



Market analysis

Availability of forest products and by-products

British Columbia - Canada

Client:

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1. Introduction

SGS has been assigned by Electrabel to analyse the market availability of the feedstock used to produce wood pellets in Canada, in order to assess to what extent the use of those materials for energy purpose might compete with the industrial use of those resources both locally and internationally.

This report will cover the following wood resources used as raw material by pellet producers in British Columbia:

- Residues of forest exploitation
- Round from forest thinning & harvesting
- Wood processing residues

The industrial activities concerned by those materials are:

- sawmills
- pulp and paper
- wood panels production

The geographic range covered by the analysis includes the Province of British Columbia.

2. Production volumes

According to the most recent statistics available from the FAO to data¹ (Figure 1) the production of round wood in Canada in 2013 was 152 million m³. It shows a progressive increase since 2010 after radical decrease of about 45% experienced between 2004 and 2010, as a result of the economic downturn (especially in the housing sector of the US which is a major driver for the exports of Canadian lumber). The current production levels are still far below the production levels of 2004 (208 million m³), even though the forest economy seems to recover slowly.

An identical trend can be observed in British Columbia (Figure 2), where the total volumes of round wood dropped sharply from 2005 despite an augmentation in some places of the Allowable Annual Cut (AAC) as part of the effort to tackle the mountain pine beetle outbreak. The sharp decrease after 2005 is noticeable both on public and private land.

British Columbia represents nearly half of Canada's roundwood production.

After 2010, British Columbia seems to recover better from the crisis than the rest of Canada, presumably thanks to the increased exports of lumber to the Asian markets, which are more

¹ http://faostat3.fao.org/faostat-gateway/go/to/browse/F/*/E

accessible from the Pacific Coast. The levels of round wood production in 2012 (69 million m³) are about 80% of the highest levels recorded before the crisis (87 million m³ in 2004).

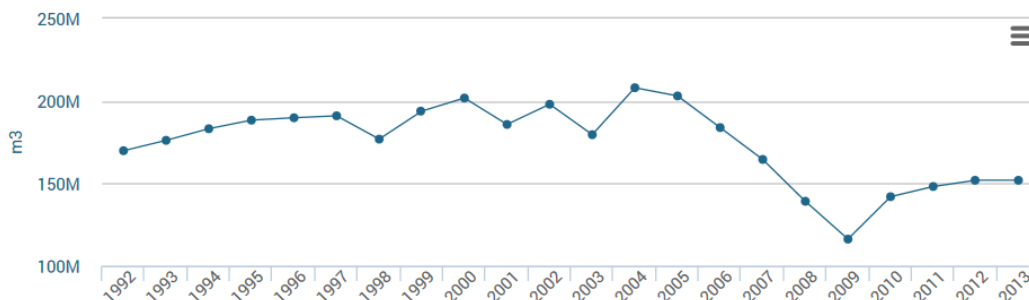


Figure 1 : production of round wood in Canada (1992-2013)
(source : FAOstat)

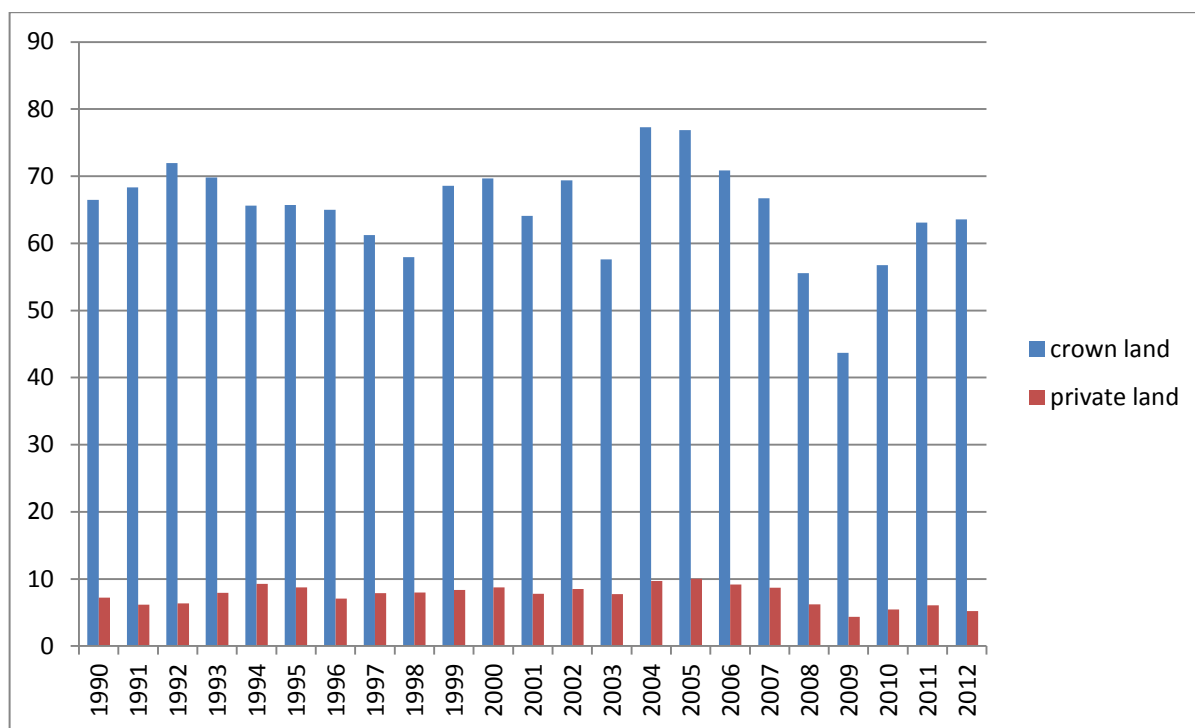


Figure 2 : production of round wood in British Columbia (1990-2012) in million m³
(source : national forestry database <http://nfdp.ccfm.org>)

The economic evolution after 2005 led to a reduced demand for wood raw materials and reduced production levels, associated with a diminution in the volumes of harvested wood. As can be seen on

Figure 3, the production of pulp for paper, sawnwood and wood-based panels has also been decreasing in Canada after 2005, following a similar trend as the round wood production.

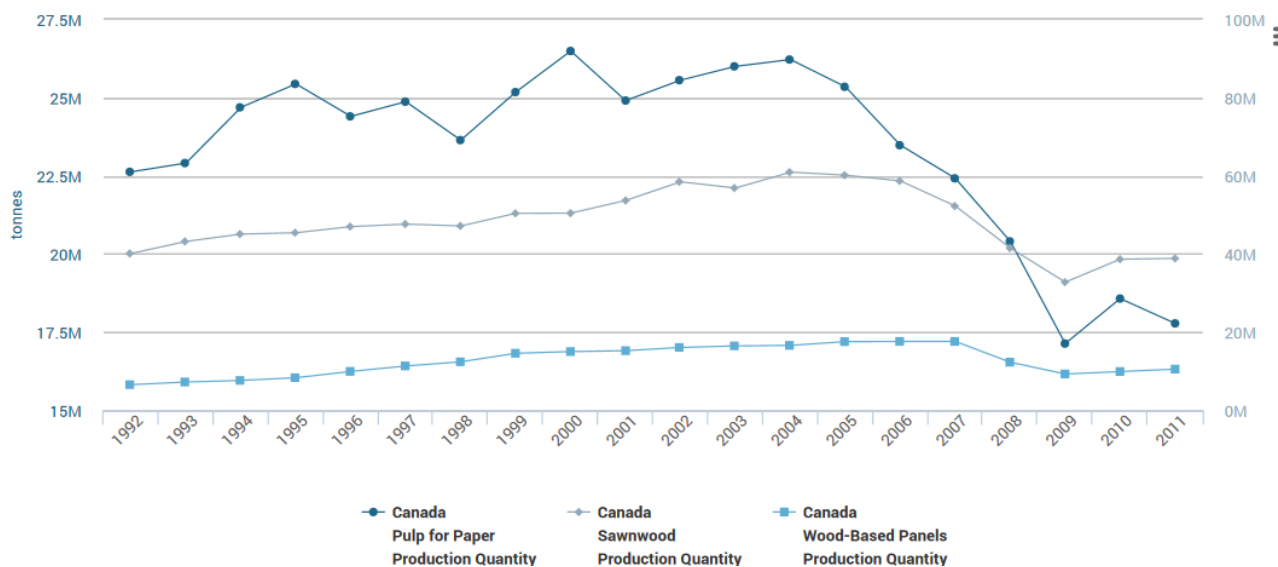


Figure 3 : production levels of pulp for paper (tonnes), sawnwood (m³) and wood-based panels (m³) in the Canada between 1990 and 2012
(source : FAOstat)

Just like in Canada as a whole, the lumber production in British Columbia decreased sharply between 2005 and 2009, as a result of the economic crisis. The domestic consumption shows a slight decrease, but mostly the exported lumber has dramatically dropped. This is because the Canadian lumber export's main driver is the export to USA, where the economic situation, especially in the housing sector, experienced a severe reduction during this period in relationship with the subprime mortgage crisis, which led to a fall of the demand for timber products as building materials (lumber and wood panels).

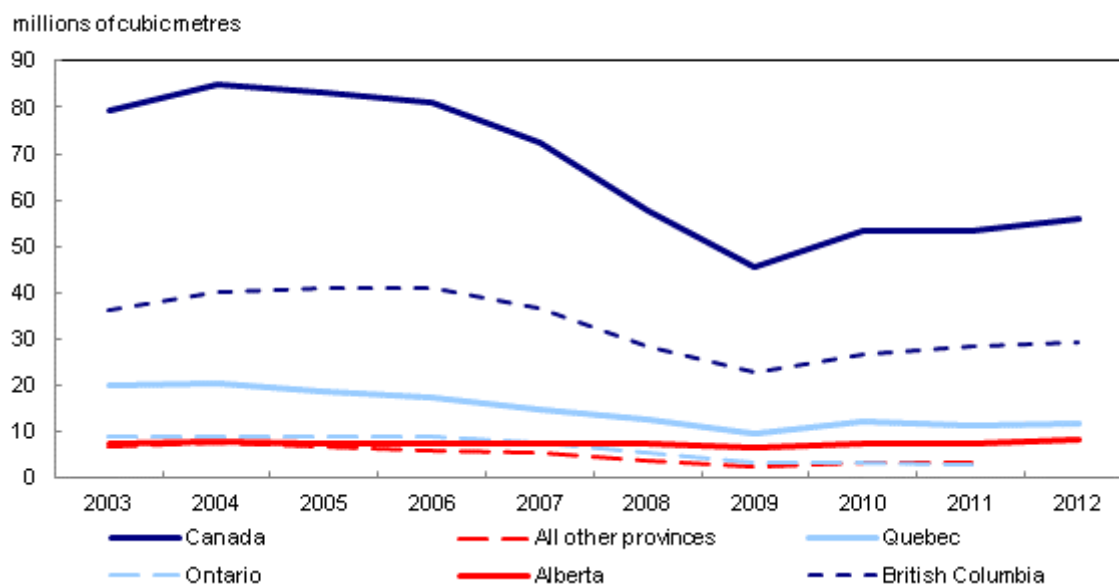


Figure 4 : production levels of sawnwood (in million m³) per province in Canada
(source : statistics Canada²)

According to BC Stats' analytical report (Dan Schrier, BC's Pulp and Paper Exporters Facing Challenge, *Exports*, November 2009³) the cause of the slowdown in the pulp and paper business in British Columbia are as follows:

- higher production costs (in particular high costs of wood chips due to reduced production levels of the sawmills)
- high rate of Canadian dollar, making BC less competitive on the export markets
- strong international competition
- high subsidies awarded to US pulp and paper mills for the use of black liquor as renewable energy
- weak prices of pulp and newsprint paper (which are the main outputs of BC pulp and paper mills).

As can be seen on Figure 5 and Figure 6, the actual production of pulp mills and paper mills has declines sharply in British Columbia, especially after 2005. Additionally, the production capacity has been reduced through the closure of several production lines and mills, particularly between 2005 and 2009. As a result, the production volumes are not likely to fully recover after the crisis, and the current economic situation of the pulp and paper sector (especially stagnating prices on the international market) does not suggest that new investments would be made in this sector in British Columbia.

² <http://www.statcan.gc.ca/daily-quotidien/131112/dq131112a-eng.htm?fpv=4005>

³ <http://www.bcstats.gov.bc.ca/Files/27dcad5a-22ee-4861-854d-806c731e844/BCsPulpandPaperExportersFacingChallenges.pdf>

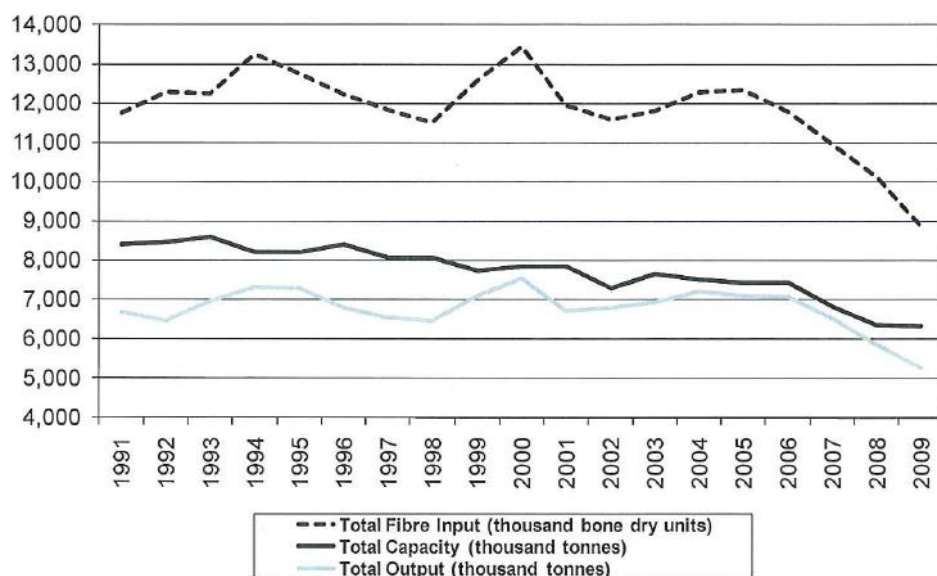


Figure 5 : Evolution of the pulp mills production input/output and production capacity in British Columbia

(source : Ministry of Forests, Lands and Natural Resource Operations, 2009, Major timber processing facilities in British Columbia⁴)

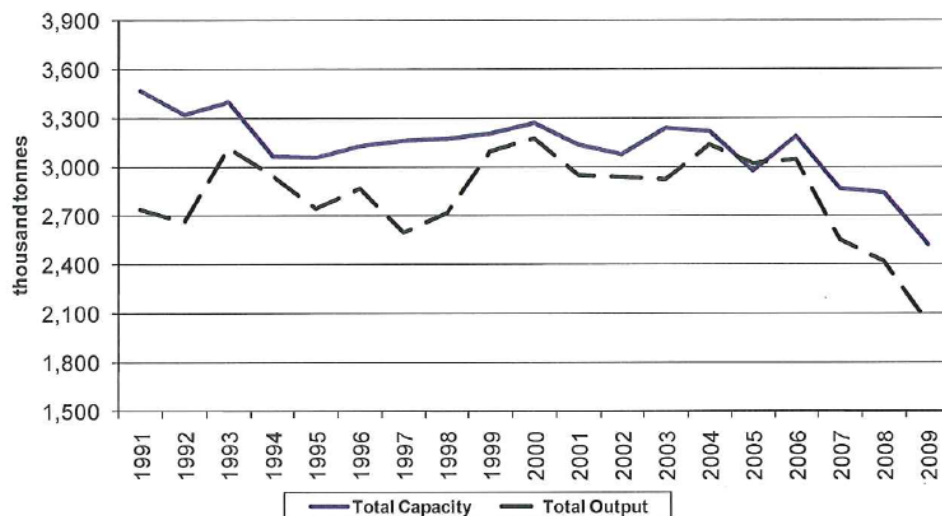


Figure 6 : Evolution of the paper production output and production capacity in British Columbia

(source : Ministry of Forests, Lands and Natural Resource Operations, 2009, Major timber processing facilities in British Columbia⁵)

⁴ <http://www.for.gov.bc.ca/ftp/het/external/publish/web/mill%20list/Public%20Report%202009.pdf>

3. Forest exploitation levels

The volumes of harvested wood from BC forests are described in more details in SGS's report on forest sustainability. The harvested volume used to fluctuate between 65 and 90 million cubic metre per year in the period 1990 to 2000. Then, after 2000, the mountain pine beetle outbreak led the authorities to raise the levels of Allowable Annual Cuts (AAC) as part of effort to salvage timber and control pest propagation. However, in total, due to the prevailing economic circumstances, the timber demand was low and the total levels of harvesting dropped after 2005.

Because of the damages of the mountain pine beetle infestation, the growth of the trees is reduced in some places and the decay of the wood has increased. As a result, the total volume of standing trees is currently estimated to deplete.

The long term timber supply, which is taken into account to set the AAC, used to be rather constant in British Columbia. However, because of the mountain pine beetle infestation, the long term timber supply is now expected to decrease. By 2025, the timber supply forecast for regulated land is now reduced to the range of 50-60 million m³, depending on the scenarios (Figure 7) and it is not expected that the usual long term supply levels (in the range 70 million m³) could be recovered before 2075.

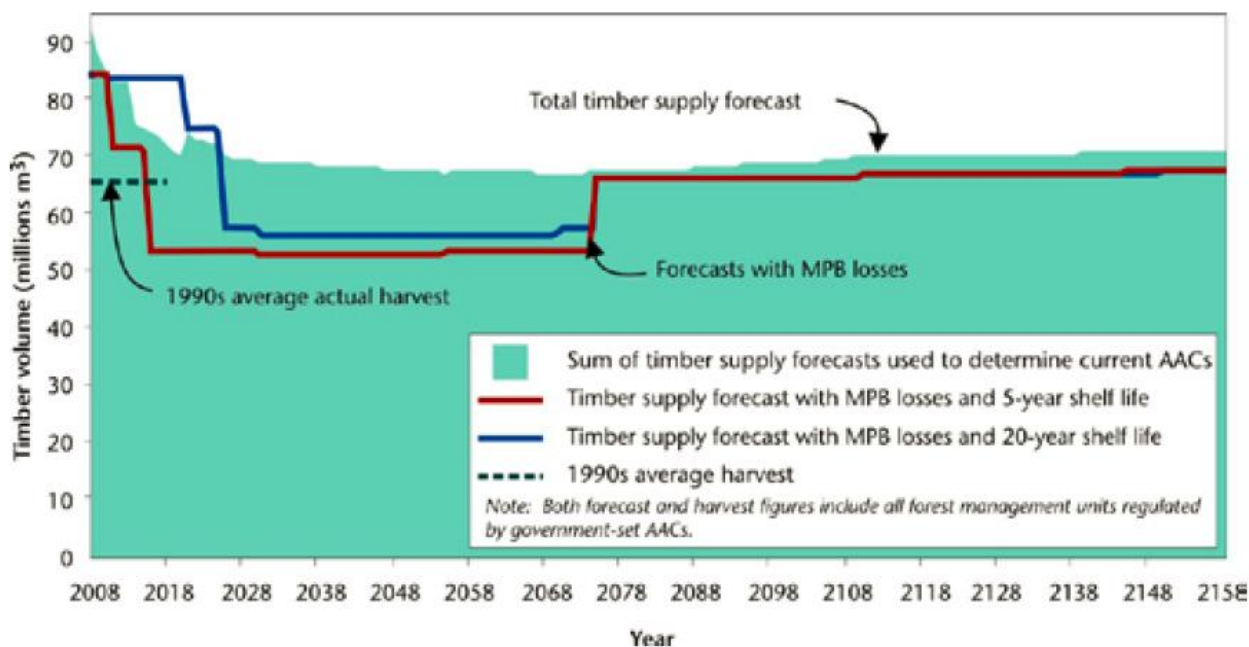


Figure 7 : Long term timber supply forecast in BC, taking into account the impact of the mountain pine beetle outbreak

source : B.C. Ministry of Forests, Mines and Lands. 2010. The State of British Columbia's Forests, 3rd ed. Forest Practices and Investment Branch, Victoria, B.C. www.for.gov.bc.ca/hfp/sof/index.htm#2010_report

⁵ <http://www.for.gov.bc.ca/ftp/het/external/publish/web/mill%20list/Public%20Report%202009.pdf>

4. Price of wood resources

Because of massive exports of Canadian wood to the USA, it is common practice in Canada to refer to USA's Random Lengths softwood lumber composite price when analysing the trends in lumber prices (Figure 8).

Lumber prices in North America have fallen between 2005 and 2009 in relationship with the Mortgage Subprime Crisis. Even though they have not yet recovered up to the levels of 2005, the most recent figure shows that they have reached a level with is close to the average of the last 30 years (if prices are corrected to take into account the inflation). Current predictions suggest that those prices will keep on increasing in the next couple of years.

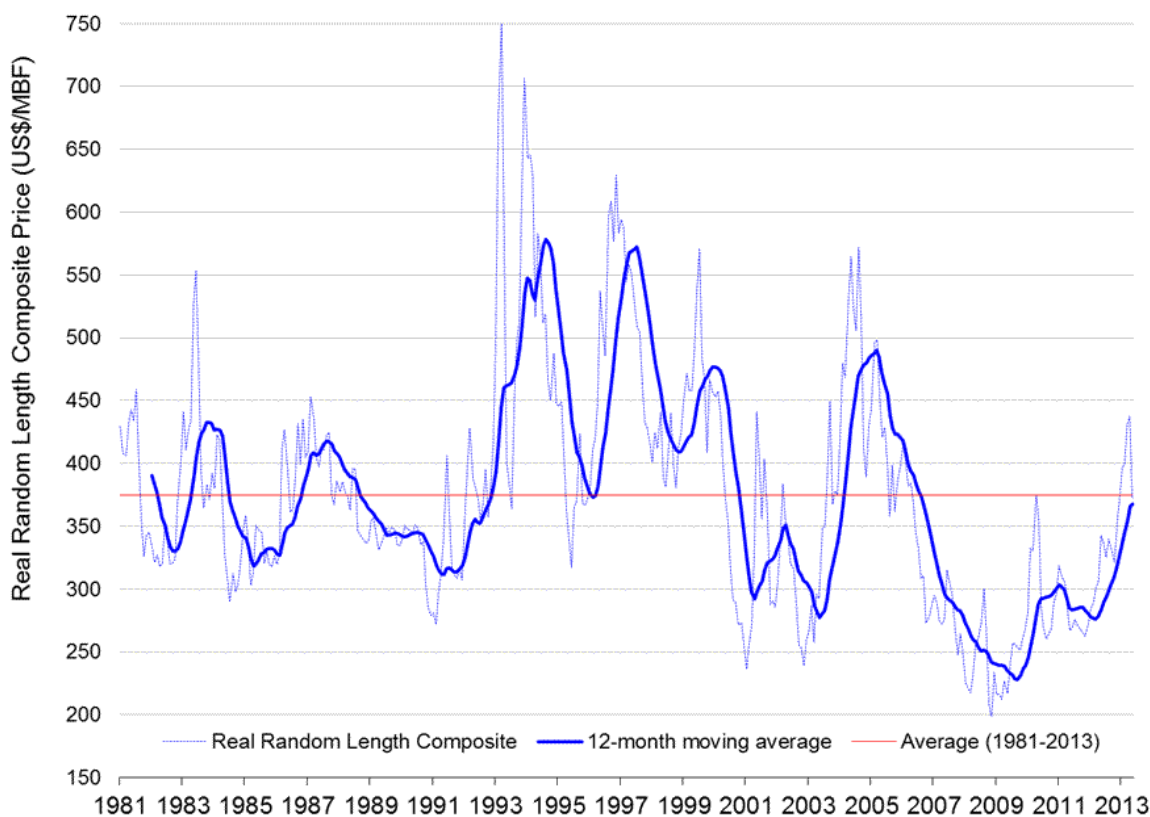


Figure 8 : Random Lengths softwood lumber composite price (1995-2012), in USD/MBF
All prices converted in May 2013 dollars for the purpose of the comparison
(source :Natural Ressource Canada <https://cfs.nrcan.gc.ca/selective-cuttings/50>)

During the same period the prices of pulpwood in Canada, the prices of pulp and paper products remained rather stable, as reflected by the Industrial product price index of North American Product Classification System (NAPCS) on Figure 9. A more detailed analysis of the different products included in the pulp and paper index shows indeed that the prices of wood chips and wood pulp show remarkably stable patterns between 2000 and 2014, while the price of newsprint paper shows more fluctuation, without long term increase or decrease (Figure 10).

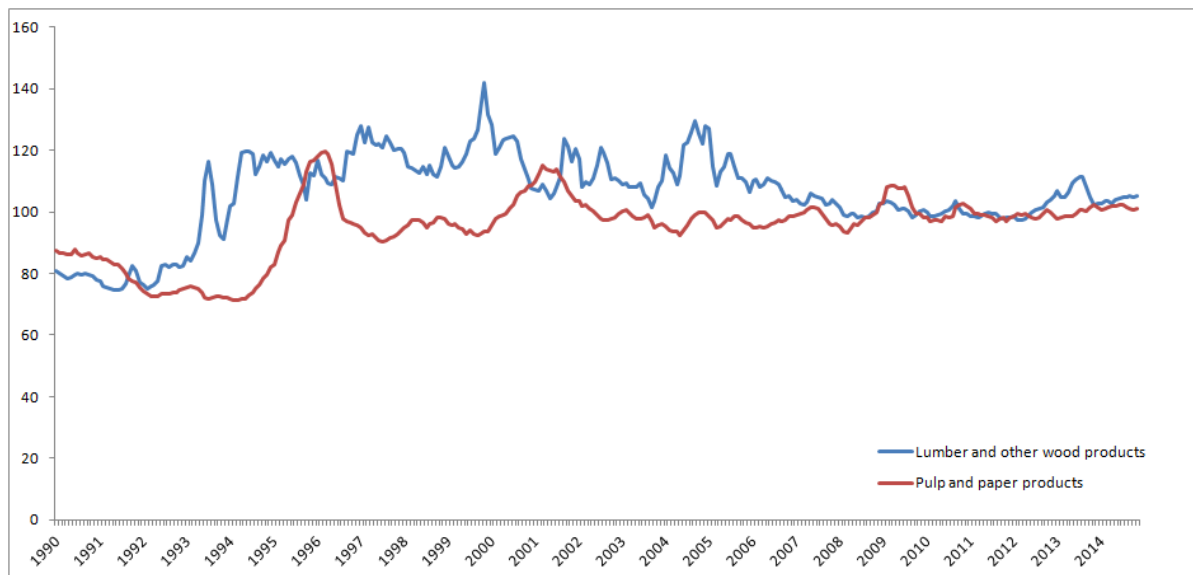


Figure 9 : Lumber price index and pulp and paper price index in Canada (1990-2014)

reference : 100 = price index for 2010 ; the “pulp and paper” price index includes wood chips, wood pulp and newsprints

(source : Statistics Canada, CANSIM, Industrial product price index, by North American Product Classification System - NAPCS)

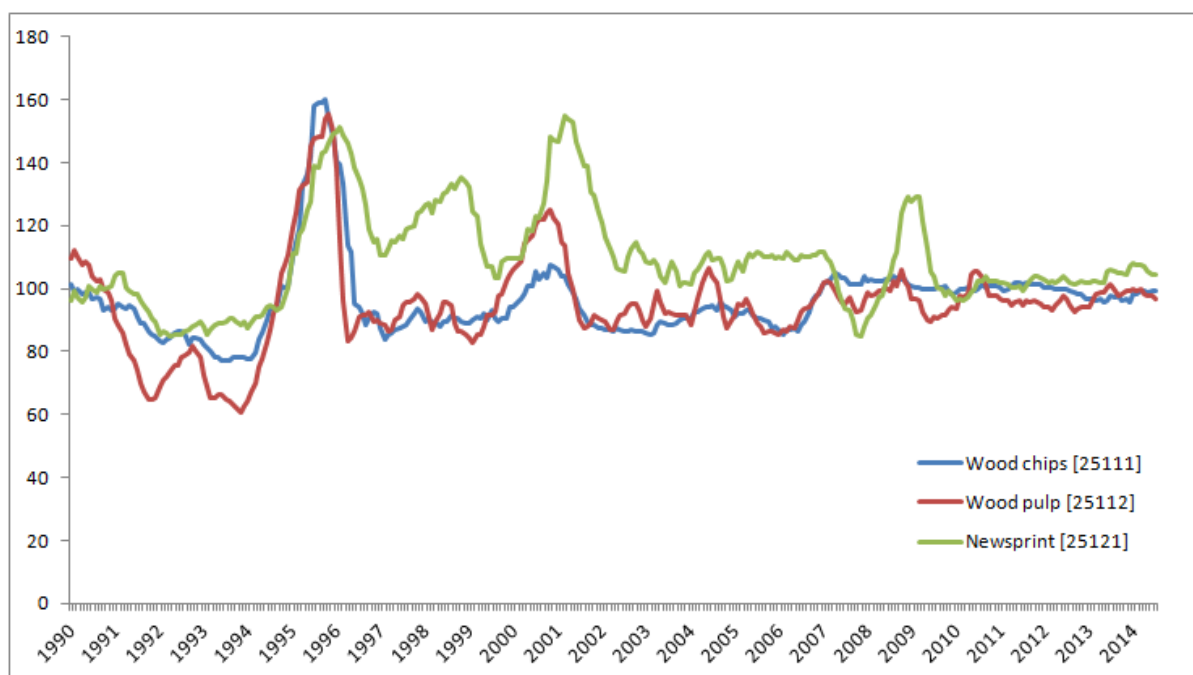


Figure 10 : Price index for wood chips, wood pulp and newsprint in Canada (1990-2014)

reference : 100 = price index for 2010

(source : Statistics Canada, CANSIM, Industrial product price index, by North American Product Classification System - NAPCS)

5. Import and export of wood resources

In this section, imports and exports are taken into account to assess the availability of the different kind of materials.

While the imports and exports of round wood to/from Canada remain negligible compared to the domestic production, it is noticeable that both the imports and exports have decreased between 2005 and 2009, when the economic crisis struck the US construction market (Figure 11).

Even though Canada is a very large exporter of wood, very little volumes are exported as round wood. This is because the sawmill industry is very well developed and competitive, as it can process large amounts of roundwood, available at cheap price on the domestic market (because stumpage prices on Crown land are low). Most of the wood exports are as lumber. In 2013, the round wood exports represent only 5% of Canada's round wood production.

However, we do notice that the exports of roundwood start increasing quickly after 2009. This is because of the demand for round wood on the China and other Asian countries, mainly for construction purpose. China is the destination for more than 50% of BC's round wood exports. USA only account for less than 10% now.

We also notice that British Columbia is the main contributor to round wood exports from Canada, as the figures for entire Canada (Figure 11) nearly match the figures for British Columbia only (Figure 12).

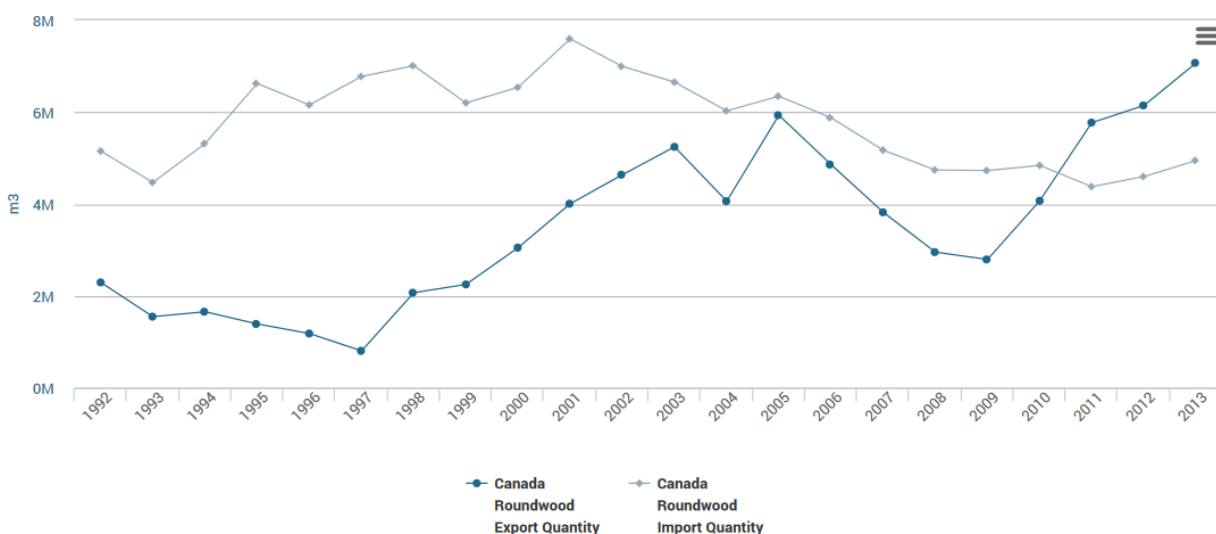


Figure 11 : imports and exports of round wood in Canada (1992-2013)
(source : FAOstat)

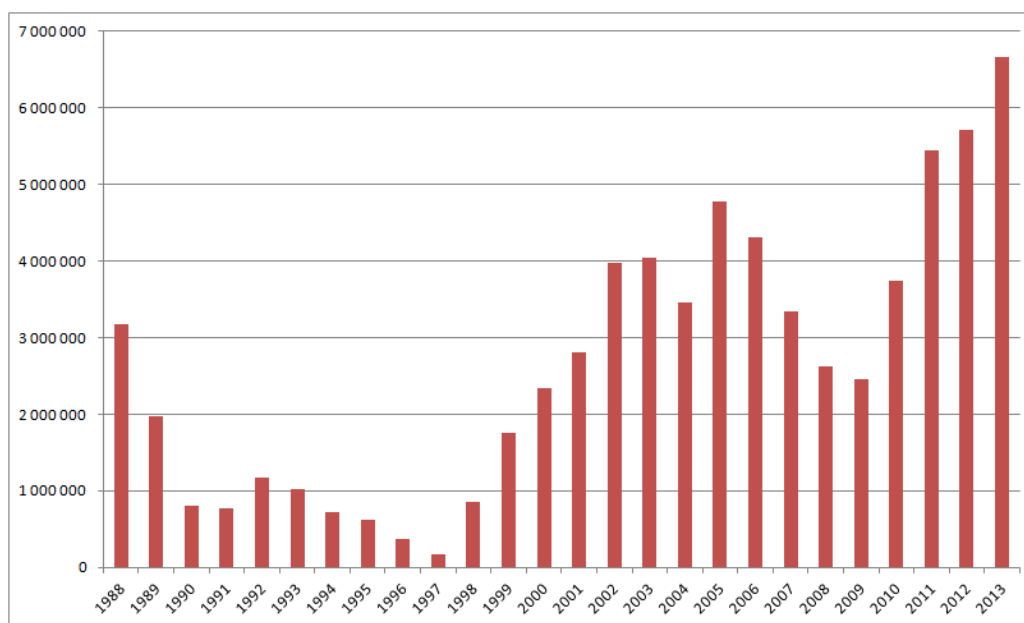


Figure 12 : exports of round wood from British Columbia (1988-2013)
(source : BC Stats⁶)

⁶ <http://www.bcstats.gov.bc.ca/Files/1292f88c-1142-4fa5-9c09-8cf8011aeef3/BCLogExports.xlsx>

The exports of pulp for paper have remained rather stable, with only a small increase between 2005 and 2009, while the production of pulp for paper was falling sharply (Figure 13). This suggests that the decrease in the production of pulp for paper was mostly at the expense of the domestic paper production (which collapse between 2005 and 2009) and not at the expense of pulp exports. The domestic production capacity of both pulp and paper has indeed sharply decreased between 2005 and 2009. Currently, the export of pulp for paper account for slightly more than 50% of the domestic production and the imports remain negligible.

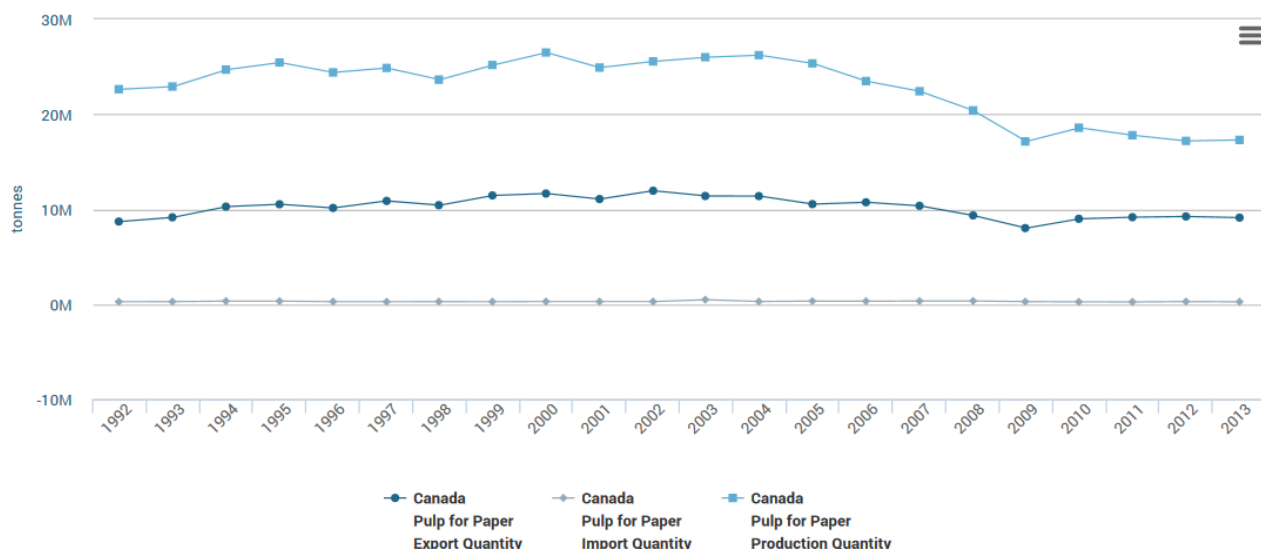


Figure 13 : Production, imports and exports of pulp and paper in Canada (1992-2013)

(source : FAOstat)

The produced and exported volumes of wood-based panels have sharply fallen after 2005, in relation with the dropping demand on US markets, which is the major market for the panels used in construction (Figure 14). The exports have hardly increased again after 2009. During the same period, the exported volumes have remained negligible.

After a sharp decrease of sawnwood production and exports between 2005 and 2009, again because of the economic crisis in the construction sector in the USA, the exports have started increasing again after 2009 (Figure 15), thanks to two major drivers:

- the slow recovery of the US construction market
- the quick rising demand for wood on the Asian markets (China, Japan, Korea...) (following the same trend as domestic production), the imported volumes have been rather stable.

Approximately 75% of the Canadian sawnwood (lumber) is exported.

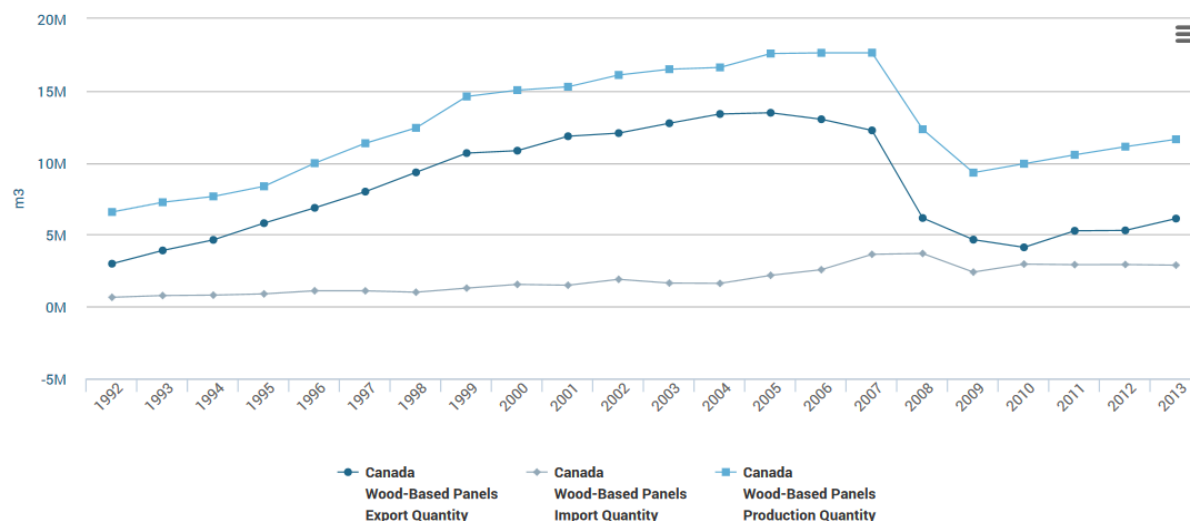


Figure 14 : Production, imports and exports of wood-based panels in Canada (1992-2013)
(source : FAOstat)

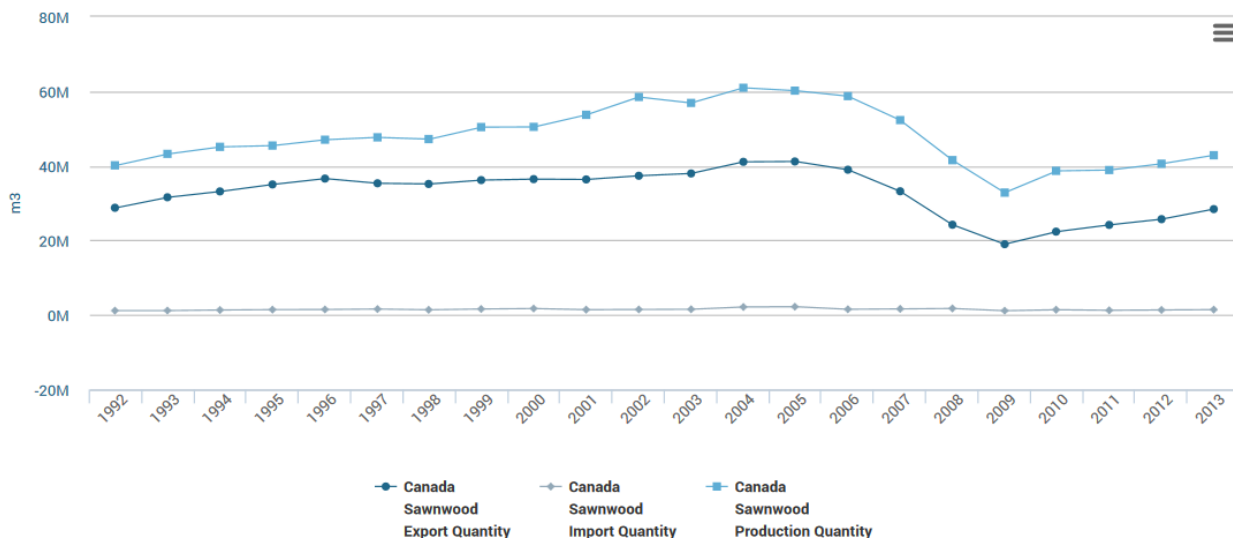


Figure 15 : Production, imports and exports of sawnwood in Canada (1992-2013)
(source : FAOstat)

More specifically in British Columbia, the trend is exactly the same as at the national level Figure 16. British Columbian accounts for about 50% of the lumber production and is responsible for about 75% of the lumber exports. Most of the lumber production of British Columbia is exported. The increase of the Canadian exports of lumber after 2009 (non visible on Figure 16 but visible on Figure 15) was mostly profitable to BC, thanks to its access to the Pacific ocean for the Asian markets.

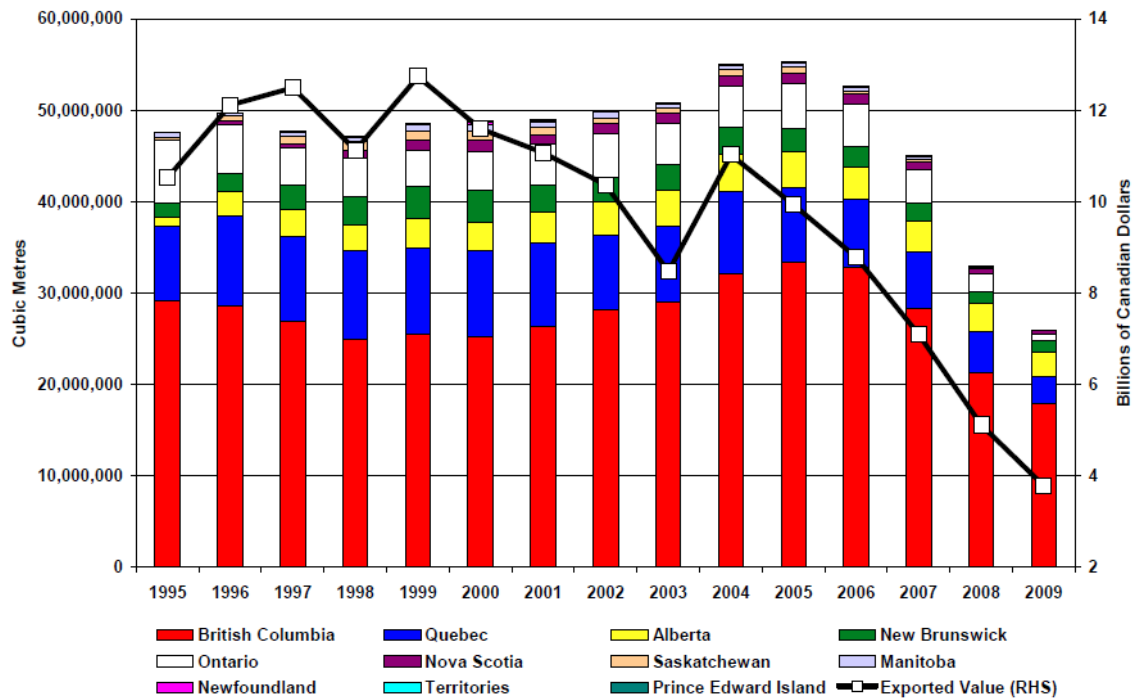


Figure 16 : exports of softwood lumber by Canadian province 1995 and 2009 (m³)
(source : BC Stats⁷)

⁷ <http://www.bcstats.gov.bc.ca/Files/a762c3e0-8b45-4dc6-9e95-29e1d8f5fd44/SoftwoodLumberExports.xls>

6. Conclusion

Canada and especially British Columbia have a forest industry essentially oriented to the export markets. The exported products are mostly lumber, wood panels, as well as pulp and paper. The USA are the major destination for lumber.

Only 5% of the production is exported as round wood, but there is rapid increase, because of the heavy demand of round wood on the Asian markets for construction purpose.

The analysis of the wood market in British Columbia, shows that a major decrease of round wood production (by about 45%) was triggered by the subprime mortgage crisis in USA between 2005 and 2009, which caused the demand for wood based panel and lumber to collapse. The production levels have partially recovered afterwards, with the help of the slow recovery of the housing market in the USA and also the dramatic increase of the exports to the Asian markets.

During the same period, the pulp and paper export experienced a turndown as well, with permanent closure of some facilities and diminution of the production capacity.

Large amounts of round wood are available for harvesting, but in recent years the harvested volumes from regulated forest land did not reach the Allowable Annual Cut (AAC), because of market conditions. The market is however slowly recovering, as lumber prices and harvested volumes have been increasing since 2010. The pulp and paper production has remained stable after 2009, as the permanent closure of pulp mills and paper mills have reduced the production capacity. The stagnation of the prices does not seem to enable new investments in this sector.

While the levels of AAC have been temporarily raised in the short term to deal with the mountain pine beetle outbreak, a reduction of the AAC will be inevitable in the medium term a diminution of the AAC will be needed (down to 50-60 million m³ / year). It is not expected that British Columbia will come back to its usual long-term timber supply (about 70 million m³) before 2075.

The partial recovery of sawmill activity after 2009 means that larger amounts of sawmill residues are available again for pulp, panels and bioenergy. Since the production capacity of pulp and paper has significantly decreased during the period 2005-2009, it does not seem the availability of pulp wood might be an issue in the current conditions.

Additionally increasing amounts of material from beetle damaged trees which is not suitable for lumber and paper applications and still suitable for energy will be available in the next decades as more necessary sanitary cuttings will be needed.

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