

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Annexe 1

RÉGION DU NORD-DU-QUÉBEC

Tableau 9 : Les dix professions les plus en demande, Nord-du-Québec, 2012-2021

Emplois	Total
Opérateur ou opératrice d'équipement lourd spécialisé (pelles et camions) (CNP 7421)	844
Journalier ou journalière (mines) (CNP 8411)	562
Opérateur ou opératrice de machines dans le traitement du minerai (CNP 9411)	545
Mineur-dynamiteur ou mineuse-dynamiteuse (sous terre) (CNP 8231)	537
Mécanicien ou mécanicienne d'équipement lourd (CNP 7312)	461
Technicien minier ou technicienne minière (CNP 2212)	403
Foreur ou foreuse au diamant (surface) (CNP 8231)	391
Mécanicien industriel ou mécanicienne industrielle (CNP 7311)	361
Opérateur ou opératrice de foreuses mécanisées (jumbo) (CNP 8231)	359
Manœuvre de mines (CNP 8614)	300

Tableau 9.1 : Les professions les plus en demande selon le niveau de scolarité habituellement exigé, Nord-du-Québec, 2012-2021

Formation universitaire	Total
Géologue (CNP 2113)	278
Ingénieur minier ou ingénieure minière (CNP 2143)	76
Ingénieur ou ingénieure géologue (CNP 2144)	71
Ingénieur ou ingénieure en mécanique industrielle (CNP 2132)	66
Surintendant ou surintendante, et capitaine (mine) (CNP 0811)	60
Formation technique	**Total**
Technicien minier ou technicienne minière (CNP 2212)	403
Technicien ou technicienne de laboratoire (CNP 2212)	200
Secrétaire (CNP 1241)	138
Technicien ou technicienne (environnement et ventilation) (CNP 2231 ou CNP 2232)	112
Dessinateur ou dessinatrice AutoCAD (CNP 2212 ou CNP 2255)	102
Formation professionnelle	**Total**
Opérateur ou opératrice d'équipement lourd spécialisé (pelles et camions) (CNP 7421)	844
Opérateur ou opératrice de machines dans le traitement du minerai (CNP 9411)	545
Mineur-dynamiteur ou mineuse-dynamiteuse (sous terre) (CNP 8231)	537
Mécanicien ou mécanicienne d'équipement lourd (CNP 7312)	461
Foreur ou foreuse au diamant (surface) (CNP 8231)	391
Exigence non spécifiée	**Total**
Journalier ou journalière (mines) (CNP 8411)	562
Manœuvre de mines (CNP 8614)	299
Manœuvre (CNP 7612)	189
Préposé ou préposée à la préparation d'échantillons (CNP 9611)	183
Journalier ou journalière (moulin) (CNP 9611)	51

Source: Simard et coll. 2012.