TIMBER SUPPLY ANALYSIS REPORT
APPENDIX I

SOCIO-ECONOMIC ASSESSMENT

TIMBER SUPPLY REVIEW
2003/2004

Arrow Timber Supply Area

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1.0 INTRODUCTION

The impact of timber supply adjustments on local communities and the provincial economy is an important consideration in the Chief Forester's allowable annual cut (AAC) determination. This socio-economic assessment compares the employment and economic activity presently supported by the Arrow Timber Supply Area (TSA) harvest to the level expected, given the base case timber supply forecast. To make this comparison, a clear understanding of the TSA's current economic contribution to TSA communities and B.C. is required.

This report includes:

- A profile of the Arrow TSA economy, highlighting the contribution of the forest industry;
- A description of the Arrow TSA forest industry and contribution of the TSA's timber supply; and
- An analysis of the socio-economic implications of the base case harvest forecasts.

2.0 TSA PROFILE

2.1 OVERVIEW

The Arrow TSA is part of the larger Arrow Boundary Forest District. This assessment focuses on the sub-region of the district that is in the immediate proximity of the Arrow TSA (see map next page). While not part of the TSA, the immediate region includes Tree Farm Licences (TFLs) 3 and 23 and a number of wood lot licenses.

2.2 POPULATION TRENDS

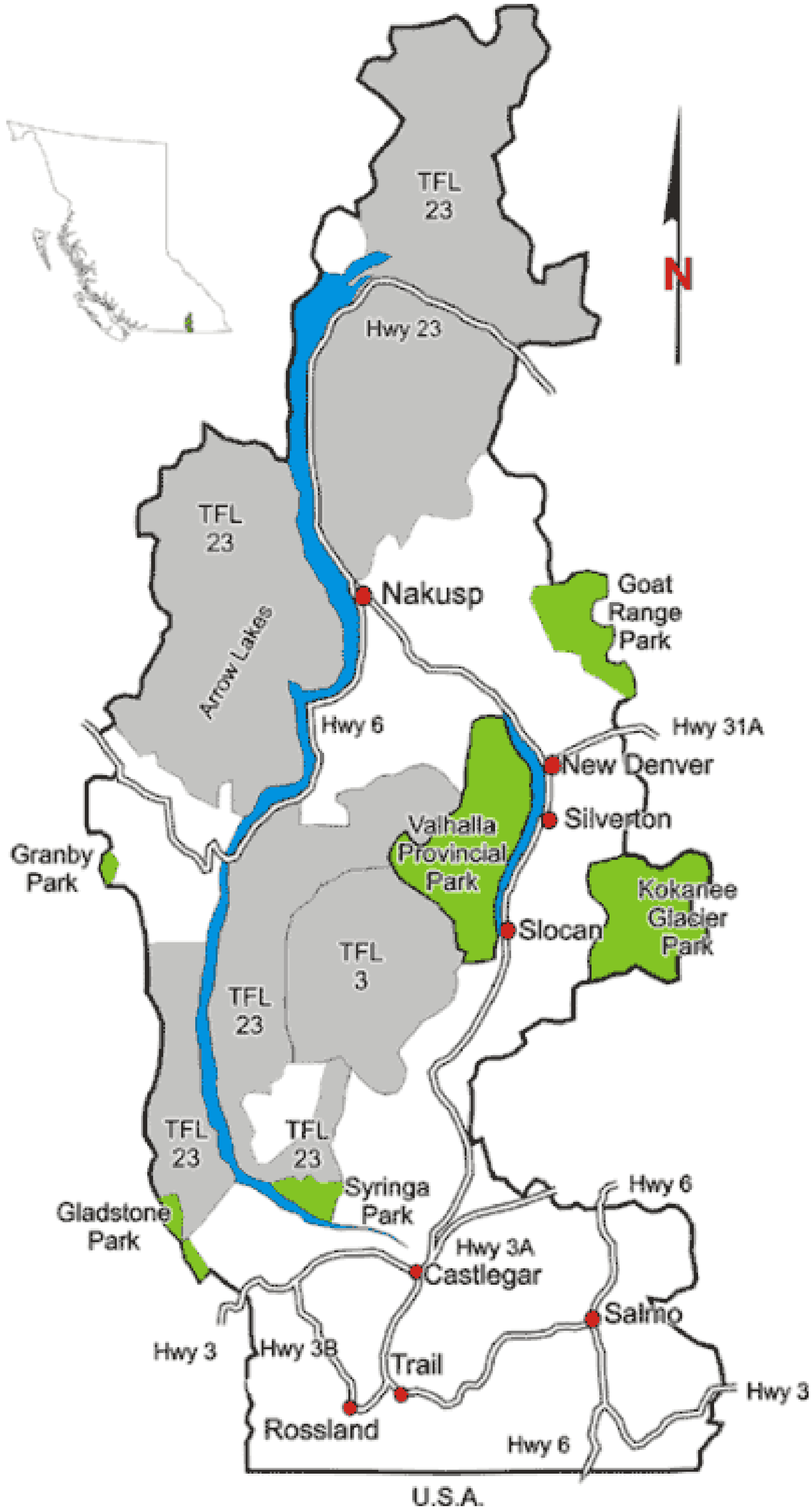
The major communities in the Arrow TSA are Trail, Castlegar, and Rossland. Smaller communities include those shown in the table as well as Slocan, New Denver, Silverton, and Salmo. The unincorporated areas are within the regional districts of Central Kootenay (Electorial Areas G, H, I, J, K) and Kootenay Boundary (Electorial Areas A & B). The population is almost evenly divided between communities and rural areas. In contrast to relatively robust population growth in the first half of the 1990’s, the region’s population declined by 1,250 persons between 1996 and 2001.

Table 2.1 Population trends arrow forest district

Community	2001	1996	% change '01-'96	1991	% change '96-'91
Castlegar	7,002	7027	-0.4%	6579	6.8%
Trail	7,574	7874	-3.8%	7921	-0.6%
Rossland	3,646	3802	-4.1%	3559	6.8%
Nakusp	1,698	1736	-2.2%	1661	4.5%
Fruitvale/Montrose/Warfield	4,901	4,972	-1.4%	5073	-2.0%
Unincorporated Areas	18,866	20,344	-7.3%	17,452	16.5%
Total Arrow Forest District	43,687	45,755	-4.5%	42,245	8.0%

Source: Statistics Canada Community Profiles and TSR’s

Figure 2.1 Map of Arrow TSA



This trend was common to several of BC's rural resource based regions (*i.e.* Kootenays, Cariboo, North Coast, Northeast) and may be attributable to a general out-migration in search of improved economic opportunities.

The region's outlook is for positive population growth over the coming decade, but below the provincial average rate[1].

2.3 ECONOMIC PROFILE

The growth and distribution of the experienced labour force is a reliable indicator of trends in the local economy. In 2001, the region's experienced labour force is estimated at 23,238 persons[2]. The corresponding value in 1996 is 21,161, or growth of about 10% over the period (*e.g.* 2 percent per year/yr).

An economy is often characterized by employment and income flows attributed to its basic and non-basic sectors. Basic income (hence employment) flows into the region from outside its boundaries. So jobs that produce goods that are sold outside the region, jobs related to goods and services sold to persons visiting the region, and public sector jobs not directly funded by local residents, are examples of basic jobs. Basic sectors of the economy include forestry, mining, agriculture, tourism, public sector, and construction. The non-basic sector relies on the basic sector. This includes businesses that sell goods and services to the basic industries, such as heavy equipment repair and businesses catering to consumer demands (grocery stores, car dealerships, *etc.*).

Table 2.2 Comparison of Basic Sector Labour Force

Basic Sector	**2001**	**1996**	**Change in Persons**	**% Change**
Logging/Milling	2,471	2,429	42	2%
Other primary Industries	2,302	2,289	13	1%
Tourism	1,874	2,112	-238	-11%
Public Sector	5,175	4,727	448	9%
Construction	1,377	1,481	-104	-7%
Other Basic	821	827	-6	-1%
Totals	**14,020**	**13,865**	**155**	**1%**

With respect to the growth in the region's experienced labour force, most of the growth occurred in the non-basic sectors. This might indicate a changing structure of the region's economy where an increasing share of goods and services are being provided by locally based operations.

[1] Over the next 10 years the region's population is expected to increase 2.5% as compared to 13.5% for B.C. (P.E.O.P.L.E. 28, BC Stats).

[2] Labour force and income data reported here for the Arrow TSA were derived from the consolidated Arrow/Boundary 2001 forest district tables. The 1996 forest district tables for the Arrow and Boundary districts provided proportional weights for estimating the 2001 values for the "old" Arrow Forest District.

While there appears to be little change in aggregate basic sector employment, there was in fact considerable change among the several industry sectors. The natural resource based primary industries increased marginally. The public sector labour force increased about 10% while tourism and construction labour declined. The public sector continued to be the largest basic sector industry in terms of labour force. Forestry (logging and wood processing) and primary industries remain steady contributors to the region's economy.

Table 2.3 Basic sector incomes

Basic Sector	Ave. Income
Logging	$ 30,757
Pulp & paper	$ 51,055
Saw mills	$ 34,112
Minerals	$ 50,231
Agriculture	$ 12,382
Tourism	$ 11,678
Public Sector	$ 29,318

The region's after tax income in 2001 total some $782 million (average of $24,500 per person in the labour force), which is an increase from the 1996 value of $620 million (average of $22,200). Among the basic sectors, there is a great variation in the average income earned. In this case the forest sector and the mining and petroleum have much higher incomes than the other basic sectors. The higher income support more jobs throughout the region in the consumer supply industries. Government's analysis of the region's economic statistics identifies and allocates the non-basic employment to basic sector giving rise to the employment. This gives a clearer picture of the region's fundamental economic drivers. The results of the analysis are summarized in Figure 2.2.

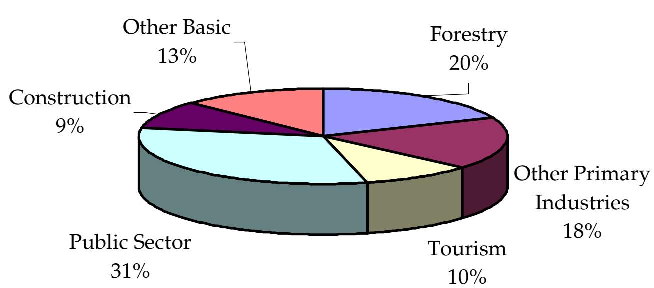


Figure 2.2 Total employment by basic sector

Forestry accounted for 20% of the TSA's employment in 2001 (and 23% of the earned income). This is second only to the public sector.

With this understanding of the basic drivers of a local economy, Government analysis examined the relative diversity and vulnerability of small area economies[3]. Intuitively, one might expect that an economy that is composed of a number of industries, rather than dominated by a single industry, would be more stable given changing economic circumstances. Based on this view, a diversity index was defined to measure the relative diversity of local economies. The Arrow Boundary Forest District ranked very highly, indicating a relative diverse economy.

Combining the income dependency analysis and the diversity assessment, a forest vulnerability index measures how sensitive a local economy is to changes in the forest sector. The notion is that an economy that is not diverse and highly dependent on the forest industry, will be particularly vulnerable to changes in the forest sector. The analysis determined an index rating of low to moderate vulnerability for the Arrow Boundary Forest District.

[3] See *British Columbia's Heartland at the Dawn of the 21st Century* for a discussion of the indices, and *2001 Forest District Tables* for index values.

3.0 FOREST INDUSTRY PROFILE

Timber harvested from Crown and private land in the region supports a number of operations producing a range of products. Mills operating in the TSA and recorded in the Ministry of Forests latest mill survey are summarized in Table 3.1. Relative to the 1998 mill survey (MoF, 1999), a number of mills were not reported for 2002. This includes Atco Lumber Ltd. sawmill in Park Siding (closed permanently). Others not reported were Antler Creek Contracting (sawmill), Crescent Valley Cedar (shake and shingle), and Saddle Mountain Cedar (shake and shingle). Some mills operated intermittently, during the period, and several of the larger lumber mills operated only one shift.

Table 3.1 Timber processing facilities in Arrow TSA

Name	Type of Mill	Mill Location	Estimated Capacity	Units
Atco Lumber Ltd.	Veneer	Fruitvale	96	million square ft@3/8
Box Lake Lumber Products Ltd.	Pole/post	Nakusp	144	000 pieces
Herridge Trucking & Sawmilling Ltd.	Lumber	Nakusp	7	million board ft
Jones Ties & Poles (1978) Ltd.	Lumber	Rossland	7	million board ft
Kalesnikoff Lumber Co. Ltd.	Lumber	Thrums	52	million board ft
Pacific Inland Pole & Piling Ltd.	Pole	Nakusp	14	000 pieces
Paterson Pole Ltd.	Pole	Rossland	36	000 pieces
Pope & Talbot Ltd.	Lumber	Castlegar	231	million board ft
Porcupine Wood Products Ltd.	Lumber	Salmo	29	million board ft
Slocan Forest Products Ltd.	Lumber	Slocan	110	million board ft
Celgar Pulp Ltd	Pulp	Castlegar	428	000 tonnes

Source: B. C. Ministry of Forests. 2003. Major Primary Timber Processing Facilities in British Columbia

3.1 Arrow TSA Allowable Annual Cut and Harvest History

The AAC for the Arrow TSA is currently 550,000 m^3/yr. It took effect on April 30, 2001, and is an 11% reduction from the previous AAC of 619,000 m^3/yr.

The AAC is apportioned by the Minister to various forest tenures. About 80% of the AAC is apportioned to replaceable forest licenses, which are held by companies with timber processing facilities.

Table 3.2 AAC and apportionment

	Volume (m^3)	Percent
Allowable Annual Cut (2001-04-30)	550,000	
Apportionment		
Forest Licences Replaceable	443,730	80.68
Timber Sale License<10,000m^3	3,538	.64
BCTS Timber Sale License	99,208	18.04
Forest Service Reserve	3,524	.64

Source: Ministry of Forests, Apportionment System

The actual harvest level may diverge from the AAC as license holders have some latitude for meeting the cut-control requirements. The effect of the reduced AAC is evident in the table below after 2001, when the current AAC took effect.

Table 3.3 Volume harvested by Type of License (m^3/yr.)

	1999	2000	2001	2002	2003	Average 99/02
Forest license[1]	397,327	541,512	458,743	394,002	399,138	441,969
BCTS Timber Sale	175,000	153,000	193,000	115,000	143,877[2]	157,480
Timber Sale License	488	-	10,769	3,723	3,723[4]	4,287
Total	574,814	696,512	664,513	514,727	546,738	603,785
AAC	619,000	619,000	573,000[3]	550,000	550,000	582,200

Notes

1. From Cut Control Performance Summary 1999-2002. 2003 provided by licensees.
2. BCTS sales for 2003/04 fiscal year
3. Weighted average with current AAC taking effect April 30, 2001.
4. Taken to be the same as 2002 harvest

Based on industry interviews, it was estimated that about 70% of the TSA harvest volume is processed in the TSA. The timber is manufactured into a range of forest products, including lumber, panels, veneer, and pulp. For the TSA license holders this matter is addressed in the following section.

3.2 ARROW TSA MAJOR LICENSEES

The holders of forest licenses are described in the following paragraphs. The employment figures have been adjusted to reflect volumes harvested in the Arrow TSA only.

Atco Lumber Company Ltd. (Atco) has a replaceable forest license to harvest 151,627m3/yr. Before 2002, the license provided less than 50% of the Company's fibre requirements for its sawmill at Park Siding and the veneer mill in Fruitvale. In 2002, the sawmill and planer were reduced to one shift and permanently closed in 2003. The veneer mill consumes the entire license volume, however the company trades and sells sawlogs for peeler logs with most mills in the area

The veneer is sold to US markets. By-products (spindle cores and chips) are sold in Canada and US markets.

In 2003, about 105 person years of employment were supported in company activities related to the TSA license. This is a sharp drop from the level of employment reported in the last TSR (187-199 person years) and can be primarily attributed to the closing of the mill in Fruitvale. About 90% of the employment is filled by TSA residents.

Table 3.4 Atco annual average harvest and employment

	Volume (m^3)
Current License Volume (A20193)	151,627
Average Annual Harvest (1999-03)	167,018
2003 harvest	167,414
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	40
Log Transport	13
Road Construction/Maintenance	9
Silviculture	7
Timber Processing	36
Total	105

Source: Atco Lumber Company Ltd.

Bell Pole Company (Bell) holds a replaceable forest license to harvest 11,970m^3 /yr. The company exchanges logs from its license with TSA and non-TSA mills to obtain the material required for its pole yards. Bell does not have a pole plant in the TSA. For the purposes of this analysis, it was assumed that the license volume equivalent was processed at the Bell plant located in Revelstoke. The TSA volume accounted for about 13% of the Revelstoke mill's total input in 2003.

It is estimated that the license volume supports 6.5 person years of employment. This is lower than the employment level reported by TSR 2. Most of the woodlands related employment is held by TSA residents. There were no TSA residents employed at Bell's Revelstoke pole plant in 2003.

Table 3.5 Bell Pole annual average harvest and employment

	Volume (m^3)
Current License Volume (A20196)	11,970
Average Annual Harvest (1998-02)	18,527
2003 harvest	11,897
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	3.04
Log Transport	0.96
Road Construction/Maintenance	0.36
Silviculture	0.9
Timber Processing	1.2
Total	**6.46**

Source: Bell Pole Company Ltd.

Kalesnikoff Lumber Company Ltd. (Kalesnikoff) has a replaceable forest license to harvest 34,703m^3/yr, a reduction from 38,322 m^3 /year reported in the last Timber Supply Review. In recent years, about 50% of the license volume was processed in the company's mill in Thrums (compared to about

90% reported in the last TSR). Most of the balance of the license harvest is sold to saw mills in the TSA or to the Celgar pulp mill.

The Thrums mill is a value-added mill providing specialty cut, custom cutting, and appearance grade lumber for specialty wood manufacturers. In recent years, the mill has operated at about a 1.5 shifts level of capacity, with a total log intake in the order of 125,000m^3. Hence the replaceable forest license contributes about 15% of the mill's total input. Total mill employment is about 120 person years, of which about 18 may be attributable to the TSA volume. On average, about three-quarters of the woodlands related employment is filled by TSA residents, while the resident proportion in the mill is closer to 50%. Total employment attributed to the TSA harvest is 53 person years, compared to 60-82 person years recorded for the last TSR.

Most of the Company's production is sold to value added wood producers located outside the TSA. About 20% of the mill's production is sent to Kootenay Innovative Wood (a subsidiary of Kalesnikoff), a re-manufacturing plant located in the Kootenay Lake District. The mill also sells pulp chips to Celgar, sawdust and shavings to CanPar, and hog fuel to Washington Water and Power.

Table 3.6 Kalesnikoff annual average harvest and employment

	Volume (m^3)
Current License Volume (A20194)	34,703
Average Annual Harvest (1999-03)	36,850
2003 harvest	39,558
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	15
Log Transport	5
Road Construction/Maintenance	7
Silviculture	8
Timber Processing	18
Total	**53**

Source: Kalesnikoff Lumber Company Ltd.

Riverside Forest Products Ltd. (Riverside) has a replaceable forest license to harvest 47,589 m^3/year, a reduction from 52,552 m^3/year reported in the last Timber Supply Review. Most of the volume harvested under this license is processed at the Company's veneer and lumber mills sited outside of the TSA, but within in the Southern Interior Forest Region. In recent years, the company has sold about 8% of its TSA harvest to TSA mills.

The TSA logs are processed into a variety of products and by-products. Lumber is sold to final markets, and to value added processors. Pulp chips are sold.

It is estimated that the TSA harvest directly supports about 45 person years of employment, mostly persons living outside the TSA. This is greater than the employment reported in the last TSR (32-41 person years) primarily because more of the volume is now processed into plywood, which is more labour intensive.

Table 3.7 Riverside annual average harvest and employment

	Volume (m^3)
Current License Volume (A20191)	47,589
Average Annual Harvest (1999-03)	54,278
2003 harvest	51,787
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	6.5
Log Transport	2.3
Road Construction/Maintenance	1
Silviculture	2.5
Timber Processing	33
Total	**45.3**

Source: Riverside Forest Products Ltd.

Pope and Talbot Ltd. holds a timber sale license (TSL) to harvest 3,538 m^3 /yr. The license volume has been identified for "take-back" under Bill 28, so in the future the volume will be managed by BC Timber Sales (BCTS). Pope and Talbot holds TFL 23 (AAC of 680,000 m^3 /yr.) which is located in the forest district, but not included in this analysis. Pope and Talbot operate the region's largest sawmill in Castlegar, and mills in Midway and Grand Forks. A significant portion of the TSA harvest that is "exported" from the TSA is utilized by Pope and Talbot's Midway sawmill. Hence, while the company does not hold significant quota to TSA timber, it is a significant user of logs harvested from the TSA and is a major contributor to the local and regional economies.

Slocan Forest Products Ltd. (Slocan) has a replaceable forest license to harvest 197,841 m^3 /year, a reduction from 218,472 m^3 /year reported in the last Timber Supply Review. Slocan operates a lumber mill located in Slocan. The TSA license contributed about 55% the mill's total mill intake in 2003. In 2002 and 2003, the mill curtailed operations (for economic reasons, and fire closure in 2003) consequently the harvest volume was below its normal level. The mill produces mainly dimension lumber for the US market, and has been investigating value-added opportunities as well as other markets.

The TSA volume supported about 150 person years of employment in 2003. TSA residents hold most of the positions. When harvest and production increase to more normal levels, employment would also be expected to increase. The corresponding TSA related employment reported in the last TSR was 156-213. Nearly all of the difference is attributed to the timber processing activity.

Table 3.8 Slocan annual average harvest and employment

	Volume (m^3)
Current License Volume (A20192)	197,841
Average Annual Harvest (1999-03)	161,551
2003 harvest	125,382
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	82
Log Transport	3
Road Construction/Maintenance	4
Silviculture	20
Timber Processing	44
Total	**153**

Source: Slocan Forest Products

BC Timber Sales: In June 2001, the Ministry of Forests was directed to transform the Small Business Forest Enterprise Program into an independent organization within the ministry operating on a stronger commercial footing. BC Timber Sales (BCTS) is the resulting organization. It sells timber competitively at auction, and will handle the increased volume from the Bill 28 take-back. Presently, the BCTS apportionment in the Arrow TSA is 99,208 m^3/yr. The volume is managed within the BCTS's Kootenay Business Area; the timber sale office is in Nelson with a field office in Castlegar.

Since the BCTS volume is sold at auction, the proportion of sales won by TSA contractors, and the disposition of the harvest volume to TSA or non-TSA mills, will vary. Historically, about 65% of the sales volume is secured by TSA based firms, and about 72% of the volume is processed in TSA mills[4]. This historic proportion was used for allocating employment to the TSA and the rest of the province.

Table 3.9 BC Timber Sales annual average harvest and employment

	Volume (m^3)
Current Apportionment	99,208
Average Annual Harvest (1999-03)	157,480
2003 sales	143,877
Estimated Employment (@ 2003 harvest)	Person-years
Harvesting & Administration	53
Log Transport	9
Road Construction/Maintenance	8
Silviculture	14
Timber Processing	81
Total	**165**

Source: estimated from TSA average values

[4] Information provided by the Area Forester, Kootenay Timber Sales Office

4.0 FOREST SECTOR EMPLOYMENT COEFFICIENTS, INCOME AND GOVERNMENT REVENUE

This section explains the derivation of coefficients relating economic or financial outcomes to timber supply. The coefficient values are applied to the base case timber supply forecast in the next section to indicate its economic implications.

4.1 EMPLOYMENT

Forest sector employment supported by the Arrow TSA harvest was estimated, given 2003 harvest and employment levels, as reported by the major licensees. The employment is calculated at the TSA and total provincial levels. TSA employment is comprised of Arrow TSA residents whose jobs depend on the Arrow TSA timber supply. So, for instance, TSA residents working in the forest sector (*e.g.* faller), but not in the TSA (*e.g.* TFL 23), are excluded in this analysis. On the other hand, employment at mills outside the TSA processing TSA timber is reported at the provincial level of employment. Provincial employment is comprised of all B.C. employment that relies on the Arrow TSA, including TSA residents and those who live elsewhere.

Harvesting employment includes all phases of logging and road construction and maintenance. Log transportation, although an integral part of the process is defined as an "indirect" activity for statistical purposes. Hence employment is imbedded in the indirect multiplier. Industry responses indicated some harvesting is done by non-TSA residents. For the BCTS harvest, the TSA average coefficients were used to derive employment estimates.

With respect to timber processing employment, TSA harvest is processed at TSA and non-TSA mills. From industry interviews it was estimated that licensees send about 40% of their TSA harvest volume to their respective TSA mills (or 32% of the TSA total harvest). There is also substantial log trading among mills and from BCTS, which results in TSA logs being processed in another TSA mill (including pulp logs to Celgar pulp mill). This accounts for about 37% of the harvest. In addition, by-product chips from the TSA harvest support employment at the Celgar pulp mill in Castlegar. TSA processing employment is the sum of these activities. About 31% of the total harvest is processed outside the TSA. Provincial timber processing employment includes TSA and the non-TSA employment directly processing the TSA harvest.

Table 4.1 Forest sector employment and employment coefficients

	TSA		Province	
Activity	**Person Years**	**Person years per '000 m^3**	**Person Years**	**Person years per '000 m^3**
Harvesting[1]	171	0.32	228	0.42
Silviculture	38	0.07	52	0.10
Timber Processing	194	0.36	335	0.62[3]
Total Direct	403	0.74	616	1.13
Indirect/Induced[2]	216	0.40	807	1.49
Total	619	1.14	1,423	2.62

Notes:

1. Based on 2003 harvest of 543,015 and log distribution.

2. Transportation included in the indirect multiplier. Multiplier values are for the Arrow/Boundary Forest District as reported in *2001 Economic Dependency Tables for Forest Districts.*

3. Provincial average timber processing coefficient reported by MoF, 2000, Table 20.

It is estimated that the TSA harvest supports about 400 fulltime positions in the TSA forest sector, and a total of 615 in BC. The TSA employment estimate is lower than those reported in the last TSR review of 541, a reduction of some 25%. But total provincial employment is essentially unchanged from the TSR report of 1,446. This might be a consequence of a combination of two factors: 1) more non-TSA residents are working in the TSA forest sector; and 2) a larger proportion of TSA harvest is processed outside the TSA. Industry interviews indicated TSA mills are operating below capacity, as well as mill closures suggests that a relatively larger share of the TSA harvest is being milled outside the TSA.

The "indirect/induced" employment refers to the additional employment created by industry and consumer spending, respectively. The values are from an economic model of the provincial economy that replicates the successive rounds of spending. The model indicates that about 215 full time equivalent positions are sustained in TSA communities as a result of the TSA harvest. In BC, a total of some 800 positions are sustained.

4.2 Income

The estimates of total provincial labour income derived from the TSA harvest is summarized in Table 4.2. With respect to direct forest sector employment, the TSA harvest supports about $ 31 million of labour income. About $ 21 million is earned by TSA residents. The multiplier income increases the total income to the B.C. economy to $ 59 million. This is an income/harvest coefficient of $107,000 per '000 m^3 of harvest as compared to $103,000 per '000 m^3 of harvest reported in the last TSR.

Table 4.2 Estimated provincial employment income

Employment Component	**Estimated PY's[1], in BC[2]**	**Estimated annual income[1]**	**Total Income (2003 $000)**	**Income ($ per '000s m^3)**
Logging and forestry services	281	$ 51,245	$ 14,383	$ 26,487
Solid wood processing	290	$ 49,934	$ 14,469	$ 26,645
Pulp and Paper	46	$ 53,972	$ 2,465	$ 4,539
Subtotal	616		$ 31,316	$ 57,671
Indirect/Induced employment	807	$ 33,800	$ 27,277	$ 50,233
Total	**1,423**		**$ 58,594**	**$107,905**

Notes:

1. PY is 1 full time position

2 Statistics Canada. 2003 Sept data. Survey of Employment, Payrolls and Average Weekly Earnings (Cat. No. 72-002-XIB)

4.3 Government Revenue

The provincial government obtains revenue from the forest industry from stumpage, royalties, and rent associated with harvesting on the tenured land base. The forest industry also pays various taxes, including logging, corporate income, property, gasoline, and sales taxes. The provincial and federal governments also receive revenue from personal income tax paid by forest sector employees. Table 4.3 summarizes provincial revenue estimates associated with the Arrow TSA harvest.

Table 4.3 Estimated average annual Provincial revenues

Provincial[1] Revenue Sources	**Estimated Average Revenue/yr. ($ millions)**	**Annual revenue per 1000 m^3**
Stumpage	$ 8.47	$ 14,150[2]
Forest Industry Taxes[3]	$ 5.19	$ 8,664
Employment Income Taxes[4]	$ 5.26	$ 8,789

Notes:

1. Based on 2003 harvest volume of 543,015 m^3
2. Based on average stumpage billed for period 1998-02, Revenue Branch, Ministry of Forests.
3. From Price Waterhouse Cooper (1999), includes logging, corporate income, corporate capital, sales, property and electricity tax payments.
4. 2001 Forest District Tables yield average tax rate of 17% for Arrow-Boundary forest sector.

It is noted that a more market sensitive stumpage determination method is being introduced for setting stumpage rates in B.C. While the method should be more responsive to changing market conditions, there is no basis at this time to project an average stumpage rate that might be set in the future by this new method. For the purposes of this assessment, the average historic rate is used to indicate government stumpage revenue from the Arrow TSA.

5.0 IMPLICATIONS OF BASE CASE HARVEST FORECAST

The base case harvest forecast for the Arrow TSA starts with an initial harvest level of 550,000 m^3/yr for 70 years. It then steps up to a long-term harvest level of 690,000 m^3/yr. The initial harvest level is equal to the current AAC. Since the recent harvest has been less than the full AAC, the potential increase is some 7,000 m^3/yr. The socio-economic implications are measured relative to current AAC and the recent harvest level.

Table 5.1 Base Case timber supply and other benchmarks

	Present Conditions	**Decade 1-7**
Harvesting Activity	000m^3/year	
Current AAC	550	550
Recent harvest level	543	
Change from Recent Harvest	7	7

The socio-economic analysis focuses on the first 30 years of the forecast. It considers:

- The employment and income implications to the TSA provincial economies;
- Possible impacts on TSA communities;
- The log supply requirements of TSA primary processing facilities; and
- Regional timber supply implications.

5.1 EMPLOYMENT AND INCOME IMPLICATIONS

The estimate of employment and income implications associated with the base case harvest forecast is premised on the average level of forest sector activity and corresponding harvest volume observed recently. That is, the employment and income coefficients presented in the last section are assumed to remain constant. While this method can be reasonably accurate in the short term (the next 3-5 years), it will become less reliable over time as industry adopts new technology, makes new investments, and continually adjusts to changing conditions.

Table 5.2 TSA level impacts

	Current AAC	Base Case (Decade 1-3)
Employment	person years	
Direct	409	412
Indirect/Induced	219	221
Total	627	633
gain (loss) from Recent	8	14
Employment Income	$ millions	
Direct	$ 20.8	$ 21.0
Indirect/Induced	$ 7.4	$ 7.5
Total	$ 28.2	$ 28.5
gain (loss) from 2003 harvest	$ 0.4	$ 0.6

The employment and income impacts at the TSA level of the base case harvest are shown relative to the current AAC and the 2003 harvest level. "Current AAC" indicates the level of employment and income at the TSA level if the current AAC of 550,000m^3/yr was harvested. The current AAC would support a total potential of 627 full time positions in the TSA economy and generate $28 million in incomes per year. However, since the actual harvest volume has been slightly below the full AAC, harvesting the full opportunity would add eight full time positions to the TSA economy. The base case timber supply is slightly higher. Relative to current conditions, harvesting at the base case volume would add 14 full time positions to the TSA economy and $.6 million annually in income.

Table 5.3 Provincial impacts (including Arrow TSA)

	Current AAC	Base Case (Decade 1-3)
Employment	Person years	
Direct	624	630
Indirect/Induced	817	825
Total	1,441	1,455
Gain (loss) from Recent	18	31
Employment Income	$ millions	
Direct	$ 31.7	$32.0
Indirect/Induced	$ 27.6	$ 27.9
Total	$ 59.4	$ 59.9
Gain (loss) from 2003 harvest	$ 0.8	$ 1.3

The provincial level impacts are summarized in Table 5.3. As noted in the preceding section, the Arrow TSA timber supply impact on the adjacent region is substantial. This is reflected in the employment and income impacts. At the current AAC, a total of 1,441 full time positions are support in BC. That is an increase of 18 positions if the full AAC opportunity were harvested. The increased harvest opportunity of the base case timber supply would support proportionately higher employment and income. Relative to recent employment level, 31 new full time position would be supported at the base case harvest.

Table 5.4 Provincial revenue impacts

	Current AAC	Base Case (Decade 1-3)
Revenue Source	$ millions	
Stumpage	$ 7.8	$ 7.9
Forest Industry Taxes	$ 4.8	$ 4.8
Employment Taxes	$ 4.4	$ 4.4
Total	$ 16.9	$ 17.1
Gain (loss) from 2003 harvest	$ 0.2	$ 0.4

Provincial Government revenue from the forest industry include: stumpage; taxes on logging, corporate income, sales, property, and electricity; and income taxes paid by employees that work directly or indirectly for the forest industry. Under existing stumpage and tax regimes, the Arrow TSA makes a gross contribution of nearly $17 million per year if the current AAC is fully harvested. The base case will lift this revenue total slightly. However, relative to the recent harvest level, the potential increase is nearly $.5 million per year.

With respect to community level-impacts associated with the base case forecast, a small positive influence is indicated. Rather than timber supply, the apparent industry trend to greater processing of timber outside the TSA may pose greater implications to TSA communities.

6.0 SUMMARY

The forest industry accounts for 23% of the earned income and 20% of total employment in the vicinity of the Arrow Timber Supply Area. Timber harvested from the TSA, along with timber coming from other Crown tenures and private land, support this level of economic activity. It is estimated that harvest from the Arrow TSA alone supports a total of 620 full time position in the TSA, and a total of 1,423 positions in British Columbia. Relative to the last TSR, the Arrow TSA contribution to the local economy has diminished, but is unchanged at the provincial level.

The base case timber supply indicates the TSA harvest could be increased by 5,000m^3/yr. from its current level. This has positive economic implications, particularly since the actual harvest has not taken the full AAC in recent years.

7.0 REFERENCES

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