

# The Economic Development Assessment Model 1.5 Working Draft Revisions and Results

## Introduction

The EDA Model was constructed for the Deh Cho Land Use Planning Committee to simulate the impact of major alternative land use decisions in the Deh Cho. Major revisions were undertaken in the Forestry, Natural Gas and Mining sectors based on feedback from summer 2004 consultations and contribution of planning partners. The revisions are presented along with results for the Working Draft, Current Land Withdrawals and the Full Development scenarios over a 20-year period from 2005-2025.

Further details are available in the Report: The Economic Development Assessment Model 1.5 - Working Draft Revisions and Results (DCLUPC 2005)

The Full Development scenario shows the maximum level of development expected in the region. For the Working Draft and Current Land Withdrawals the Full Development production volume is scaled according to the volume or area available for Forestry, Agriculture and Natural Gas. In the Tourism and Mining sectors each scenario reflects specific sites and deposits.

The "Available" potential or opportunities in all scenario's, far exceeds the maximum which could realistically be "Developed" in the region over the period (Table 1, Charts 1 and 2). Furthermore a significant increase in development would be required to achieve projected production levels for all scenarios.

Through the Deh Cho Process negotiations and the approved Land Use Plan (represented in the Working Draft) issues of jurisdiction and revenue sharing will be addressed providing greater certainty and reducing the need for changes in subsequent revision cycles. Education must also be a priority if local people are to participate and benefit from development.

**Table 1. Potential Available and Developed in Scenarios Over 20 Years**

LAND USE		LEVEL OF DEVELOPMENT		
		CLW.	WORKING DRAFT.	FULL DEV.
Agriculture	Available	1,092,913 ha	1,069,001 ha	1,841,244 ha
	Developed	89,605 ha	84,049 ha	146,209 ha
Forestry	Available	454,910 ha	421,184 ha	544,359 ha
	Developed	13,323 ha 845,362 m3	12,768 ha - 789,614 m3	15,649 ha - 1,136,770 m3
Natural Gas	Available	2,345,282 ha - 66.3 Billion m3	2,229,413 ha - 61.5 Billion m3	3,974,649 ha - 91.9 Billion m3
	Developed	11.4 Billion m3	10.8 Billion m3	17.3 Billion m3
	Developed	39 Production wells	37 Production wells	62 Production wells
	Developed	219 Exploration wells	206 Exploration wells	371 Exploration wells
Mining	Developed	Cantung, Prairie Creek, Coates Lake	Cantung, Prairie Creek, Coates Lake, Pine Point	Cantung, Prairie Creek, Coates Lake, Pine Point, Diamond, Gem, Gold
	Available	77 sites	117 sites	166 sites
Tourism	Available	77 sites	117 sites	166 sites
	Developed	45 sites	72 sites	103 sites

## Data Revisions

### Oil & Gas

Key concerns: economic risks associated with Northern exploration.

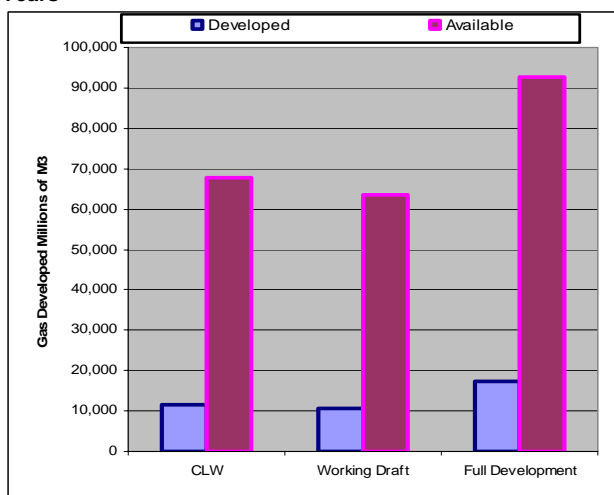
Commissioned Report: "Oil and Gas Field Size Distribution of the Deh Cho Territory" (Drummond 2004) to better determine the geological gas potential of the region. Revisions are based on Remaining Recoverable Gas (RRG).

Quarter grids containing >50million m3 (relatively high potential) south of 61°30' (closest proximity to infrastructure) were considered viable under the Full Development scenario. This potential equates to 63% (92 Billion m<sup>3</sup>) of the 147 Billion m<sup>3</sup> of RRG.

The area was divided into 3 general regions (Liard, Trout Lake and Cameron Hills) and appropriate costs, operational parameters established to reflect geological potential, relative costs and proximity to infrastructure.

The potential Developed in the Full Development scenario reflects the level of activity south of 60°00'. Additional scenarios relate to the potential available compared to the Full Development scenario (Chart 1).

**Chart 1. Natural Gas - Developed and Available Potential Over 20 Years**



### Forestry

DCLUPC worked closely with RWED to revise the forestry sector data. Summarization problems with the original data required new analysis to reflect actual saw log potential and appropriate development scenarios.

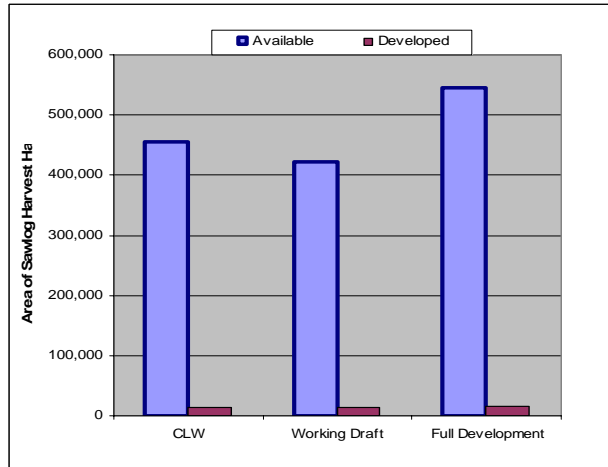
RWED provided a Long Run Sustainable Yield Average for Aspen, White Spruce and Pine. Cost parameters were revised accordingly and outlined in "Economic Parameters for Estimating the Delivered Wood Cost in the Deh Cho Planning Area" for 3 operating regions (Myers Norris Penny LLP, 2005).

The annual allowable cut is estimated to be less than 500,000m3 for a long run sustainable harvest. The Full Development scenario reflects potential, existing operations and expected level of development, given local capacity, appropriate silvicultural practices for the region and relative profitability of spruce. For the Current Land Withdrawals and Working Draft scenarios, the Full Development production volume was scaled according to the volume Available (Chart 2, Table 2).

**Table 2. Full Development Forestry scenario**

Operating Region	Aspen	Spruce	Annual Harvest in Yr 20
Ft Liard	5000 m <sup>3</sup> /yr (years 3-20)	Increments of 5000 m <sup>3</sup> /yr every 2 yrs (years 5-20)	45,000 m <sup>3</sup> / year
Ft Simpson	5000 m <sup>3</sup> /yr (years 1-20)	Increments of 5000 m <sup>3</sup> /yr every 2 yrs (years 3-20)	55,000 m <sup>3</sup> / year
Enterprise		5000 m <sup>3</sup> /yr (years 1-20)	5,000 m <sup>3</sup> / year

**Chart 2. Forestry - Developed and Available Potential Over 20 Years**



### Mining

Key concerns: ensure geological potential is reflected both in determining the potential and exploration risks.

DCLUPC staff met with DIAND and GNWT staff to establish appropriate scenarios to capture potential. Considerations included timeline for regulatory approval, existing dispositions and prevailing market conditions. Additional data was provided by GNWT and Canadian Zinc.

The model provides the option of running scenarios with different mines turned on or off. Under the Full development Scenario all the mines were turned on to capture the broader potential of the region. In the Current Land Withdrawals and Working Draft scenarios existing dispositions (\*) were assumed to go ahead. The Working Draft also assumed the Pine Point deposits would resume activity towards the end of the period.

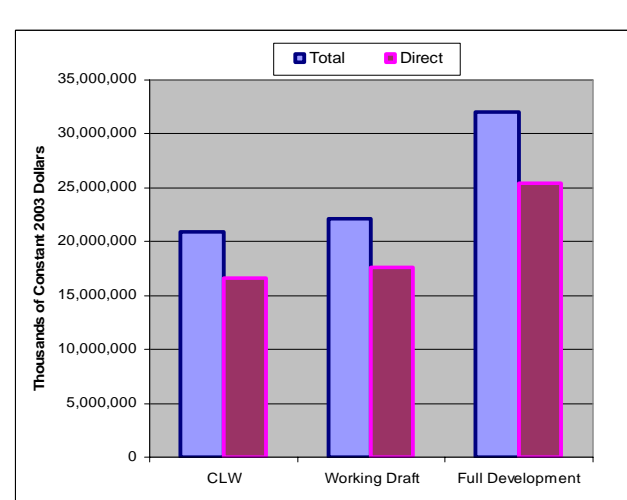
**Table 3. Mining - Full Development Scenario used in EDA Model**

Mine	Deposit Type	Start Date	Duration (years)
Cantung*	Tungsten	2006	5-7
Prairie Creek*	Lead, Zinc, Silver	2009	20 +
South of Nahanni	Gold	2012	15
Coates Lake*	Copper, Silver	2014	20-25
Pine Point (Westmin Style)	Lead, Zinc	2015	7-10
Modelled after Tehera / Snap Lake	Diamond	2015	8-10
Emerald	Gem - emerald	2015	8-10

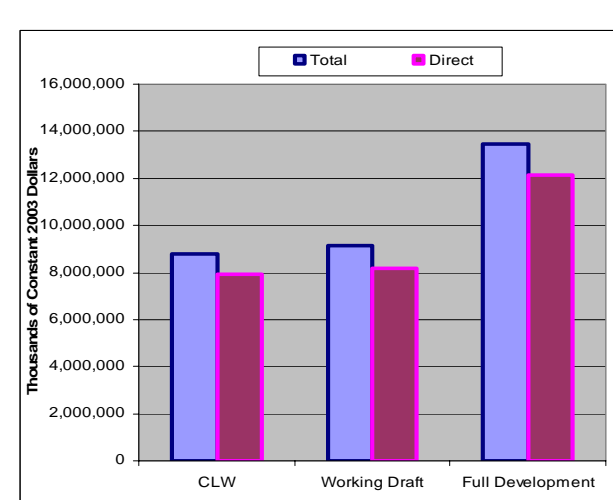
## General Trends

There are a number of general trends. Higher levels of development result in increased Gross Expenditure, Gross Domestic Product, Employment, Labour Income, Tax Revenues and Population Levels. This is illustrated by comparing the Gross Expenditure (Chart 3), Gross Domestic Product (Chart 4) and Labour Income (Chart 5) for different scenarios. Also a high proportion of the Gross Expenditure (79%), Gross Domestic Product (90%), Employment (81%) and Labour Income (76%), is directly related to resource development in each scenario.

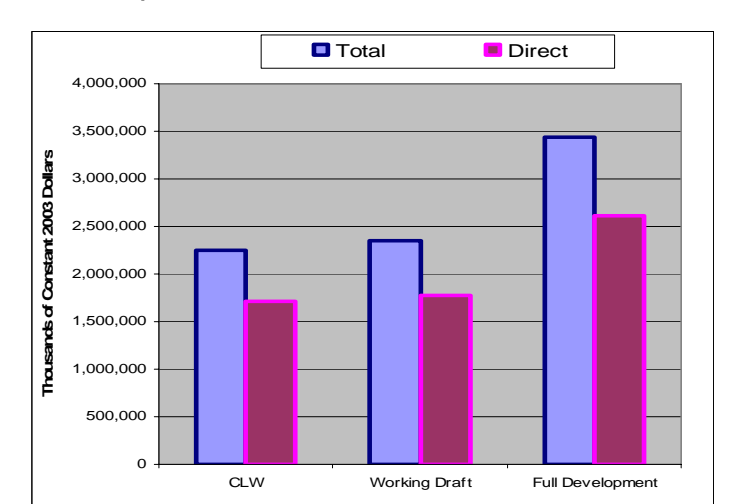
**Chart 3. Deh Cho Gross Expenditure Over 20 Years**



**Chart 4. Deh Cho Gross Domestic Product Over 20 Years**



**Chart 5. Impact on Deh Cho Labour Income Over 20 Years**



## Employment and Population Change

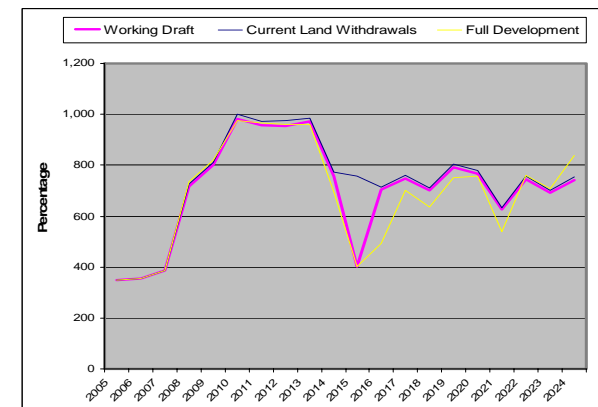
The economic performance can largely be attributed to non-renewable resource development activities with large capital expenditures. These activities increase employment opportunities and demand for skilled labour and services. This demand could easily absorb the supply of local people and businesses looking for these types of opportunities with the necessary skills. Unemployment is currently around 20.7% (~1,035 people). There is also a low level of education and a heavy reliance on the government sector for jobs, transfer payments and external funding. The employment opportunities from the Working Draft scenario far exceeds the needs of the local people. More development would not necessarily reduce or eliminate the aboriginal unemployment rate over the period as the different scenarios in Chart 6 demonstrate.

Many local people retain strong cultural values and family ties and there is a challenge in matching skill levels and training with appropriate jobs in the same spot. The alternative is to leave the community to find a job that matches their training, skills and interests.

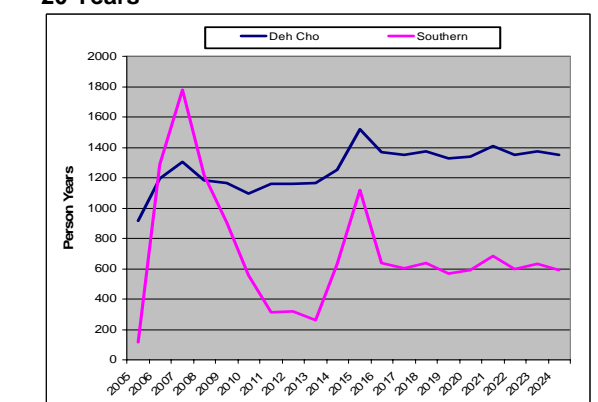
Southern workers would be required in all scenarios to meet the skilled labour demand (Chart 6), particularly for larger short term projects such as the Mackenzie Gas Project in the early years (Chart 7). This relates to the size of individual developments in the non-renewable resource sector and the relatively short term nature of local participation.

Labour demand will drive in-migration of Southern workers and their families, increasing the population by 35%, 37% and 61% for the Current Land Withdrawals, Working Draft and Full Development scenarios (Chart 9). Projected Birth and Death Rates indicate the Deh Cho population would eventually decline without in-migration. There will always be a trade off between development and in-migration of skilled labour.

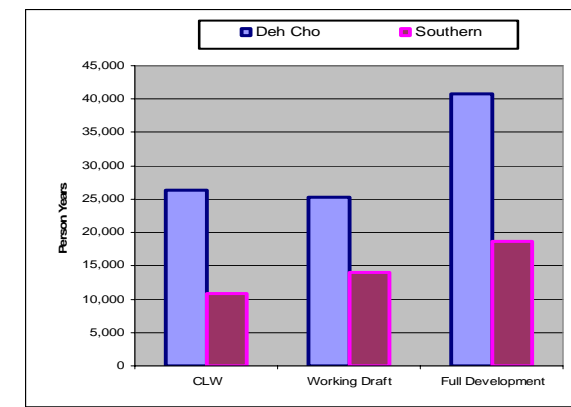
**Chart 6. Deh Cho Unemployment - All Scenarios Over 20 Years**



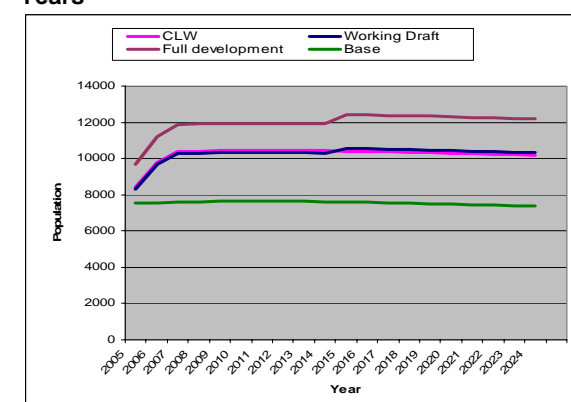
**Chart 8. Direct Employment - Working Draft Over 20 Years**



**Chart 7. Direct Employment - Scenarios Over 20 Years**



**Chart 9. Change in Deh Cho Population Over 20 Years**



## Conclusions

In all scenarios non-renewable resources will play a major role in driving economic development. It will be important to provide opportunities for development to go ahead unhindered and also maximize benefits to local people. A larger proportion of total revenue (Chart 10.) must remain in the region as dependence on transfer payments declines and demands on infrastructure and services increase.

Education must be a priority if individuals are to benefit from higher income opportunities in the development sector and participation rates are to increase. It will be important to diversify into industries which can provide local jobs and opportunities appropriate to the interests and skills of local people. Developing secondary industries could also provide valuable opportunities to build local capacity, add value, increase revenue, provide local jobs and reduce vulnerability to the price for raw materials.

**Chart 10. Impact on Revenue - Scenarios Over 20 Years**

