

The Economic Development
Assessment Model 1.0
July 2004

**Prepared By: Ellis Consulting Services
For the Deh Cho Land Use Planning Committee**

Table of Contents

THE DEH CHO ECONOMIC DEVELOPMENT ASSESSMENT MODEL	3
Introduction.....	3
Description of Economic Development Assessment Model	3
Input-Output Model Construction.....	3
Uses and Limitations of Input-Output Models and Multipliers	4
The Open And Closed Model	5
Description of Types of Multipliers.....	5
Intensity Ratios (Open Model).....	5
Multipliers (Open Model)	6
Intensity Ratios (Closed Model)	6
Output Tables and Charts.....	6
Description of Model Output Variables.....	6
Description of Multipliers	6
Description of Tables.....	7
 THE DEMOGRAPHIC AND LABOUR FORCE MODELS	 9
Introduction.....	9
Description of Economic Labour Force Model	9
 ASSESSMENT OF LAND USE OPTIONS	 10
Purpose.....	10
Land Use Options	10
Methods and Assumptions	10
Model Inputs	10
Model Outputs.....	13
Deh Cho Land Use Option Number One	14
Deh Cho Land Use Option Number Two	15
Deh Cho Land Use Option Number Three	16
Deh Cho Land Use Option Number Four	17
Deh Cho Land Use Option Number Five	18
Deh Cho Land Use Option Number Six - Current Land Withdrawals	19
Comparison of Deh Cho Land Use Option Outputs	20
 THE EDA MODEL OPERATING PROCEDURES	 22
Accessing the Model.....	22
1. The Land Use Menu Option	22
2. The Commodity Space.....	25
3. The Industry Space.....	26
 Appendix 1: Commodities and Industries.....	 27
Commodities	27
Industries	29

THE DEH CHO ECONOMIC DEVELOPMENT ASSESSMENT MODEL

Introduction

The Deh Cho Economic Development Assessment (EDA) Model was constructed for the Deh Cho Land Use Planning Committee.

The model provides a mechanism for simulating the impact of major alternative land use options in the Deh Cho.

Description of Economic Development Assessment Model

The Deh Cho EDA Model is a time series model that uses an input output model to provide annual estimates of four economic impacts. These are Gross Domestic Product (GDP), labour income, employment and government tax revenues. In addition both a demographic and labour force model has been linked that provide impacts on the local labour market and population.

Input-Output Model Construction

The Deh Cho input-output model has been created using the Statistics Canada 1999 public make, use and final demand tables at the small level. The model has been constructed using an identical structure to that used by Statistics Canada in the national input-output model. For a complete description of this model please refer to Statistics Canada catalogue 15-510 The input-output structure of the Canadian economy.

The Deh Cho input-output model has been expanded from the small level to include 84 commodities, 41 industries and 16 final demand categories. The number of industries and commodities were expanded using information developed by ECS with assistance from the Land Use Planning Committee. The tables were constructed using information from the census, the number and kind of businesses operating in the Deh Cho Region (from RWED and updated by Land Use Planning Committee Staff) and other statistical sources. Users must recognize the difficulty in producing detailed data at the regional level and while the model can be said to capture the “big picture”, the impacts of individual commodities and industries will have varying degrees of accuracy. It is therefore recommended that only aggregate level results be used and circulated for public consumption.

One major difference between Statistics Canada industry and commodity classification is that in the Deh Cho Model ECS has added market based estimates for the “traditional” economy. These industries and commodities contain “imputed” estimates for the value of these activities based on replacement cost. A list of industries, commodities and final demand categories is contained in Appendix One.

The input-output model presents results for both an open and closed version of the model. The inverses or impact tables have been calculated using the following form:

$((I-D(I-m)B)^{-1}$, where

- I is an identity matrix
- D is the industry share matrix
- B is the matrix of technical coefficients
- M is a diagonal matrix of coefficients calculated as the ratio of imports and inventory withdrawals to total use

In the above form the model has been calculated using leakages for imports and inventory withdrawal.

The model can be accessed through both commodity and industry space as well as from a menu designed to reflect land use options. The model is designed to be simple to use but give users the control and flexibility necessary to make adjustments to improve the results of the simulations. For a more detailed description of the model's operation please refer to the operating procedures.

Uses and Limitations of Input-Output Models and Multipliers

Although economic multipliers produced by input-output models are a very useful component in the decision making process, users should be aware of their limitations. Some of the more significant ones are that input-output models are static, not subject to the limits of production capacity, and are based on average patterns for technology and costs for commodities and industries. For these and other reasons input-output models cannot provide a complete or absolute measure of the impact of economic change. For example, if there is an increase in demand for a commodity, the model assumes that (1) production can be met without a change in capacity (i.e.. the construction of new plants); (2) Deh Cho industries will maintain their fixed share of the market, and the remainder will be imported from outside the region; and (3) that the increase output will be accomplished at the industry average costs of production using 1999 technology. It is unlikely that any of these assumptions would hold in the real world. In all probability, there would be a change in market share and, depending on the level of capacity, the marginal costs of an increase in output would be greater or lower than the average costs. In addition, there have been significant changes in technology in many industries since 1999.

In spite of these limitations, input-output models and the economic multipliers they produce can be extremely useful especially when they are used for comparative rather than absolute purposes. The most common use for input-output models simulations and the multipliers in general is in estimating the economic impact of the establishment of a new firm, or the expansion, contraction or closure of existing firms. As previously stated it is preferable to use multipliers in a relative rather than absolute sense. For example they should be used to determine which of two or more activities has the largest impact rather than attempting to estimate the absolute impact of a single activity. If multipliers are used to estimate the impacts of a single event the user should be cautioned that the results should be treated as general estimates only and never as absolutes.

The Open And Closed Model

The EDA Model provides estimates of direct, indirect impacts and induced impacts. When the results are referred to as “open” then only direct and indirect impacts have been considered. When induced impacts are included as well the results are referred to those of the “closed” model.

In the closed model the consumer sector is considered as a production sector. The input of the household sector is considered to be consumer expenditure on goods and services and its output is labour income (consisting of wages and salaries, supplementary labour income and net income of unincorporated business). It is assumed that the households, after withdrawing a portion for savings and taxes, spend their incomes on consumer goods and services. This increases the interdependence of the system and results in a higher impact on the variables of the model, leading to multipliers of a larger magnitude than those in the open version. The impacts of closing the system to households are referred to as the induced effects.

There has been criticism of the closed model because it has been said that it introduces a bias in favour of projects with a higher labour content. For example, two projects might generate the same level of GDP but if one has a higher proportion of labour income and the other a higher proportion of other operating surplus (for example corporate profits) then, all other things being equal, use of the closed model will result in the one with the higher proportion of labour income having the largest economic impact. This is because the closed model has been closed to the household spending and not profits.

While it is recognized that this can be a problem it also acknowledges the need to be able to estimate induced impacts. Therefore the EDA Model is presented in both open and closed form. This will allow the Land Use Committee to judge for themselves where inclusion of induced impacts are warranted or advisable.

Description of Types of Multipliers

Multipliers can be derived for either industries or commodities and expressed in absolute form or as intensity ratios. In this model they are presented for gross production, gross domestic product (at basic prices), labour income, and employment. Below is a brief description of each of the summary results which are produced for each simulation.

Intensity Ratios (Open Model)

Commodity intensity ratios present the direct and indirect effects of a dollar purchased in the Deh Cho for each simulation. The results are in the form of intensity ratios and measure the in-region effects in terms of labour income, GDP and employment. Both labour income and GDP are expressed in terms of impact per dollar of purchase while employment is expressed in the number of jobs per \$10,000 purchased.

Multipliers (Open Model)

Multipliers for labour income, gross production and GDP are expressed in terms of total impact (direct and indirect) as a ratio of the direct impact. The employment multiplier is expressed in terms of total employment per direct job.

Intensity Ratios (Closed Model)

The intensity ratio for the closed model is analogous to the one presented for the open model except that it includes induced impacts as well as the direct and indirect impacts.

Output Tables and Charts

Description of Model Output Variables

Gross Domestic Product (GDP)

GDP refers to the value of total production within a given geographical area for a specific time period and in this model it is measured in constant 2003 prices. GDP includes output that is produced by capital stock which is owed by non-residents of the Deh Cho, but it does not include income received by residents on production which takes place outside the region. Thus GDP is strictly a measure of production within the Deh Cho Region. The GDP or value added of an industry is the difference between gross value of production of that industry less the total value of purchases of goods and services from other firms.

Labour Income

Labour income includes wages and salaries, supplementary labour income, mixed income and imputed mixed income. Wages and salaries refer to direct payments other than pensions made to employees. It is calculated before deductions are made for contributions to social security, taxes and so on. Supplementary labour income covers payments made by employers on behalf of employees. It includes employer's contributions to employment insurance, welfare funds, worker's compensation and CPP. Mixed income includes all income received by unincorporated businesses while imputed mixed income represents the imputed income earned by households.

Employment

All employment in the model represents person-years.

Description of Multipliers

The estimate of Gross Domestic Product (GDP) produced by the Deh Cho Economic Development Assessment Model (EDA Model) provides a measure of unduplicated economic production. It is "unduplicated" because it measures only the value of final transactions as all inter-business purchases and sales associated with intermediate production are canceled out.

For example, the value of a good or service sold by industry A to industry B to be used in its production process is not directly recorded in GDP. It is not directly counted because its value is implicitly included in the value of output of Industry B. If it was counted when it was sold as an intermediate good or service and again when its embodied value was sold by industry B into final demand it would be double counted. To avoid this problem goods or services are valued only when they are sold into final demand (i.e. when they are sold to households for consumption, to business for investment, to government for current or capital expenditure or when they are exported).

A necessary by-product of the measurement of GDP is that the record of these intermediate transactions is lost and extremely useful information concerning the linkages between industries is not revealed. Input-output accounts constitute an attempt to bring back into record these inter-industry flows of good and services.

The most used components of the input-output accounts are the economic multipliers. For example, an increase in demand for a commodity will produce three effects. The first is the impact on firms which expand production to satisfy that demand. These are termed as "direct" impacts. Secondly there is a ripple effect as these firms must obtain more inputs which are purchased from other firms. These are termed the "indirect" effects. Lastly, as all firms expand production they hire more staff and pay out wages which increases the income received by households. The households, after withdrawing a certain portion for taxes and savings, spend this income which, in turn, increases the demand for other commodities. These are termed the "induced" effects.

Multipliers are calculated by taking the total change and dividing it by the direct change. Two main kinds of multipliers can be derived. The first are called "simple" multipliers and reflect only the direct and indirect effects. In the EDA Model they are referred to as the results of the "open" model. The second type of multipliers are called "total" multipliers and in addition to reflecting the direct and indirect effects include the induced effects. In this publication they are referred to as the results of the "closed" model.

Description of Tables

There are two sets of tables and one set of charts. All values are in constant 2003 dollars and employment is in person years. For all tables direct impacts are presented from columns B to U. Indirect impacts are presented on columns V to AO. Induced impacts are presented on columns AP to BI. Total impacts are presented on columns BJ to CC

Detailed Tables – Worksheet “Tables-Det”

Table 1: Summary of Results

This table has two parts. The first presents a summary of the total impacts given (by industry and detailed tax) on tables 2-6. It also adds in any direct exogenous results (if there are any) that result from direct user input. The second part of the table presents multipliers and intensity ratios which have been calculated for both the open and closed results.

Table 2: Total Taxes and Royalties

Taxes and Royalties are given by level of government and type.

Table 3: Gross Production by Industry

Gross Production represents the gross output of sales of an industry (after subtracting sales from withdrawals from inventories and adding any contributions to inventory) and represents the current output of each industry.

Table 4: Gross Domestic Product by Industry

GDP represents the value added of each industry.

Table 5: Labour Income by Industry

Labour Income represents wages & salaries, supplementary labour income and mixed income both imputed and market.

Table 6: Employment by Industry

Employment by industry is given in person-years.

Table 7: Average Wages by Industry

This table presents the average labour income per employee by industry. The average wages are a useful indicator of whether the employment estimates generated by the model are realistic. For example, a very high average income would indicate that the employment estimate is probably too low.

Summary Tables – Worksheet “Tables-Sum”

The summary table section includes a summary of the data presented in the detailed tables section without the industry detail. This section also includes a table giving impacts on the population and labour market.

Charts – Worksheet “Charts”

The Charts worksheet includes a highly aggregated summary of the data presented in both table and chart form.

THE DEMOGRAPHIC AND LABOUR FORCE MODELS

Introduction

The Economic Assessment Model uses labour force data and a demographic model to provide estimates of the

Description of Economic Labour Force Model

The Deh Cho Economic Impact (EDA) Model was constructed for the Deh Cho Land Use Planning Committee.

ASSESSMENT OF LAND USE OPTIONS

Purpose

The purpose of the Economic Development Assessment Model is to estimate the potential regional economic impacts of development for the different Land Use Options. This will assist in making informed land use planning decisions and help ensure the Land Use Plan reflects stakeholder interests.

Land Use Options

Land Use Options represent different visions for how we might develop the land and resources in the Deh Cho territory. We have chosen 5 options that show different levels of resource development and compare these to each other and the current land withdrawals. The Land Use Options divide the Deh Cho territory into 3 Zones – Conservation Zones, Multiple Use Zones and Uncertain Zones. Development (Oil and Gas, Mining, Forestry, Tourism and Agriculture) is limited to the Multiple Use Zones for the purpose of the economic analysis.

Methods and Assumptions

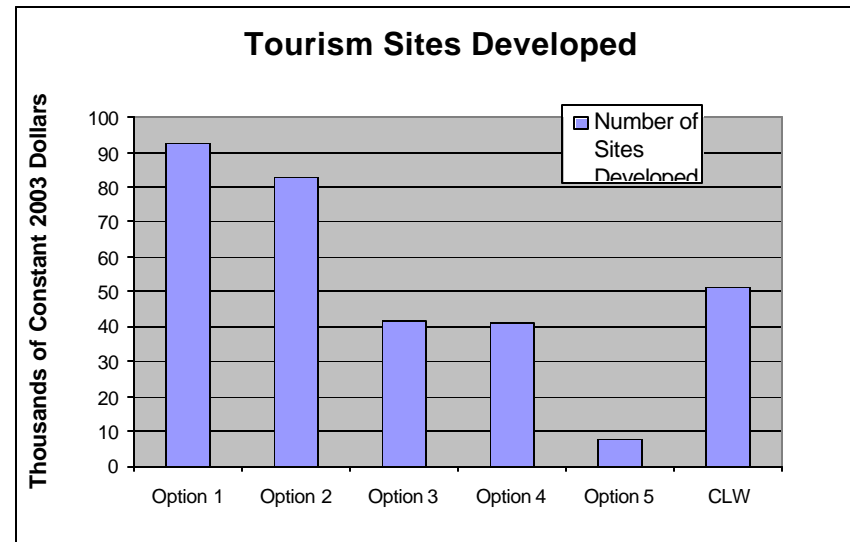
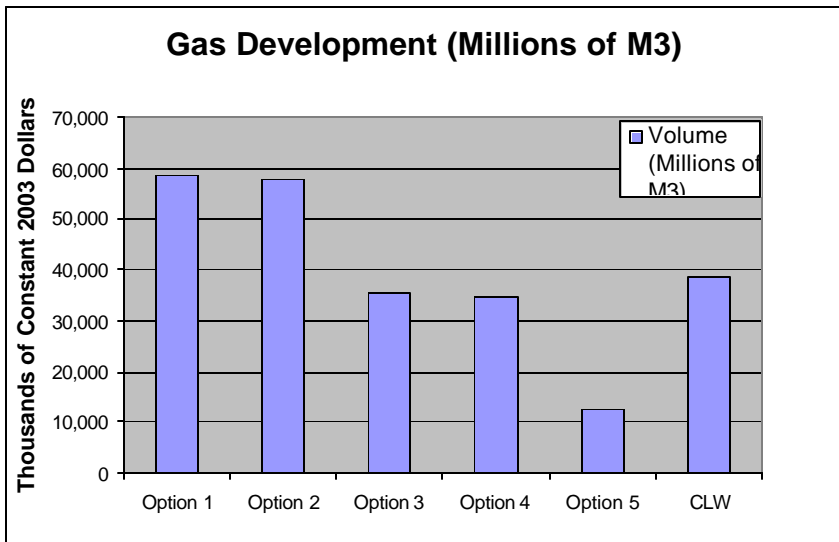
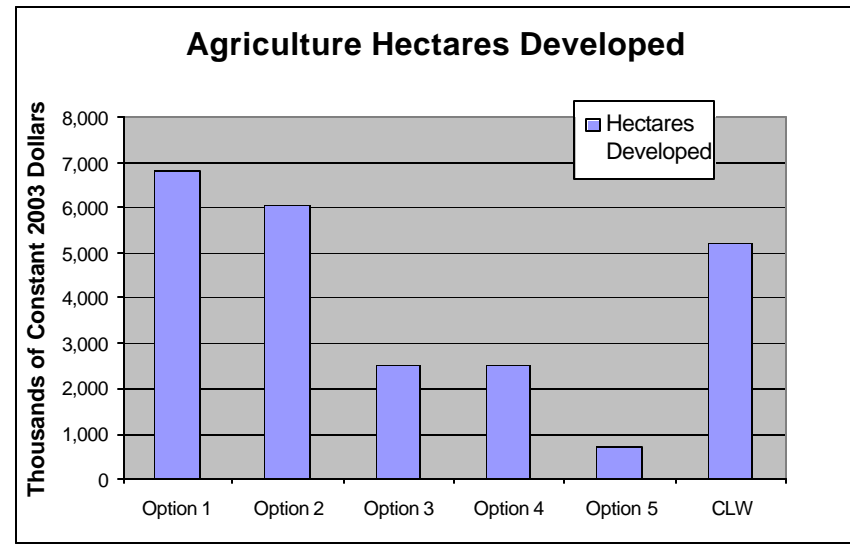
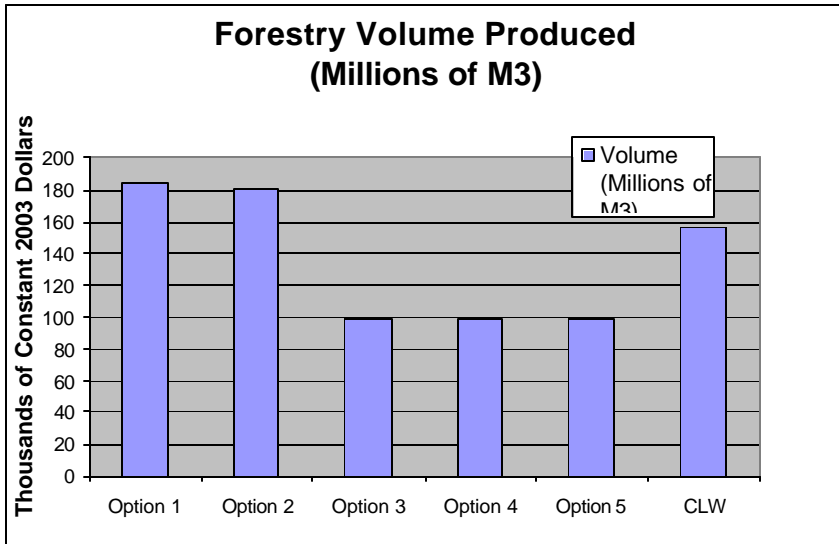
For each option we identify the development projects that fall into the Multiple Use Zones and determine the economic impacts of developing that resource over the next 20 years. If a development project falls in a Multiple Use Zone, we “turn it on” or activate it in the economic model. The only thing that changes between each option is the extent or level of development (i.e. how many hectares, sites or cubic metres of resource are developed).

The same timing has been used for each scenario. Development is paced out development over 20 years to provide a continuous stream of employment opportunities without requiring a huge influx of southern workers. Basic assumptions have been made about when certain projects might go ahead. For instance, any areas currently being developed (e.g. Cameron Hills or Fort Liard) are developed immediately in the economic analysis. Those with higher risk or less potential are delayed. All options assume the Mackenzie Valley Pipeline and the Mackenzie Bridge will proceed according to schedule. Because the pipeline is so labour intensive, we’ve also assumed no other major projects will occur during the construction phase as there will be few workers available. By keeping the timing constant for all options, we can compare results based only on the level of development and conservation.

Model Inputs

The following table and figures show the development levels provided for in each option. These are the model inputs that determine the economic implications of each option..

Figure 1. Comparison of development levels by resource sector.



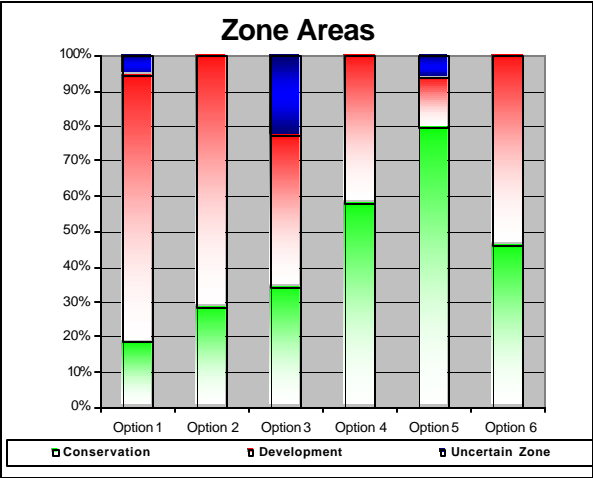
Model Outputs

The following pages present the model outputs for each of the 5 options plus the existing land withdrawals. The detailed charts are provided for each individually, then are merged for comparative purposes.

Option 1 provides for the greatest level of development in the Deh Cho region. Development then decreases incrementally to Option 5. The current land withdrawals have very similar inputs and outputs to Option 2.

There are a number of general trends. Higher levels of development lead to higher Gross Expenditure, Gross Domestic Product, Employment, Tax Revenues and Population Levels. This trend is observed from Option 1 through to Option 5. It is also born out in the high proportion of Gross Expenditure (79%), Gross Domestic Product (87-89%) and Employment (75%) arising directly from Development activities for all the Options. This indicates the importance of resource development in the Deh Cho economy and reflects the low monetary value associated with traditional activities.

As the amount of land available for development declines so does the Gross Expenditure, GDP, Employment and Tax Revenue. These represent the Opportunity Costs for conserving additional land. For example protecting an additional 63,370.2 Km³ in Option 4 compared to Option 2 has an Opportunity Cost of \$3.4 billion over 20 years. This area represents 29% of the Deh Cho and the Opportunity Cost will vary with different development activities and the area's development potential. An indication of the variations in Development, Conservation and Uncertain Zones is illustrated in the Zone Areas Chart.



There appears little difference between Options 3 and 4 due to a large number of Uncertain Use Zones in Option 3 and limited difference in the actual Development Zone. Decisions will need to be made regarding the use of Uncertain Use Zones.

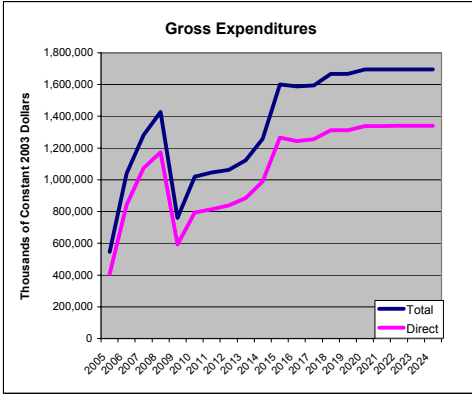
Option 1 has the highest level of Total Employment reaching 51,339 person years over 20 years or 3,122 annually compared to 14,514 person years over 20 years and 721 annually for Option 5. In both cases more than 74% of this demand is directly related to development

activities. The unemployment rate (%) falls with higher levels of development. This reflects the limited employment opportunities offered in traditional pursuits compared to development activities.

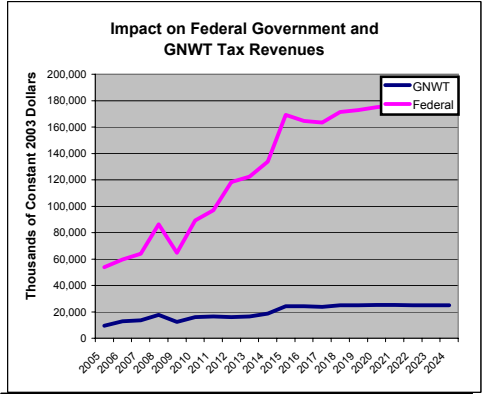
These factors also impact the population with a 28% increase in population over 20 years for the highest level of development in Option 1, compared to only 7% for the lowest level of development in Option 5. An aging population and declining birth rate may slightly offset population growth.

Deh Cho Land Use Option Number One

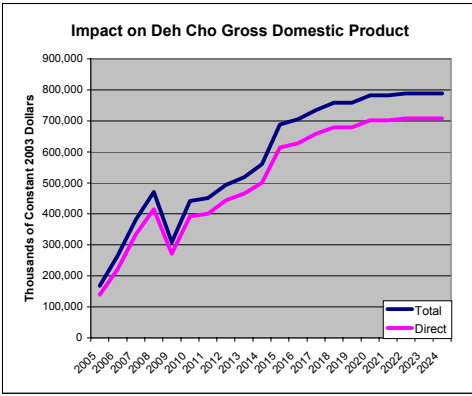
Year	Expenditures (000's of 2003K\$)	
	Total	Direct
2005	546,131	406,407
2006	1,040,047	842,149
2007	1,282,708	1,075,263
2008	1,428,009	1,173,797
2009	760,856	592,375
2010	1,019,096	793,801
2011	1,046,152	814,642
2012	1,061,973	838,260
2013	1,122,213	885,889
2014	1,258,029	989,457
2015	1,600,925	1,265,370
2016	1,589,034	1,243,723
2017	1,594,089	1,256,041
2018	1,667,323	1,312,464
2019	1,667,323	1,312,464
2020	1,695,235	1,338,326
2021	1,695,235	1,338,326
2022	1,696,179	1,340,627
2023	1,696,179	1,340,627
2024	1,696,179	1,340,627
Total	27,162,916	21,500,634



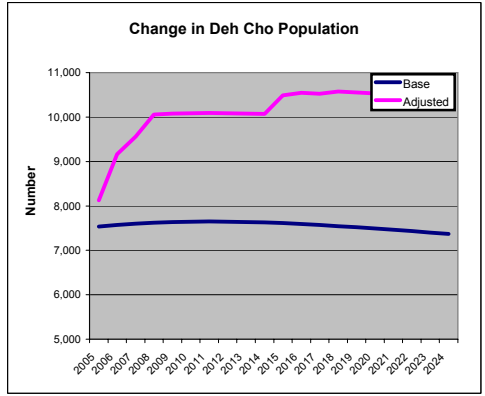
Year	Tax Revenue (000's of 2003K\$)	
	GNWT	Federal
2005	9,494	53,838
2006	12,920	59,589
2007	13,484	64,020
2008	17,604	86,213
2009	12,401	64,622
2010	16,078	89,309
2011	16,515	96,906
2012	15,886	118,263
2013	16,424	122,468
2014	18,640	133,826
2015	24,281	169,121
2016	24,342	164,581
2017	23,791	163,313
2018	24,976	171,403
2019	24,976	172,938
2020	25,099	175,030
2021	25,099	176,395
2022	24,994	177,516
2023	24,994	178,965
2024	24,994	179,405
Total	396,990	2,617,720



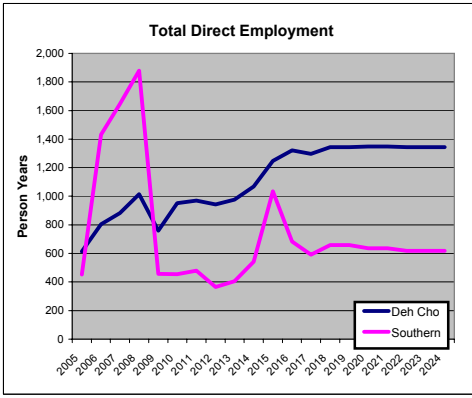
Year	Deh Cho GDP (000's of 2003K\$)	
	Total	Direct
2005	168,652	139,207
2006	265,035	222,193
2007	381,476	334,907
2008	470,795	414,798
2009	308,709	271,611
2010	441,949	392,280
2011	451,059	400,051
2012	493,823	443,746
2013	518,122	465,248
2014	560,417	500,665
2015	688,450	614,195
2016	705,110	627,975
2017	734,401	658,278
2018	759,096	679,352
2019	759,096	679,352
2020	782,780	702,308
2021	782,780	702,308
2022	788,252	707,969
2023	788,252	707,969
2024	788,252	707,969
Total	11,636,507	10,372,380



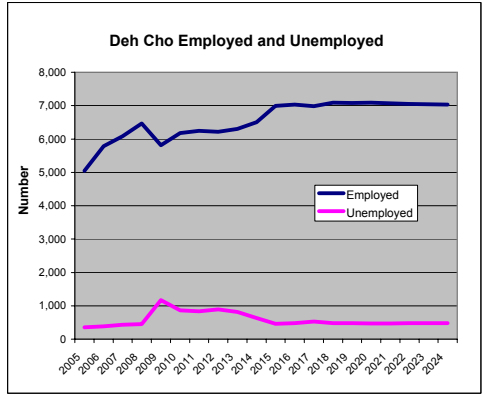
Year	Deh Cho Population (Number)	
	Base	Adjusted
2005	7,538	8,126
2006	7,571	9,161
2007	7,597	9,560
2008	7,619	10,060
2009	7,635	10,076
2010	7,645	10,086
2011	7,649	10,090
2012	7,647	10,088
2013	7,640	10,081
2014	7,628	10,069
2015	7,611	10,489
2016	7,592	10,546
2017	7,569	10,523
2018	7,545	10,578
2019	7,518	10,551
2020	7,490	10,531
2021	7,461	10,502
2022	7,432	10,473
2023	7,402	10,443
2024	7,372	10,413



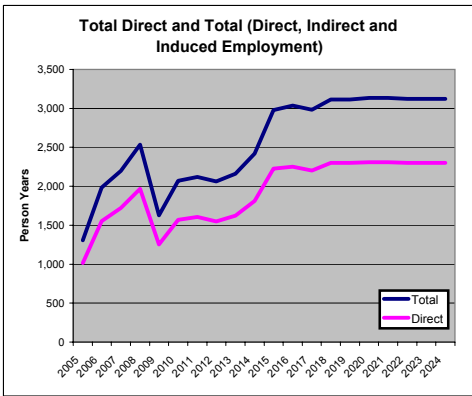
Year	Direct Employment (Person-Years)	
	Deh Cho	Southern
2005	614	452
2006	803	1,431
2007	883	1,645
2008	1,016	1,878
2009	760	458
2010	951	455
2011	969	480
2012	943	365
2013	977	406
2014	1,068	543
2015	1,247	1,035
2016	1,321	683
2017	1,298	592
2018	1,345	659
2019	1,345	659
2020	1,349	635
2021	1,349	635
2022	1,344	618
2023	1,344	618
2024	1,344	618
Total	22,270	14,864



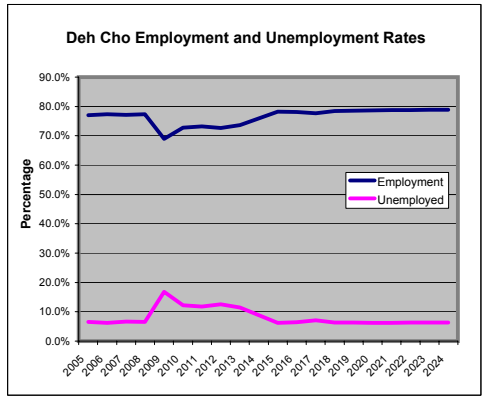
Year	Deh Cho Labour Force (Number)	
	Employed	Unemployed
2005	5,046	350
2006	5,788	382
2007	6,082	432
2008	6,467	451
2009	5,814	1,170
2010	6,173	862
2011	6,244	831
2012	6,216	890
2013	6,307	820
2014	6,508	632
2015	6,993	465
2016	7,034	481
2017	6,984	531
2018	7,090	477
2019	7,083	476
2020	7,084	472
2021	7,074	471
2022	7,054	480
2023	7,042	479
2024	7,030	478



Year	Deh Cho Employment (Person-Years)	
	Total	Direct
2005	1,306	1,016
2006	1,984	1,555
2007	2,198	1,721
2008	2,536	1,987
2009	1,628	1,253
2010	2,070	1,569
2011	2,120	1,605
2012	2,060	1,550
2013	2,161	1,623
2014	2,418	1,812
2015	2,978	2,226
2016	3,037	2,252
2017	2,981	2,203
2018	3,115	2,301
2019	3,115	2,301
2020	3,133	2,309
2021	3,133	2,309
2022	3,122	2,300
2023	3,122	2,300
2024	3,122	2,300
Total	51,339	38,474

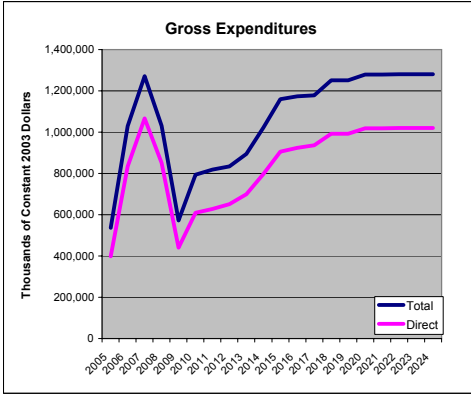


Year	Deh Cho Labour Force (Rate - Percentage)	
	Employment	Unemployment
2005	77.0%	6.5%
2006	77.4%	6.2%
2007	77.1%	6.6%
2008	77.3%	6.5%
2009	68.9%	16.8%
2010	72.7%	12.3%
2011	73.2%	11.7%
2012	72.7%	12.5%
2013	73.6%	11.5%
2014	75.9%	8.9%
2015	78.2%	6.2%
2016	78.1%	6.4%
2017	77.7%	7.1%
2018	78.4%	6.3%
2019	78.5%	6.3%
2020	78.7%	6.2%
2021	78.7%	6.2%
2022	78.7%	6.4%
2023	78.8%	6.4%
2024	78.9%	6.4%

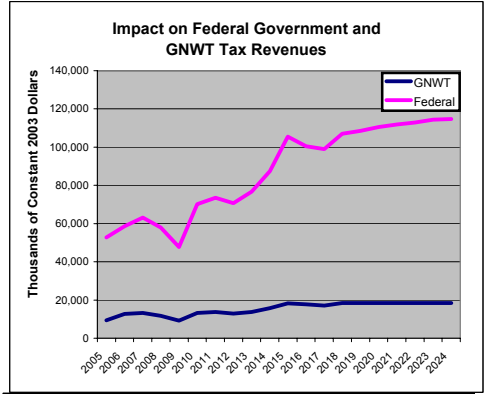


Deh Cho Land Use Option Number Two

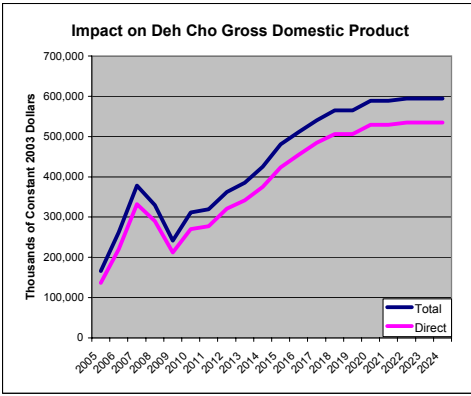
Year	Expenditures (000's of 2003K\$)	
	Total	Direct
2005	535,971	399,026
2006	1,029,887	834,768
2007	1,271,880	1,067,258
2008	1,030,945	851,279
2009	572,282	439,690
2010	794,035	609,373
2011	818,740	628,421
2012	834,467	651,811
2013	894,619	699,225
2014	1,022,255	796,557
2015	1,159,232	904,731
2016	1,173,210	923,405
2017	1,178,265	935,724
2018	1,251,467	992,122
2019	1,251,467	992,122
2020	1,279,352	1,017,962
2021	1,279,352	1,017,962
2022	1,280,296	1,020,261
2023	1,280,296	1,020,261
2024	1,280,296	1,020,261
Total	21,218,313	16,822,218



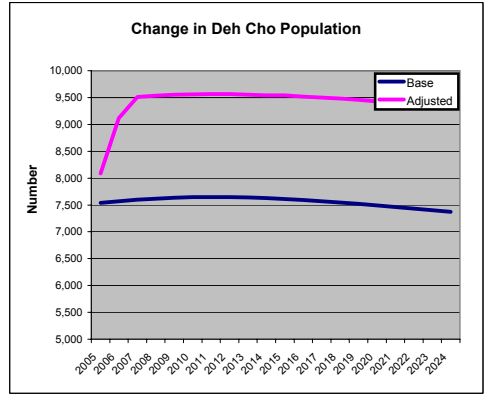
Year	Tax Revenue (000's of 2003K\$)	
	GNWT	Federal
2005	9,304	52,797
2006	12,729	58,690
2007	13,299	63,124
2008	11,684	57,902
2009	9,209	47,701
2010	13,259	70,232
2011	13,658	73,560
2012	12,819	70,625
2013	13,653	76,644
2014	15,749	87,449
2015	18,315	105,511
2016	17,736	100,417
2017	17,160	98,918
2018	18,361	107,067
2019	18,361	108,535
2020	18,475	110,534
2021	18,475	111,871
2022	18,364	112,901
2023	18,364	114,350
2024	18,364	114,789
Total	307,339	1,743,618



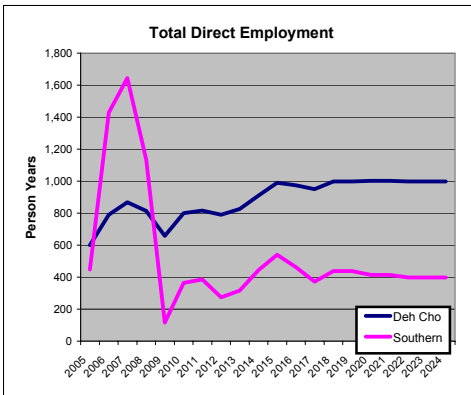
Year	Deh Cho GDP (000's of 2003K\$)	
	Total	Direct
2005	165,879	137,021
2006	262,263	220,006
2007	377,817	331,855
2008	329,874	289,746
2009	241,898	212,441
2010	311,338	270,505
2011	319,716	277,664
2012	361,939	320,799
2013	385,726	341,772
2014	425,474	375,056
2015	480,312	423,516
2016	510,916	454,614
2017	540,206	484,916
2018	564,892	505,982
2019	564,892	505,982
2020	588,561	528,924
2021	588,561	528,924
2022	594,028	534,580
2023	594,028	534,580
2024	594,028	534,580
Total	8,802,347	7,813,463



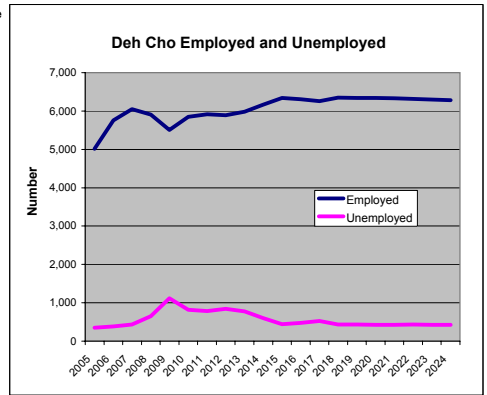
Year	Deh Cho Population (Number)	
	Base	Adjusted
2005	7,538	8,084
2006	7,571	9,115
2007	7,597	9,513
2008	7,619	9,534
2009	7,635	9,550
2010	7,645	9,561
2011	7,649	9,565
2012	7,647	9,563
2013	7,640	9,555
2014	7,628	9,543
2015	7,611	9,540
2016	7,592	9,520
2017	7,569	9,498
2018	7,545	9,482
2019	7,518	9,455
2020	7,490	9,431
2021	7,461	9,402
2022	7,432	9,372
2023	7,402	9,342
2024	7,372	9,312



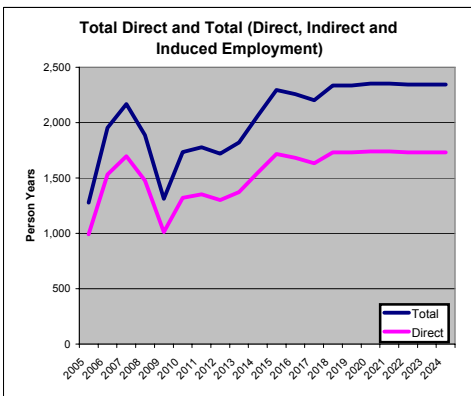
Year	Direct Employment (Person-Years)	
	Deh Cho	Southern
2005	601	448
2006	790	1,427
2007	869	1,644
2008	813	1,133
2009	658	115
2010	800	364
2011	816	386
2012	790	273
2013	825	316
2014	910	444
2015	990	539
2016	974	462
2017	951	372
2018	998	439
2019	998	439
2020	1,002	415
2021	1,002	415
2022	997	398
2023	997	398
2024	997	398
Total	17,779	10,825



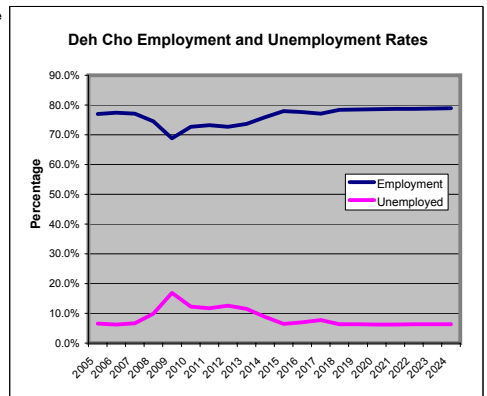
Year	Deh Cho Labour Force (Number)	
	Employed	Unemployed
2005	5,018	350
2006	5,760	380
2007	6,052	430
2008	5,911	647
2009	5,503	1,116
2010	5,852	817
2011	5,919	788
2012	5,889	846
2013	5,980	775
2014	6,169	599
2015	6,342	440
2016	6,310	474
2017	6,258	524
2018	6,352	430
2019	6,345	430
2020	6,344	423
2021	6,333	422
2022	6,312	430
2023	6,299	430
2024	6,286	429



Year	Deh Cho Employment (Person-Years)	
	Total	Direct
2005	1,276	992
2006	1,955	1,531
2007	2,168	1,696
2008	1,886	1,476
2009	1,312	1,013
2010	1,733	1,321
2011	1,778	1,354
2012	1,720	1,299
2013	1,822	1,373
2014	2,064	1,551
2015	2,294	1,716
2016	2,258	1,682
2017	2,202	1,633
2018	2,337	1,731
2019	2,337	1,731
2020	2,354	1,739
2021	2,354	1,739
2022	2,344	1,730
2023	2,344	1,730
2024	2,344	1,730
Total	40,880	30,769

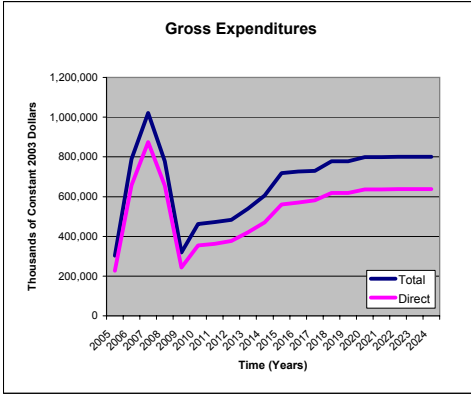


Year	Deh Cho Labour Force (Rate - Percentage)	
	Employment	Unemployment
2005	77.0%	6.5%
2006	77.4%	6.2%
2007	77.1%	6.6%
2008	74.5%	9.9%
2009	68.8%	16.9%
2010	72.7%	12.2%
2011	73.2%	11.8%
2012	72.7%	12.8%
2013	73.6%	11.5%
2014	75.9%	8.8%
2015	78.0%	6.5%
2016	77.7%	7.0%
2017	77.1%	7.7%
2018	78.4%	6.3%
2019	78.5%	6.3%
2020	78.7%	6.2%
2021	78.7%	6.2%
2022	78.7%	6.4%
2023	78.8%	6.4%
2024	78.9%	6.4%

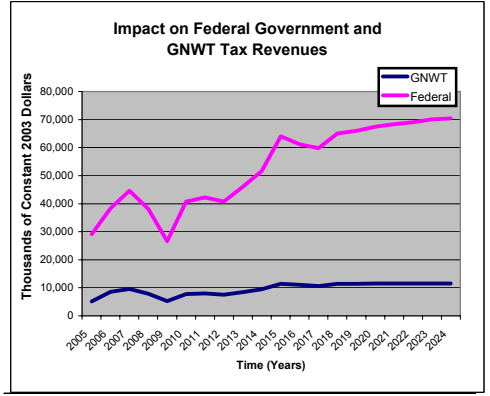


Deh Cho Land Use Option Number Three

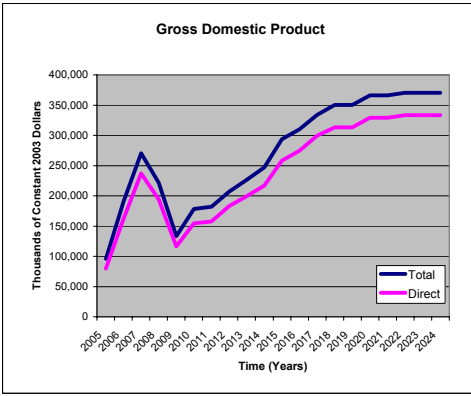
Expenditures (000's of 2003K\$)		
	Total	Direct
2005	303,051	227,053
2006	789,474	657,847
2007	1,021,983	873,944
2008	778,185	656,277
2009	318,330	243,779
2010	461,802	354,127
2011	471,907	361,966
2012	483,039	377,012
2013	538,852	420,203
2014	605,607	471,108
2015	717,904	560,224
2016	726,330	570,841
2017	730,465	580,917
2018	778,708	618,078
2019	778,708	618,078
2020	799,081	636,629
2021	799,081	636,629
2022	799,778	638,327
2023	799,778	638,327
2024	799,778	638,327
Total	13,501,843	10,779,692



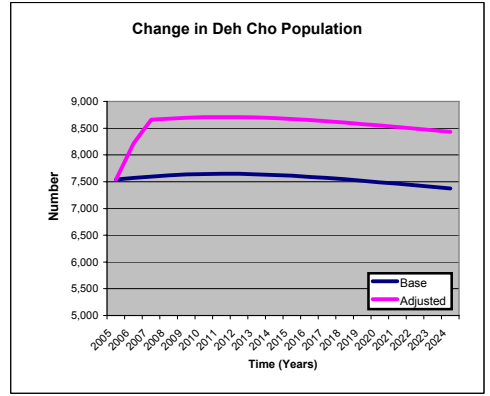
Tax Revenue (000's of 2003K\$)		
	GNWT	Federal
2005	5,148	29,127
2006	8,524	38,399
2007	9,641	44,658
2008	7,924	38,159
2009	5,234	26,637
2010	7,810	40,761
2011	7,968	42,258
2012	7,535	40,788
2013	8,393	46,015
2014	9,473	51,573
2015	11,394	64,036
2016	11,104	61,210
2017	10,655	59,795
2018	11,438	65,017
2019	11,438	65,909
2020	11,552	67,490
2021	11,552	68,396
2022	11,473	69,018
2023	11,473	70,116
2024	11,473	70,412
Total	191,204	1,059,773



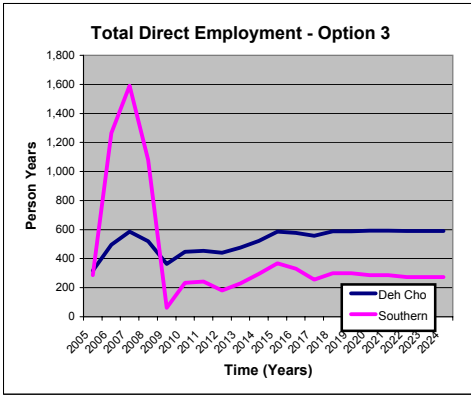
Deh Cho GDP (000's of 2003K\$)		
	Total	Direct
2005	95,897	79,825
2006	190,572	161,687
2007	270,252	236,799
2008	221,463	194,081
2009	133,116	116,466
2010	178,355	154,374
2011	181,941	157,468
2012	206,880	182,827
2013	226,323	199,538
2014	247,111	216,946
2015	293,483	258,154
2016	309,837	274,709
2017	333,794	299,494
2018	350,035	313,348
2019	350,035	313,348
2020	366,256	328,990
2021	366,256	328,990
2022	370,293	333,166
2023	370,293	333,166
2024	370,293	333,166
Total	5,432,484	4,816,541



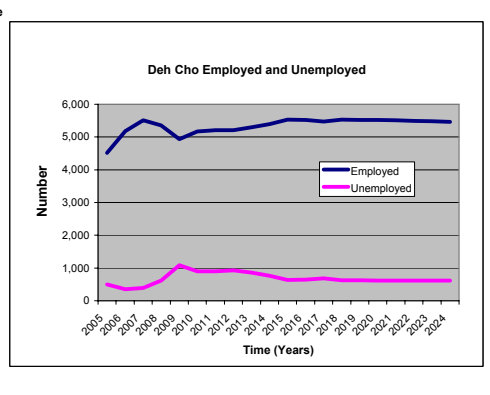
Deh Cho Population (Number)		
	Base	Adjusted
2005	7,538	7,538
2006	7,571	8,220
2007	7,597	8,657
2008	7,619	8,678
2009	7,635	8,694
2010	7,645	8,704
2011	7,649	8,708
2012	7,647	8,706
2013	7,640	8,699
2014	7,628	8,687
2015	7,611	8,671
2016	7,592	8,651
2017	7,569	8,629
2018	7,545	8,604
2019	7,518	8,577
2020	7,490	8,549
2021	7,461	8,520
2022	7,432	8,491
2023	7,402	8,461
2024	7,372	8,431



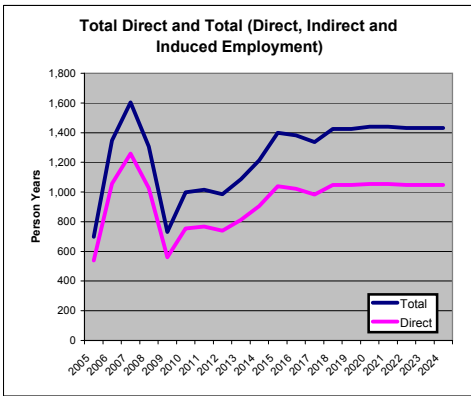
Direct Employment (Person-Years)		
	Deh Cho	Southern
2005	318	286
2006	497	1,265
2007	585	1,591
2008	519	1,080
2009	364	61
2010	448	234
2011	455	243
2012	441	180
2013	477	229
2014	521	296
2015	585	369
2016	578	330
2017	558	256
2018	589	300
2019	589	300
2020	593	286
2021	593	286
2022	590	274
2023	590	274
2024	590	274
Total	10,482	8,411



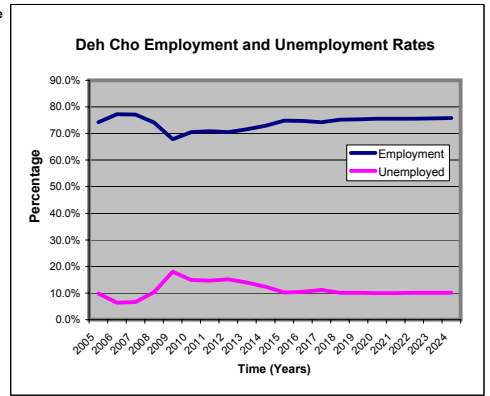
Deh Cho Labour Force (Number)		
	Employed	Unemployed
2005	4,510	496
2006	5,182	354
2007	5,510	388
2008	5,352	617
2009	4,938	1,088
2010	5,169	903
2011	5,212	895
2012	5,205	927
2013	5,293	856
2014	5,395	764
2015	5,533	632
2016	5,517	648
2017	5,473	688
2018	5,532	623
2019	5,524	622
2020	5,522	612
2021	5,510	611
2022	5,491	617
2023	5,479	615
2024	5,465	614



Deh Cho Employment (Person-Years)		
	Total	Direct
2005	698	539
2006	1,348	1,055
2007	1,603	1,259
2008	1,307	1,026
2009	730	561
2010	997	754
2011	1,015	767
2012	986	739
2013	1,087	813
2014	1,213	906
2015	1,399	1,039
2016	1,382	1,022
2017	1,336	962
2018	1,425	1,047
2019	1,425	1,047
2020	1,440	1,055
2021	1,440	1,055
2022	1,432	1,048
2023	1,432	1,048
2024	1,432	1,048
Total	25,128	18,811

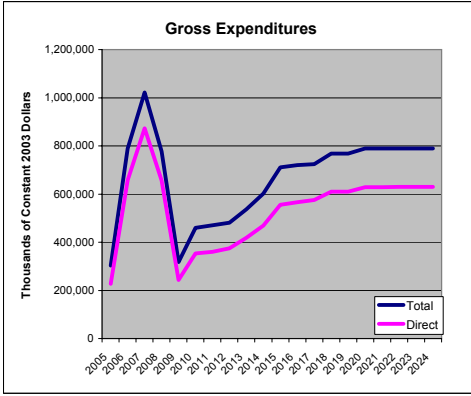


Deh Cho Labour Force (Rate - Percentage)		
	Employment	Unemployment
2005	74.2%	9.9%
2006	77.2%	6.4%
2007	77.2%	6.6%
2008	74.1%	10.3%
2009	67.8%	18.0%
2010	70.8%	14.9%
2011	70.8%	14.7%
2012	70.5%	15.1%
2013	71.6%	13.9%
2014	73.0%	12.4%
2015	74.8%	10.3%
2016	74.7%	10.5%
2017	74.3%	11.2%
2018	75.2%	10.1%
2019	75.3%	10.1%
2020	75.5%	10.0%
2021	75.6%	10.0%
2022	75.6%	10.1%
2023	75.7%	10.1%
2024	75.8%	10.1%

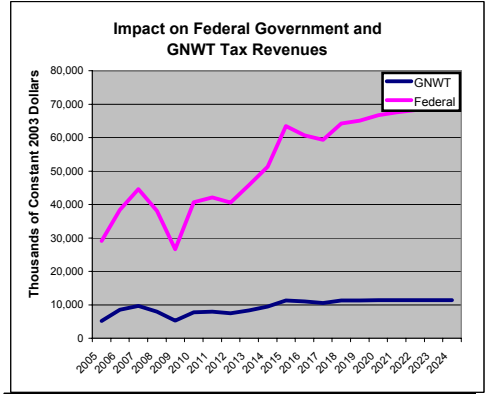


Deh Cho Land Use Option Number Four

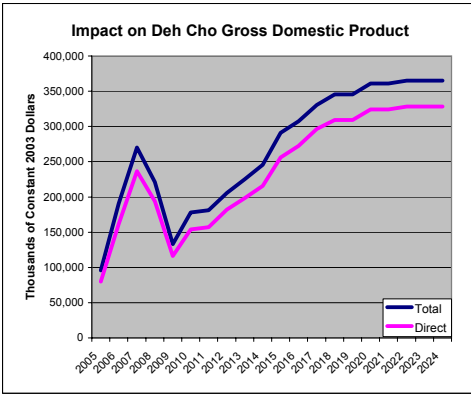
Year	Expenditures (000's of 2003K\$)	
	Total	Direct
2005	302,554	226,676
2006	789,168	657,588
2007	1,021,626	873,712
2008	777,827	656,045
2009	317,971	243,547
2010	460,430	353,129
2011	469,928	360,507
2012	480,645	375,156
2013	536,436	418,292
2014	602,471	468,648
2015	711,321	555,135
2016	719,720	565,687
2017	723,726	575,447
2018	768,614	610,049
2019	768,614	610,049
2020	788,853	628,288
2021	788,853	628,288
2022	789,549	629,985
2023	789,549	629,985
2024	789,549	629,985
Total	13,397,401	10,696,199



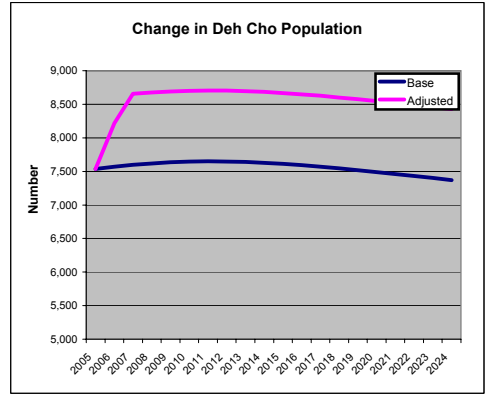
Year	Tax Revenue (000's of 2003K\$)	
	GNWT	Federal
2005	5,140	29,085
2006	8,523	38,391
2007	9,633	44,613
2008	7,917	38,113
2009	5,226	26,590
2010	7,783	40,624
2011	7,931	42,072
2012	7,498	40,597
2013	8,359	45,835
2014	9,427	51,330
2015	11,289	63,471
2016	11,002	60,674
2017	10,567	59,310
2018	11,294	64,232
2019	11,294	65,103
2020	11,421	66,722
2021	11,421	67,598
2022	11,343	68,192
2023	11,343	69,247
2024	11,343	69,529
Total	189,754	1,051,328



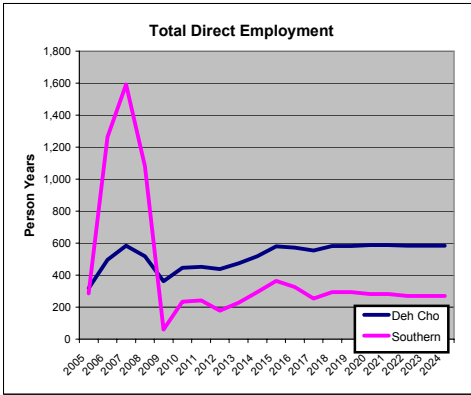
Year	Deh Cho GDP (000's of 2003K\$)	
	Total	Direct
2005	95,743	79,697
2006	190,467	161,592
2007	270,115	236,687
2008	221,326	193,968
2009	132,979	116,354
2010	177,914	154,012
2011	181,312	156,949
2012	205,860	181,926
2013	225,171	198,500
2014	245,735	215,721
2015	291,035	256,030
2016	307,232	272,423
2017	330,439	296,433
2018	345,636	309,412
2019	345,636	309,412
2020	361,125	324,297
2021	361,125	324,297
2022	365,160	328,472
2023	365,160	328,472
2024	365,160	328,472
Total	5,384,332	4,773,127



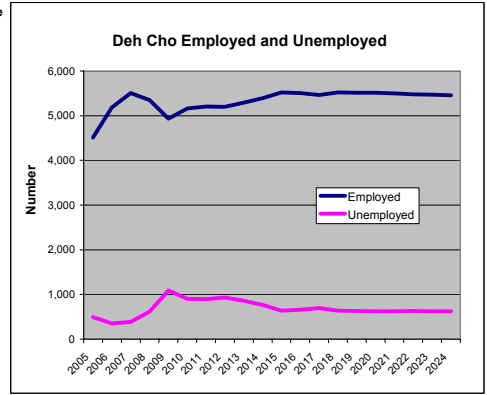
Year	Deh Cho Population (Number)	
	Base	Adjusted
2005	7,538	7,538
2006	7,571	8,220
2007	7,597	8,654
2008	7,619	8,676
2009	7,635	8,692
2010	7,645	8,702
2011	7,649	8,706
2012	7,647	8,704
2013	7,640	8,697
2014	7,628	8,685
2015	7,611	8,668
2016	7,592	8,649
2017	7,569	8,628
2018	7,545	8,602
2019	7,518	8,575
2020	7,490	8,547
2021	7,461	8,518
2022	7,432	8,489
2023	7,402	8,459
2024	7,372	8,429



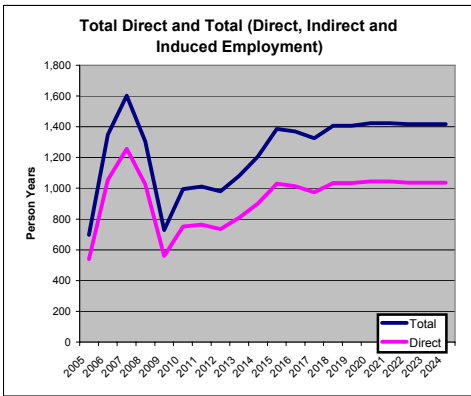
Year	Direct Employment (Person-Years)	
	Deh Cho	Southern
2005	317	285
2006	497	1,264
2007	584	1,591
2008	518	1,080
2009	362	61
2010	446	233
2011	452	241
2012	439	179
2013	474	228
2014	519	294
2015	580	364
2016	573	326
2017	554	254
2018	583	294
2019	583	294
2020	587	283
2021	587	283
2022	584	270
2023	584	270
2024	584	270
Total	10,410	8,367



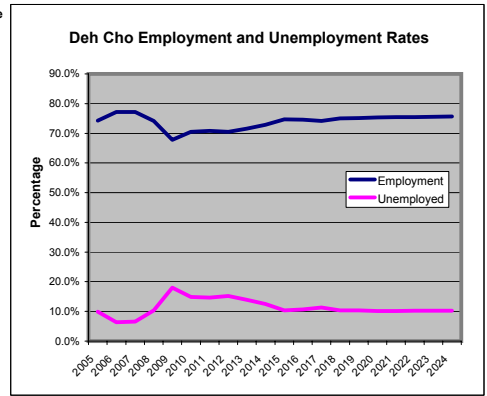
Year	Deh Cho Labour Force (Number)	
	Employed	Unemployed
2005	4,510	497
2006	5,182	354
2007	5,509	388
2008	5,350	617
2009	4,937	1,088
2010	5,166	904
2011	5,208	897
2012	5,201	929
2013	5,290	858
2014	5,391	768
2015	5,523	640
2016	5,507	656
2017	5,465	695
2018	5,519	634
2019	5,511	633
2020	5,510	622
2021	5,499	621
2022	5,480	627
2023	5,467	625
2024	5,454	624



Year	Deh Cho Employment (Person-Years)	
	Total	Direct
2005	697	539
2006	1,348	1,055
2007	1,602	1,257
2008	1,306	1,025
2009	729	560
2010	994	751
2011	1,011	764
2012	981	736
2013	1,082	809
2014	1,207	901
2015	1,386	1,030
2016	1,370	1,014
2017	1,326	974
2018	1,408	1,034
2019	1,408	1,034
2020	1,424	1,044
2021	1,424	1,044
2022	1,417	1,037
2023	1,417	1,037
2024	1,417	1,037
Total	24,951	18,683

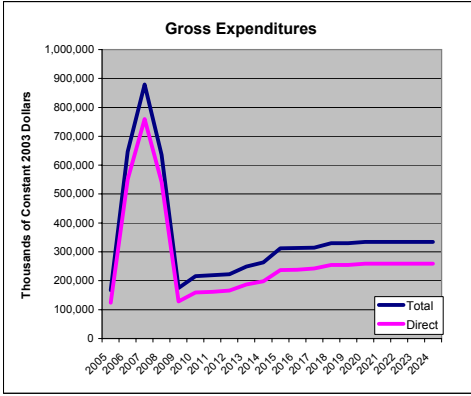


Year	Deh Cho Labour Force (Rate - Percentage)	
	Employment	Unemployment
2005	74.2%	9.9%
2006	77.2%	6.4%
2007	77.2%	6.6%
2008	74.1%	10.3%
2009	67.8%	18.1%
2010	70.5%	14.9%
2011	70.8%	14.7%
2012	70.5%	15.2%
2013	71.6%	14.0%
2014	72.9%	12.5%
2015	74.7%	10.4%
2016	74.6%	10.6%
2017	74.2%	11.3%
2018	75.1%	10.3%
2019	75.2%	10.3%
2020	75.4%	10.1%
2021	75.5%	10.1%
2022	75.5%	10.3%
2023	75.6%	10.3%
2024	75.6%	10.3%

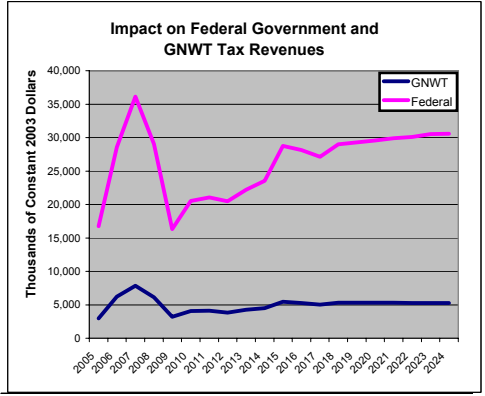


Deh Cho Land Use Option Number Five

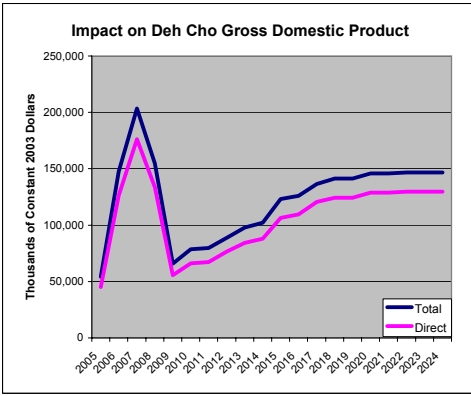
	Expenditures (000's of 2003K\$)	
	Total	Direct
2005	167,119	124,062
2006	646,729	550,235
2007	879,806	759,513
2008	636,006	541,846
2009	174,781	128,303
2010	215,768	159,036
2011	218,906	161,477
2012	222,251	166,519
2013	249,193	187,259
2014	263,080	197,849
2015	312,314	237,077
2016	312,919	238,412
2017	314,729	242,820
2018	329,798	254,316
2019	329,798	254,316
2020	334,193	258,615
2021	334,193	258,615
2022	334,337	258,965
2023	334,337	258,965
2024	334,337	258,965
Total	6,944,593	5,497,164



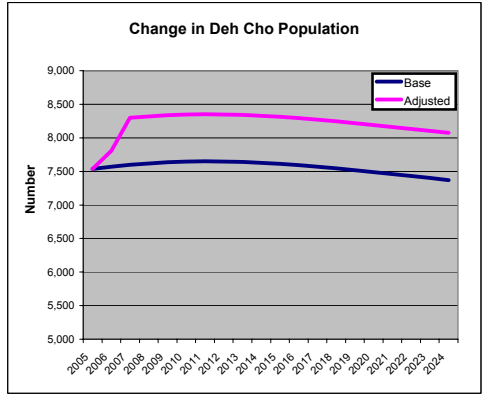
	Tax Revenue (000's of 2003K\$)	
	GNWT	Federal
2005	2,984	16,744
2006	6,208	28,581
2007	7,861	36,109
2008	6,131	29,034
2009	3,194	16,294
2010	4,044	20,529
2011	4,096	21,038
2012	3,830	20,471
2013	4,270	22,200
2014	4,507	23,523
2015	5,436	28,754
2016	5,279	28,132
2017	5,047	27,140
2018	5,313	28,990
2019	5,313	29,265
2020	5,306	29,582
2021	5,306	29,886
2022	5,287	30,093
2023	5,287	30,510
2024	5,287	30,585
Total	99,985	527,459



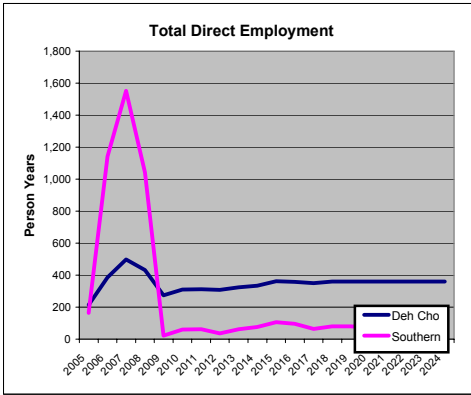
	Deh Cho GDP (000's of 2003K\$)	
	Total	Direct
2005	54,301	45,227
2006	147,520	126,149
2007	203,394	176,342
2008	154,605	133,624
2009	65,831	55,651
2010	78,517	66,162
2011	79,652	67,145
2012	88,852	76,549
2013	97,882	84,244
2014	102,206	87,865
2015	123,055	106,474
2016	126,100	109,619
2017	136,583	120,464
2018	141,293	124,411
2019	141,293	124,411
2020	145,761	128,798
2021	145,761	128,798
2022	146,593	129,659
2023	146,593	129,659
2024	146,593	129,659
Total	2,472,387	2,150,910



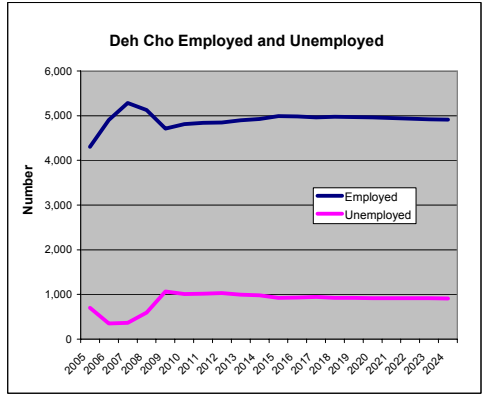
	Deh Cho Population (Number)	
	Base	Adjusted
2005	7,538	7,538
2006	7,571	7,810
2007	7,597	8,299
2008	7,619	8,320
2009	7,635	8,336
2010	7,645	8,347
2011	7,649	8,351
2012	7,647	8,349
2013	7,640	8,341
2014	7,628	8,329
2015	7,611	8,313
2016	7,592	8,294
2017	7,569	8,271
2018	7,545	8,246
2019	7,518	8,220
2020	7,490	8,192
2021	7,461	8,163
2022	7,432	8,133
2023	7,402	8,103
2024	7,372	8,073



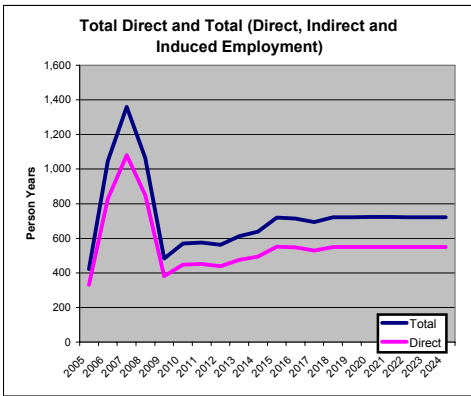
	Direct Employment (Person-Years)	
	Deh Cho	Southern
2005	213	163
2006	387	1,142
2007	498	1,553
2008	432	1,042
2009	275	21
2010	311	59
2011	313	62
2012	307	37
2013	324	62
2014	334	76
2015	361	106
2016	359	97
2017	351	64
2018	361	79
2019	361	79
2020	361	73
2021	361	73
2022	360	70
2023	360	70
2024	360	70
Total	6,986	4,999



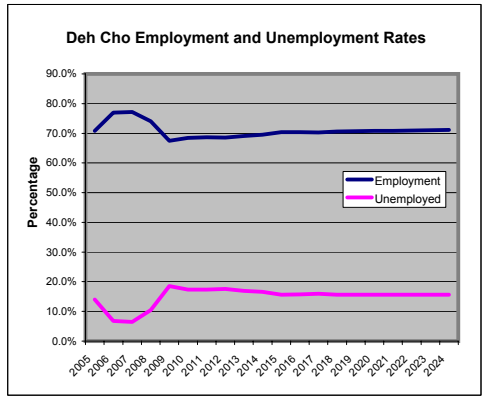
	Deh Cho Labour Force (Number)	
	Employed	Unemployed
2005	4,302	704
2006	4,906	354
2007	5,286	368
2008	5,125	597
2009	4,708	1,070
2010	4,810	1,012
2011	4,842	1,014
2012	4,850	1,030
2013	4,900	997
2014	4,927	979
2015	4,988	923
2016	4,983	928
2017	4,961	945
2018	4,976	922
2019	4,968	921
2020	4,958	919
2021	4,947	917
2022	4,934	917
2023	4,922	914
2024	4,909	912



	Deh Cho Employment (Person-Years)	
	Total	Direct
2005	421	331
2006	1,047	829
2007	1,359	1,080
2008	1,063	848
2009	483	381
2010	571	447
2011	576	451
2012	563	439
2013	613	475
2014	639	495
2015	719	552
2016	713	547
2017	693	529
2018	722	550
2019	722	550
2020	723	550
2021	723	550
2022	721	549
2023	721	549
2024	721	549
Total	14,514	11,251

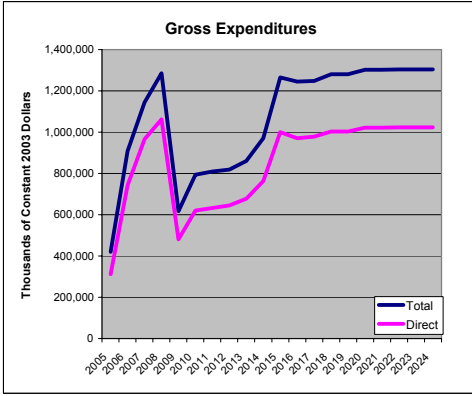


	Deh Cho Labour Force (Rate - Percentage)	
	Employment	Unemployment
2005	70.8%	14.1%
2006	76.9%	6.7%
2007	77.2%	6.5%
2008	74.1%	10.4%
2009	67.5%	18.5%
2010	68.5%	17.4%
2011	68.6%	17.3%
2012	68.5%	17.5%
2013	69.1%	16.9%
2014	69.5%	16.6%
2015	70.4%	15.6%
2016	70.4%	15.7%
2017	70.2%	16.0%
2018	70.6%	15.6%
2019	70.7%	15.6%
2020	70.8%	15.6%
2021	70.9%	15.6%
2022	70.9%	15.7%
2023	71.0%	15.7%
2024	71.1%	15.7%

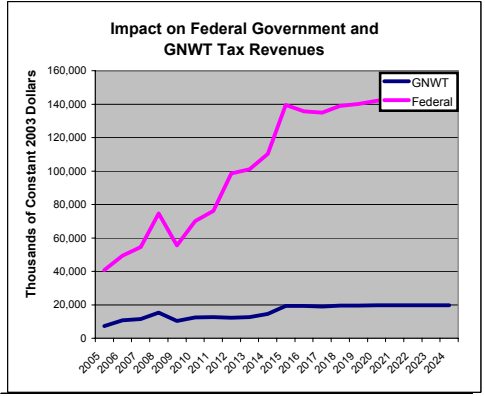


Deh Cho Land Use Option Number Six - Current Land Withdrawals

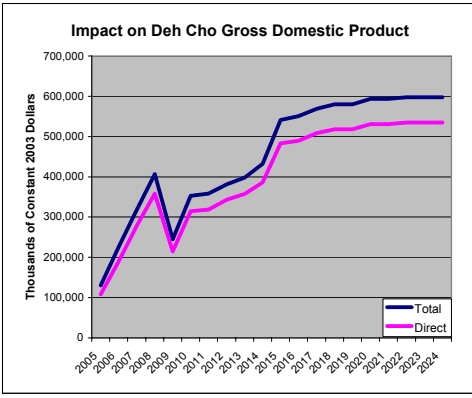
Year	Expenditures (000's of 2003K\$)	
	Total	Direct
2005	420,764	312,066
2006	907,804	743,322
2007	1,144,176	966,417
2008	1,285,621	1,062,678
2009	617,075	480,194
2010	794,361	620,306
2011	809,545	632,007
2012	818,030	644,915
2013	859,735	677,667
2014	971,158	762,634
2015	1,264,350	999,507
2016	1,244,856	970,531
2017	1,248,073	978,368
2018	1,281,100	1,003,711
2019	1,281,100	1,003,711
2020	1,302,508	1,022,104
2021	1,302,508	1,022,104
2022	1,303,264	1,023,948
2023	1,303,264	1,023,948
2024	1,303,264	1,023,948
Total	21,462,555	16,974,086



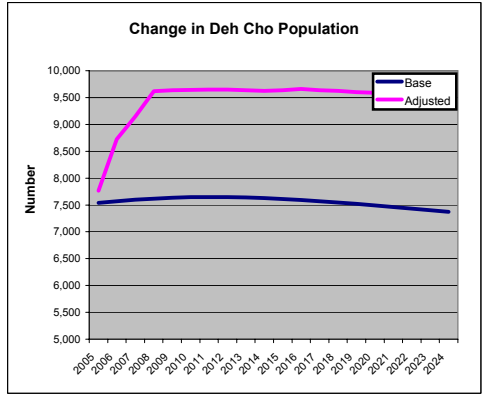
Year	Tax Revenue (000's of 2003K\$)	
	GNWT	Federal
2005	7,360	40,725
2006	10,732	49,346
2007	11,552	54,456
2008	15,378	74,715
2009	10,294	55,451
2010	12,451	70,010
2011	12,698	76,268
2012	12,335	98,507
2013	12,686	101,070
2014	14,505	110,197
2015	19,257	139,484
2016	19,368	135,650
2017	19,017	134,876
2018	19,560	138,974
2019	19,560	140,083
2020	19,762	142,103
2021	19,762	142,982
2022	19,678	143,713
2023	19,678	144,555
2024	19,678	144,774
Total	315,311	2,137,939



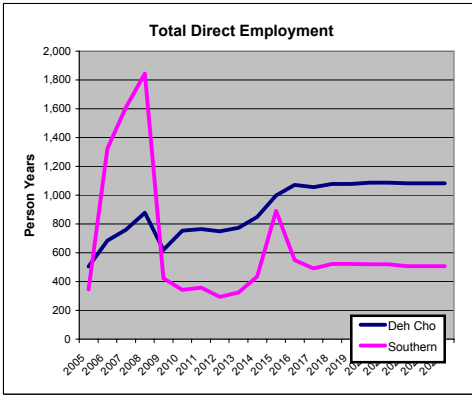
Year	Deh Cho GDP (000's of 2003K\$)	
	Total	Direct
2005	130,538	107,677
2006	225,306	189,590
2007	318,861	278,996
2008	407,040	358,066
2009	244,522	214,516
2010	352,823	314,447
2011	357,950	318,823
2012	381,675	343,084
2013	397,771	357,209
2014	432,469	386,266
2015	541,303	482,942
2016	550,579	489,493
2017	569,213	508,772
2018	580,013	517,923
2019	580,013	517,923
2020	593,453	530,589
2021	593,453	530,589
2022	597,837	535,125
2023	597,837	535,125
2024	597,837	535,125
Total	9,050,493	8,052,281



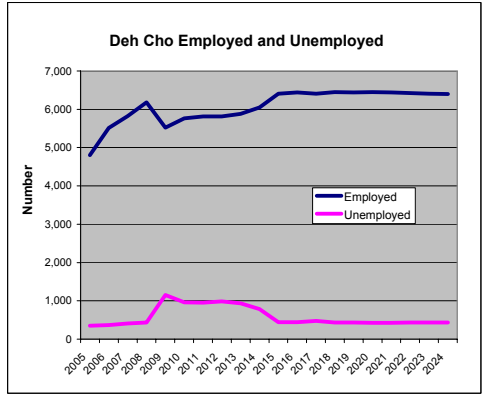
Year	Deh Cho Population (Number)	
	Base	Adjusted
2005	7,538	7,763
2006	7,571	8,728
2007	7,597	9,146
2008	7,619	9,618
2009	7,635	9,634
2010	7,645	9,644
2011	7,649	9,648
2012	7,647	9,646
2013	7,640	9,639
2014	7,628	9,627
2015	7,611	9,635
2016	7,592	9,658
2017	7,569	9,635
2018	7,545	9,626
2019	7,518	9,599
2020	7,490	9,589
2021	7,461	9,560
2022	7,432	9,530
2023	7,402	9,500
2024	7,372	9,470



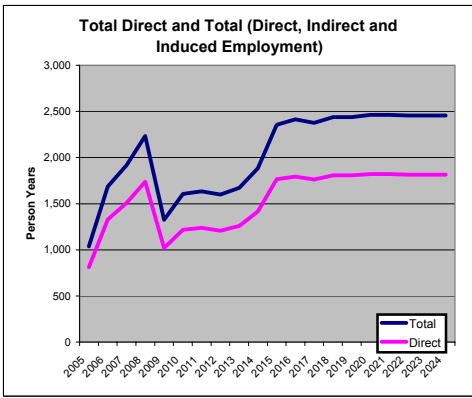
Year	Direct Employment (Person-Years)	
	Deh Cho	Southern
2005	506	345
2006	684	1,324
2007	759	1,611
2008	877	1,844
2009	621	423
2010	754	343
2011	764	357
2012	749	292
2013	774	323
2014	848	435
2015	998	891
2016	1,071	548
2017	1,056	490
2018	1,078	522
2019	1,078	522
2020	1,086	520
2021	1,086	520
2022	1,082	506
2023	1,082	506
2024	1,082	506
Total	18,033	12,827



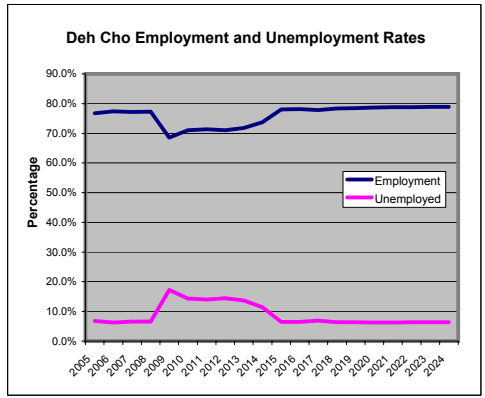
Year	Deh Cho Labour Force (Number)	
	Employed	Unemployed
2005	4,805	350
2006	5,513	365
2007	5,820	412
2008	6,183	432
2009	5,525	1,152
2010	5,763	964
2011	5,817	949
2012	5,810	984
2013	5,878	935
2014	6,045	782
2015	6,406	444
2016	6,440	442
2017	6,407	473
2018	6,449	437
2019	6,442	436
2020	6,451	429
2021	6,440	429
2022	6,421	435
2023	6,408	434
2024	6,395	433



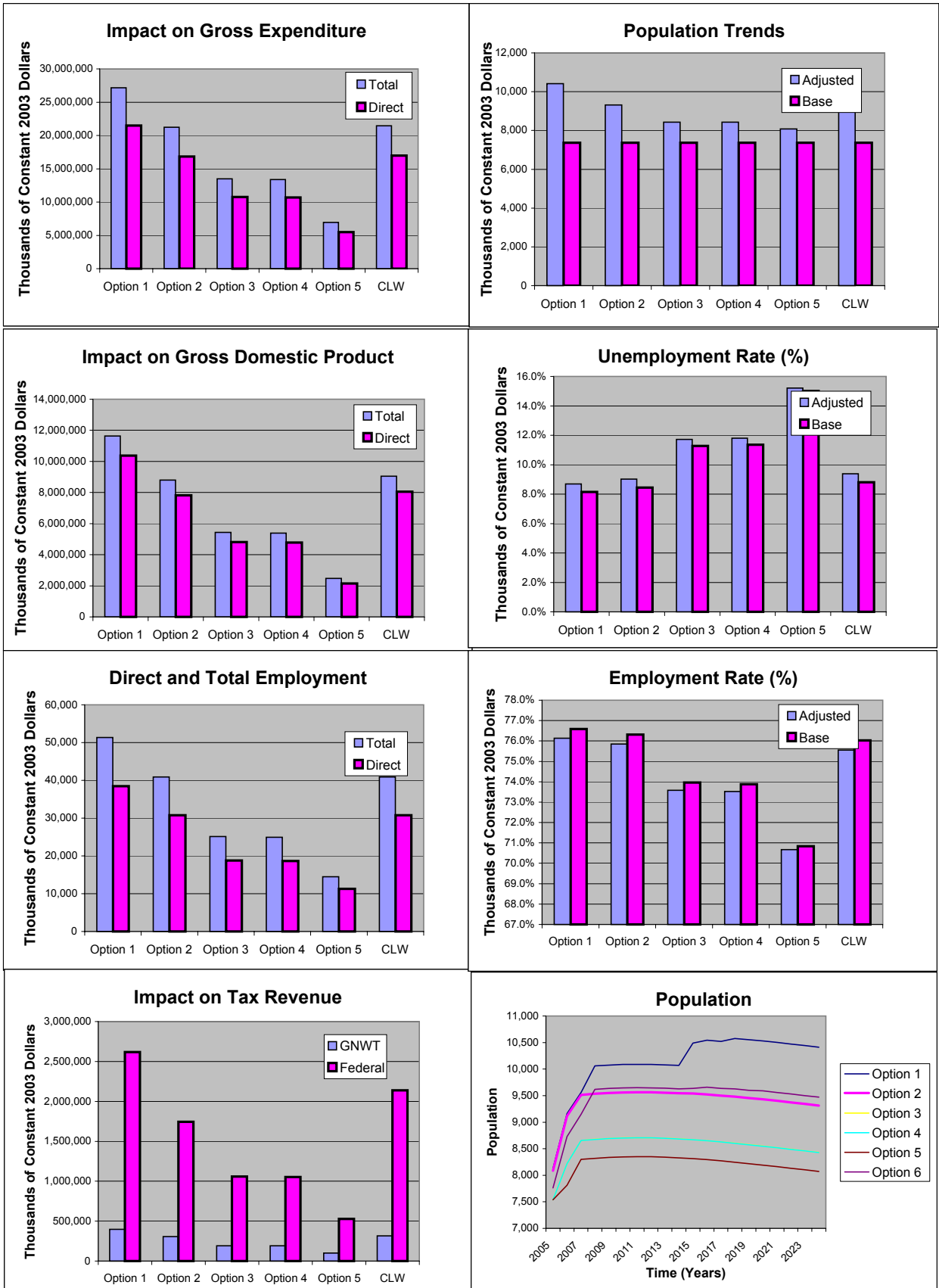
Year	Deh Cho Employment (Person-Years)	
	Total	Direct
2005	1,036	811
2006	1,687	1,328
2007	1,917	1,508
2008	2,234	1,738
2009	1,324	1,021
2010	1,605	1,218
2011	1,633	1,239
2012	1,599	1,208
2013	1,671	1,259
2014	1,892	1,414
2015	2,356	1,767
2016	2,413	1,793
2017	2,377	1,761
2018	2,438	1,806
2019	2,438	1,806
2020	2,463	1,822
2021	2,463	1,822
2022	2,455	1,815
2023	2,455	1,815
2024	2,455	1,815
Total	40,902	30,768



Year	Deh Cho Labour Force (Rate - Percentage)	
	Employment	Unemployment
2005	76.8%	6.8%
2006	77.4%	6.2%
2007	77.1%	6.6%
2008	77.3%	6.5%
2009	68.5%	17.3%
2010	71.0%	14.3%
2011	71.3%	14.0%
2012	71.1%	14.5%
2013	71.8%	13.7%
2014	73.8%	11.5%
2015	78.0%	6.5%
2016	78.1%	6.4%
2017	77.8%	6.9%
2018	78.4%	6.3%
2019	78.5%	6.3%
2020	78.7%	6.2%
2021	78.8%	6.2%
2022	78.8%	6.3%
2023	78.8%	6.3%
2024	78.9%	6.3%



Comparison of Deh Cho Land Use Option Outputs



Comparison of Deh Cho Land Use Option Outputs

Options	Option 1	Option 2	Option 3	Option 4	Option 5	CLW
Gross Expenditure	<u>000's Constant CAD \$ / 20 years</u>					
Total	27,162,916	21,218,313	13,501,843	13,397,401	6,944,593	21,462,555
Direct	21,500,634	16,822,218	10,779,692	10,696,199	5,497,164	16,974,086
Gross Domestic Product	<u>000's Constant CAD \$ / 20 years</u>					
Total	11,636,507	8,802,347	5,432,484	5,384,332	2,472,387	9,050,493
Direct	10,372,380	7,813,463	4,816,541	4,773,127	2,150,910	8,052,281
Employment	<u>Person Years / 20 years</u>					
Total	51,339	40,880	25,128	24,951	14,514	40,902
Direct	38,474	30,769	18,811	18,683	11,251	30,768
Tax Revenue	<u>000's Constant CAD \$ / 20 years</u>					
GNWT	396,990	307,339	191,204	189,754	99,985	315,311
Federal	2,617,720	1,743,618	1,059,773	1,051,328	527,459	2,137,939
Population	<u>People / 20 years</u>					
Adjusted	10,413	9,312	8,431	8,429	8,073	9,470
Base	7,372	7,372	7,372	7,372	7,372	7,372
Change (Net Inward Migration)	3,041	1,941	1,059	1,057	702	2,099
Unemployment Rate	<u>Average %</u>					
Adjusted	8.7%	9.0%	11.7%	11.8%	15.2%	9.4%
Base	8.1%	8.4%	11.3%	11.4%	15.0%	8.8%
Employment Rate	<u>Average %</u>					
Adjusted	76.1%	75.8%	73.6%	73.5%	70.7%	75.5%
Base	76.6%	76.3%	74.0%	73.9%	70.8%	76.0%
Population	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
2005	8,126	8,084	7,538	7,538	7,538	7,763
2006	9,161	9,115	8,220	8,220	7,810	8,728
2007	9,560	9,513	8,657	8,654	8,299	9,146
2008	10,060	9,534	8,678	8,676	8,320	9,618
2009	10,076	9,550	8,694	8,692	8,336	9,634
2010	10,086	9,561	8,704	8,702	8,347	9,644
2011	10,090	9,565	8,708	8,706	8,351	9,648
2012	10,088	9,563	8,706	8,704	8,349	9,646
2013	10,081	9,555	8,699	8,697	8,341	9,639
2014	10,069	9,543	8,687	8,685	8,329	9,627
2015	10,489	9,540	8,671	8,668	8,313	9,635
2016	10,546	9,520	8,651	8,649	8,294	9,658
2017	10,523	9,498	8,629	8,626	8,271	9,635
2018	10,578	9,482	8,604	8,602	8,246	9,626
2019	10,551	9,455	8,577	8,575	8,220	9,599
2020	10,531	9,431	8,549	8,547	8,192	9,589
2021	10,502	9,402	8,520	8,518	8,163	9,560
2022	10,473	9,372	8,491	8,489	8,133	9,530
2023	10,443	9,342	8,461	8,459	8,103	9,500
2024	10,413	9,312	8,431	8,429	8,073	9,470

THE EDA MODEL OPERATING PROCEDURES

Accessing the Model

The user has three choices to access the model. It can be accessed through the menu designed specifically for land use options or through the industry or commodity space.

<u>Method</u>	<u>Worksheet</u>
1. Land Use Menu	Input
2. Commodity Space	Commodity
3. Industry Space	Industry

The use of each of the three options is described below.

1. The Land Use Menu Option

Go to the “Setup” Worksheet

Step 1: Give the Simulation a Title

The first step is to identify the simulation by name. Type any title you wish in cell B4. This title will appear at the top of each table and chart.

Step 2: Enter the Discount Rate

Normally when expenditures are made over time the values are “discounted” to bring them to “present value”. Discounting accounts for the fact that there is always risk associated with income and expenditure streams over time and, quite simply stated, it is always better to have money earlier than later. Therefore money that is to be received at a future date should be valued at a lower rate than money that is to be received earlier.

The user goes to the “Setup” worksheet in the model and enters a discount rate in cell B7. The discount rate must be a whole number between 3 and 15 percent.

Go to the “Input” Worksheet

There are five sectors which can be used to create a simulation. They are: (1) agriculture, (2) forestry, (3) mining, (4) gas fields and (5) tourism.

On the spreadsheet there are three different colours or shades of cells.

If a value is unshaded or uncoloured it requires an entry from the user. Even if that entry is a “0” or “No”.

If the cell is red it is a model default value and the user may enter a new value to override the model. Users do not have to alter these values but if they do they should

be aware that, if the model is saved before the default value is returned to its original value, then future simulations will use the new value.

If a cell has a grey background it means it is endogenous or calculated and the user does not enter a value. Shaded backgrounds are also used for cells containing unit specifications and are not to be changed by the user.

All entries must be in the units specified and for the appropriate ranges. For example data for agriculture is to be entered as hectares for four ranges of land.

Inputs

Agriculture

Required

Columns C and D and F to J. If a Yes is entered then any data entered in Columns D to F will be used in the simulation. The year that it entered in Column D will be the first year of the start of agriculture. For example if you entered 2010 in Column B the first year of the simulation would be 2005 but agriculture would not start until 2010. Data that is entered in Columns F to J must in number of hectares by appropriate rank.

Optional

Columns L and M contain the default values for the percentage of Deh Cho residents that will be employed on the project (the remainder will fly in and out from the south or other parts of the NWT). The average wage in Column N includes wages and benefits (including the employers share of CPP and EI payments). This wage can be adjusted by the user – if it is raised the employment impact will be lower and the opposite if it is lowered.

Forestry

Same as Agriculture.

Mining

Required

Columns C and D. The impacts of each of the project are modeled so no data has to be entered. The year that is entered in Column D will be the first year of the start of mine construction followed by operations.

Optional

Columns E and F contain the default values for the percentage of Deh Cho residents that will be employed on the capital or construction side of the project (the remainder will fly in and out from the south or other parts of the

NWT). The average wage in column G includes wages and benefits (including the employers share of CPP and EI payments). This wage can be adjusted by the user – if it is raised the employment impact will be lower and the opposite if it is lowered.

Columns H to J are the same as the above but refer to the operation side of the projects.

Hydrocarbon Plays

Required

Columns C and D and F to I. If a yes is entered in column C then the data entered in columns F to I will be used. The year that it entered in Column D will be the first year of the start of mine construction followed by operations. Data entered in Columns F to I must be in hectares and be in the appropriate rank..

Optional

Columns K and L contain the default values for the percentage of Deh Cho residents that will be employed on the capital or construction side of the project (the remainder will fly in and out from the south or other parts of the NWT). The average wage in column M includes wages and benefits (including the employers share of CPP and EI payments). This wage can be adjusted by the user – if it is raised the employment impact will be lower and the opposite if it is lowered.

Columns N to P are the same as the above but refer to the operation side of the projects.

Tourism

Required

Columns C and D and F to I. If a Yes is entered and data entered in Columns D to F will be used in the simulation. The year that it entered in Column D will be the first year of the start of tourism. For example if you entered 2010 in Column B the first year of the simulation would be 2005 but Tourism would not start until 2010. Data that is entered in Columns F to J must in number of sites by appropriate rank.

Optional

Columns K and L contain the default values for the percentage of Deh Cho residents that will be employed on the project (the remainder will fly in and out from the south or other parts of the NWT). The average wage in Column M includes wages and benefits (including the employers share of CPP and EI

payments). This wage can be adjusted by the user – if it is raised the employment impact will be lower and the opposite if it is lowered.

2. The Commodity Space

Go to the “Setup” Worksheet

Step 1: Give the Simulation a Title

The first step is to identify the simulation by name. Type any title you wish in cell B4. This title will appear at the top of each table and chart.

Step 2: Enter the Discount Rate

Normally when expenditures are made over time the values are “discounted” to bring them to “present value”. Discounting accounts for the fact that there is always risk associated with income and expenditure streams over time and, quite simply stated, it is always better to have money earlier than later. Therefore money that is to be received at a future date should be valued at a lower rate than money that is to be received earlier.

The user goes to the “Setup” worksheet in the model and enters a discount rate in cell B10. The discount rate must be a whole number between 3 and 15 percent.

Go to the “Commodity” Worksheet

There is a spreadsheet with commodities and years. Enter the data you wish in any cell in \$000’s in producer prices. Data that are measured in producer prices reflect the price received directly by the producer of the commodity. For example, this corresponds to the “farm gate” price in agriculture or the price received directly by a producing establishment in manufacturing.

If the user has entered data in cells 54 to 56I (wages & salaries, supplementary labour income, mixed income or imputed mixed income) you must enter an average wage to be used to estimate direct employment impacts. The average wage in dollars should be entered on line 90.

The next step is to indicate what percentage of labour income will be paid to local residents (i.e. residents of the province or physical jurisdiction for which the impact is being estimated). For example, if a major construction project is being analyzed where 30% of the labour will be supplied by temporary workers who come from out of Deh Cho the user would enter 70%. This means that only 70% of the direct labour income generated by the project will be used to estimate the induced impact (the assumption is that the other 30% will be spent to maintain households out of the region).

3. The Industry Space

Go to the “Setup” Worksheet

Step 1: Give the Simulation a Title

The first step is to identify the simulation by name. Type any title you wish in cell B4. This title will appear at the top of each table and chart.

Step 2: Enter the Discount Rate

Normally when expenditures are made over time the values are “discounted” to bring them to “present value”. Discounting accounts for the fact that there is always risk associated with income and expenditure streams over time and, quite simply stated, it is always better to have money earlier than later. Therefore money that is to be received at a future date should be valued at a lower rate than money that is to be received earlier.

The user goes to the “Setup” worksheet in the model and enters a discount rate in cell B10. The discount rate must be a whole number between 3 and 15 percent.

Go to the “Industry” Worksheet

There is a spreadsheet with industries and years. Enter the data you wish in any cell in \$000’s in producer prices. Data entered should reflect the gross sales or value of output of each industry in each year.

Appendix 1: Commodities and Industries

Commodities

01 Grains
02 Other agricultural products
02I Other agricultural products Imputed
03 Forestry products
03I Forestry products Imputed
04 Fish, seafood and trapping products
04I Fish, seafood and trapping products Imputed
05A Gold & alloys in primary forms
05B Other Metal ores & concentrates
6A Crude mineral oils
6B Natural gas, excl. liquefied
6C Other Mineral Fuels
07A1 Diamonds - Ekati
07A2 Diamonds - Diavik
07B Other Non-metallic minerals
08 Services incidental to mining
09 Meat, fish, and dairy products
09I Meat, fish, and dairy products Imputed
10 Fruit, veg. and other food products, feeds
10I Fruit, veg. and other food products, feeds Imputed
11 Soft drinks and alcoholic beverages
12 Tobacco and tobacco products
13 Leather, rubber, and plastic products
14A Textile products - Market
14B Textile products - Imputed
15 Hosiery, clothing and accessories
15I Hosiery, clothing and accessories Imputed
16 Lumber and wood products
16I Lumber and wood products Imputed
17 Furniture and fixtures
18 Wood pulp, paper and paper products
19 Printing and publishing
20 Primary metal products
21 Other metal products
22 Machinery and equipment
23 Motor veh., oth. transport equip. and parts
24 Electrical, electronic and communic. prod.
25 Non-metallic mineral products
26 Petroleum and coal products
27 Chemicals, pharmaceuticals & chemical prod.
28A Arts and Crafts
28AI Arts and Crafts Imputed
28B Diamond Polished
28C Jewellery Manufactured
28D Other manufactured products
29 Residential construction

30 Non-residential construction
31 Repair construction
32A Air transport
32B Water transport
32C Truck transportation
32D Other Transportation
32E Services Incidental to Transportation
32F Storage and warehousing
33 Communications services
34 Other utilities
35 Wholesaling margins
36 Retailing margins
37 Gross imputed rent
38 Other finance, insurance, and real estate services
39 Business and computer services
40 Private education services
41 Health and social services
42 Accommodation services and meals
43 Other services
44 Transportation margins
45 Operating, office, cafeteria and lab. supplies
46 Travel & entertainment, advertising & promotion
47 Non-profit institutions serving households
48A Federal Government sector services
48B Territorial Government sector services
48C Local Government sector services
48D Aboriginal Government sector services
49 Non-competing imports
50 Unallocated imports and exports
51 Sales of other government services
52a Indirect taxes on products
53 Subsidies
52b Indirect Taxes on Production
54 Wages and salaries
55 Supplementary labour income
56 Mixed income
56I Mixed income Imputed
57 Other operating surplus

Industries

01 Households
1A Crop and Animal Production
1B Forestry and Logging
1C Fishing, Hunting and Trapping
1D Support Activities for Agriculture and Forestry
21A Oil & Gas Industry
21B Gold Mining
21C Other Metal Mining Industries
21D1 Diamond Mining - Ekati
21D2 Diamond Mining - Diavik
21E Other Non-metallic Mining Industries
21F Support Activities for Mining
22 Utilities
23 Construction
31A Textile and Textile Product Mills
315 Clothing Manufacturing
321 Wood Product Manufacturing
323 Printing and Related Support Activities
327 Non-Metallic Mineral Product Manufacturing
33991A Jewellery and Silverware Manufacturing
3AO Other Manufacturing
41 Wholesale Trade
4A Retail Trade
4B Transportation & Storage
51 Information and Cultural Industries
5A Finance, Insurance, Real Estate and Renting And Leasing
54 Professional, Scientific and Technical Services
56 Administrative and Other Support Services
61 Education Services
62 Health Care and Social Assistance
71 Arts, Entertainment and Recreation
72 Accommodation and Food Services
81 Other Services (Except Public Administration)
F1 Operating, Office, Cafeteria, And Laboratory Supplies
F2 Travel & Entertainment, Advertising & Promotion
F3 Transportation Margins
Np Non- Profit Institutions Serving Households
Gs1 Federal Government Sector
Gs2 Territorial Government Sector
Gs3 Local Government Sector
Gs4 Aboriginal Government Sector
89 Households