



Market analysis

Availability of forest products and by-products

Nova Scotia - 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 Nova Scotia:

- 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

However, the wood panel production in Nova Scotia is nearly nonexistent. Hence any potential competition for raw material concerns the sawmills for round wood (even though they don't make use of the same diameter category as the bioenergy sector) and the pulp and paper sector.

The geographic range covered by the analysis is the Province of Nova Scotia, including some considerations at the national level and some considerations at the provincial level.

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.

Nova Scotia does not really show the same trend (Figure 2). The total volumes of round wood dropped sharply from 2005 onwards and the recovery of the market after 2009 is much less visible than at a national level (actually the recovery of wood production in Canada as a whole after 2009 is mostly due to good performances in British Columbia, whereas the wood market in the rest of the

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

country hardly recovers very slowly or fails to recover at all). The sharp decrease after 2005 is noticeable both on public and private land.

After 2009, British Columbia seems to recover better from the crisis than the rest of Canada, presumably thanks to the increased exports of lumber and round wood to the Asian markets, which are more accessible from the Pacific Coast. The growth of the export to the Asian markets did not help Nova Scotia to recover after 2009. Even though exports to emerging Asian markets do increase in Nova Scotia as well, they remain modest.

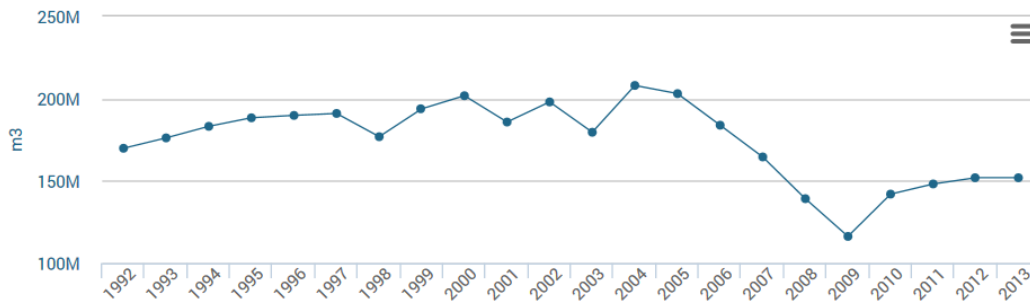


Figure 1 : production of round wood in Canada (1992-2013)
(source : FAOstat)

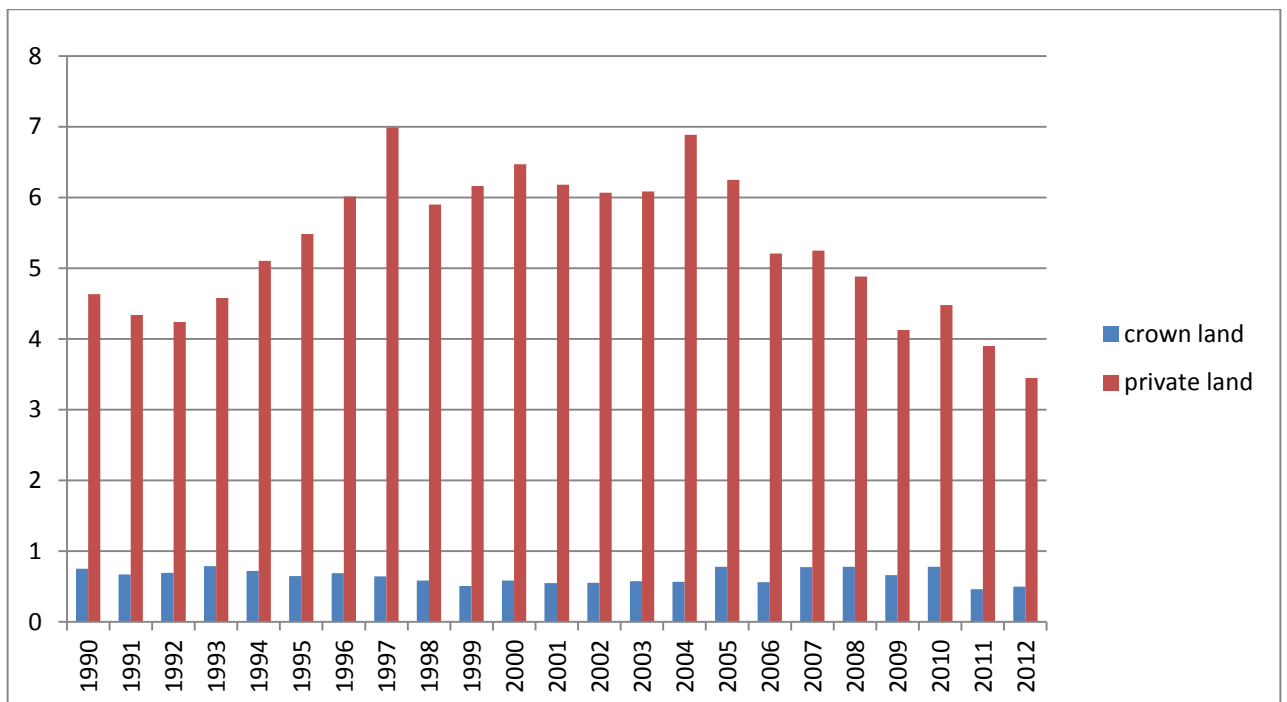


Figure 2 : production of round wood in Nova Scotia (1990-2012) in million m³
(source : national forestry database <http://nfdp.ccfm.org>)

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.

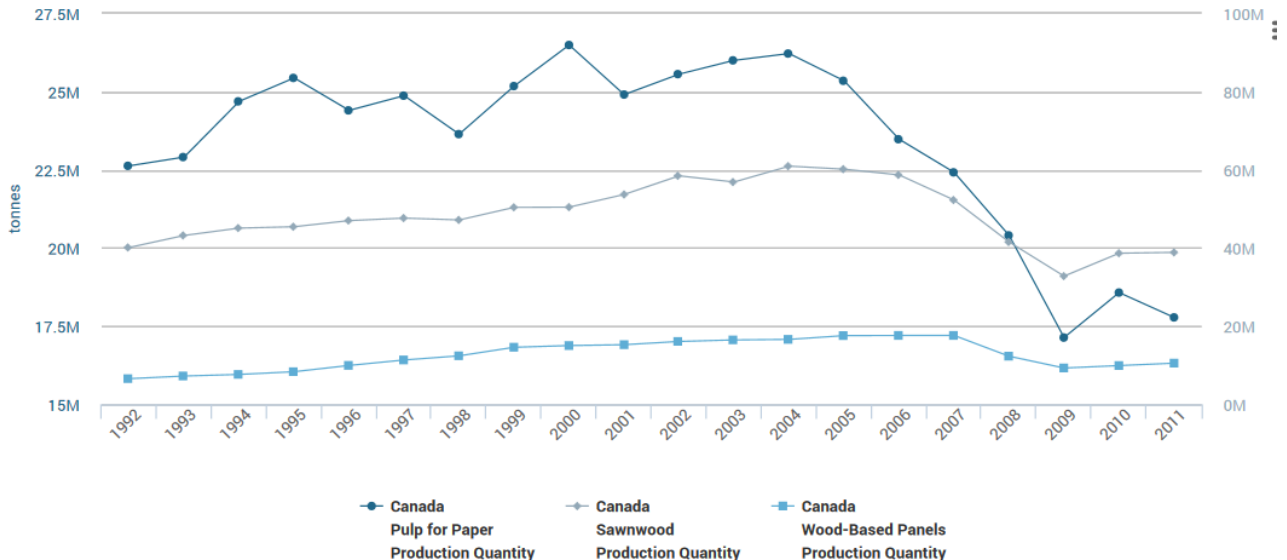


Figure 3 : production levels of pulp for paper (tonnes), sawnwood (m³) and wood-based panels (m³) in the Canada between 1990 and 2012
(source : FAOstat)

Just like in Canada as a whole, the lumber production in Nova Scotia decreased sharply between 2005 and 2009, as a result of the economic crisis (Figure 4 : Sawmill production in Nova Scotia (1963-2013)Figure 4). 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).

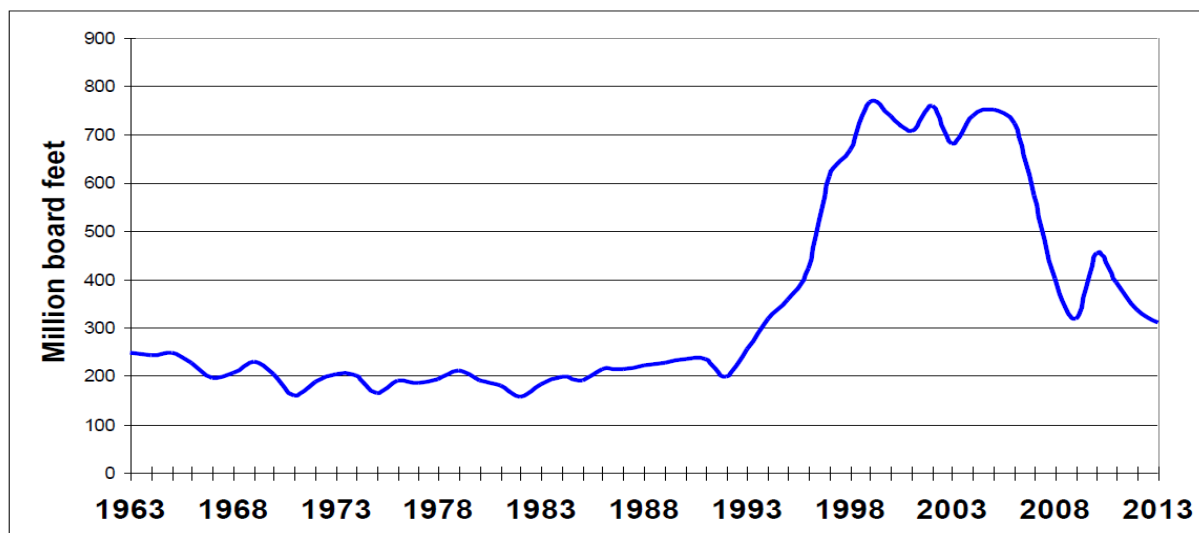


Figure 4 : Sawmill production in Nova Scotia (1963-2013)

source: <http://novascotia.ca/natr/forestry/registry/>

The pulp and paper sector in Nova Scotia has been declining quickly since 2005, especially between 2010 and 2012, with the closure of 3 of the province's 6 pulp and paper mills² (Figure 5). It resulted in a permanent dramatic reduction of the production capacity.

The causes of the downturn in the pulp and paper market in Canada includes: high dollar rates, stagnating prices due to cheaper products from South America and Asia), reduction of the demand for newsprint in the USA (due to decline of traditional printed newspapers).

Even though sawmill closures are often referred to as an additional cause of the downturn in the pulp and paper sector (through unavailability of feedstock), there are signs that the cause/consequence relationship can also play in the opposite direction in the case of Nova Scotia , as the closure of paper mills was so sudden and so radical. The crisis in Nova Scotia's pulp and paper sector also propagates upstream in some instances throughout the wood supply chain to sawmills, logger and forest owners, as the sale of sawmill by-products is needed to maintain the economic balance of sawmills facing a stagnation in the price of lumber. Some sawmills had to slow down because of excess of wood chips in the inventory³.

Nova Scotia is not a significant producer of wood based panels and veneer. The production is nearly nonexistent.

² <http://www.macleans.ca/general/closure-of-minas-basin-pulp-and-power-mill-a-blow-to-nova-scotia-paper-industry/>

³ <http://www.cbc.ca/news/canada/nova-scotia/pulp-mill-closures-hurting-sawmills-woodlots-1.1085464>

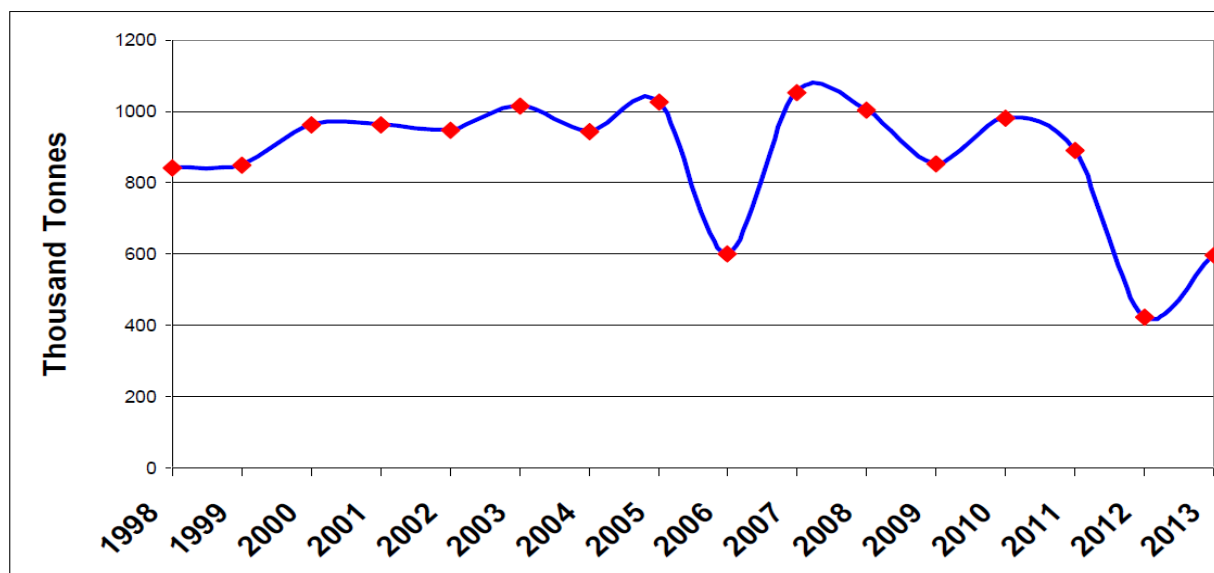


Figure 5 : Pulp and paper production (1998-2013)

source: <http://novascotia.ca/natr/forestry/registry/>

3. Forest exploitation levels

The volumes of harvested wood from Nova Scotia forests are described in more details in SGS's report on forest sustainability.

The harvested volume reached its maximum levels, in the range of 6 to 7 million cubic metre per year in the late 1990ies and the early years after 2000. Then, since 2005, the harvested volumes have been constantly decreasing, and were estimated between 3 and 4 million cubic metre per year in 2013 (Figure 6).

This evolution started with the dropped of the lumber exports to the US with the Subprime Mortgage crisis, prolonged by a general period of recession between 2005 and 2009. The lumber sector hardly shows signs of recovery afterwards, and the crisis in the pulp and paper sector made the decline in primary wood even worse.

According to DNR's State of the Forest report (report 1995-2005⁴), the total growth of the forests slightly exceeded the total losses and removals, resulting in an estimated increase of 1.9% for the merchantable wood of standing trees between 1995 and 2005 (i.e. 0.19% increase yearly on average). The sharp reduction of forest harvesting after 2005 suggests that the increase in terms of volumes of standing trees has amplified ever since.

⁴ <https://www.novascotia.ca/natr/forestry/reports/State-Of-Forest-Report-April-2008.pdf>

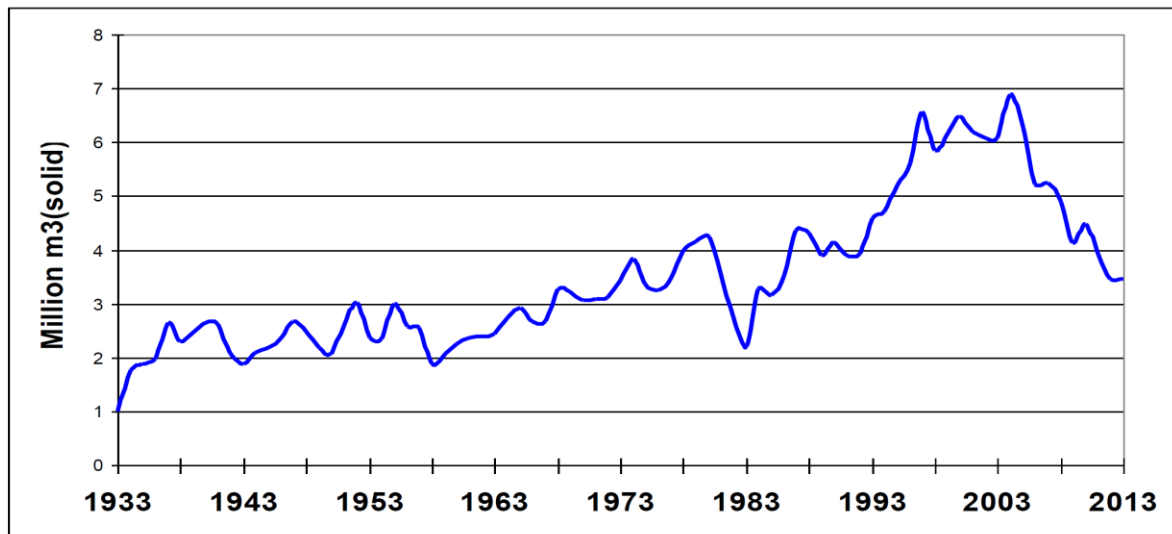


Figure 6 : Evolution of harvested volumes in Nova Scotia between 1933 and 2013

Source : <http://novascotia.ca/natr/forestry/registry/>

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 7).

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 show 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.

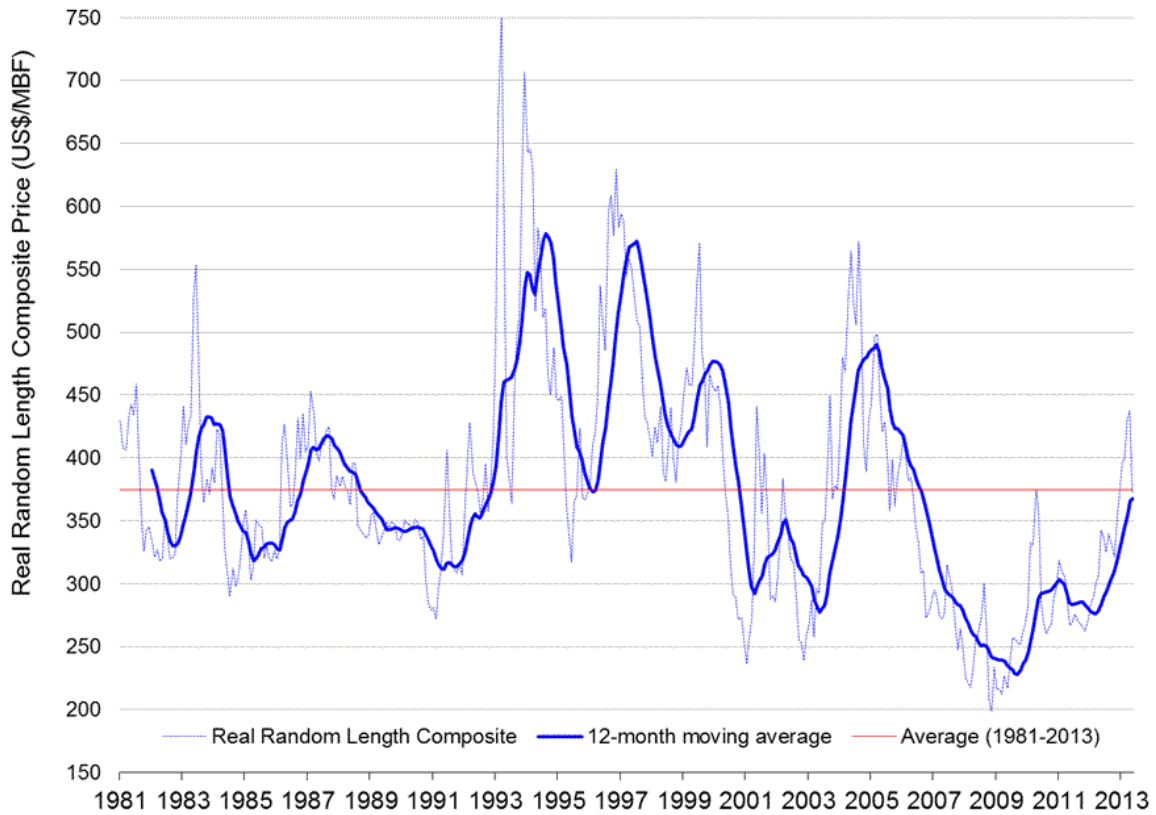


Figure 7 : Random Lengths softwood lumber composite price (1995-2012), in USD/MBF
All prices converted in May 2013 dollars for the purpose of the comparison
(source :Natural Ressource Canada <https://cfs.nrcan.gc.ca/selective-cuttings/50>)

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 8. 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 9).

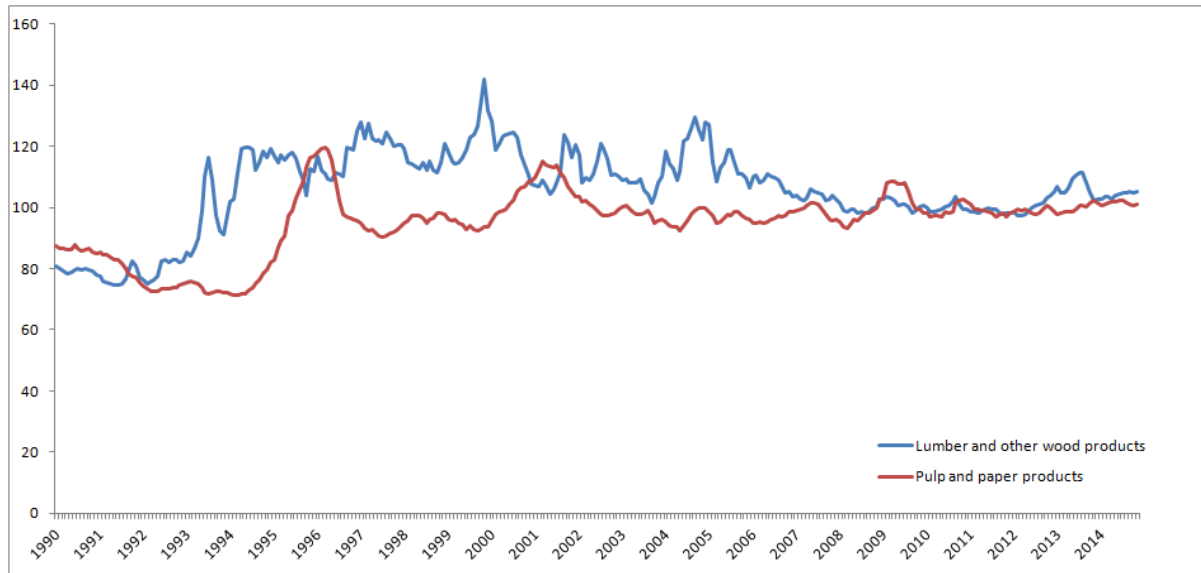


Figure 8 : Lumber price index and pulp and paper price index in Canada (1990-2014)

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)

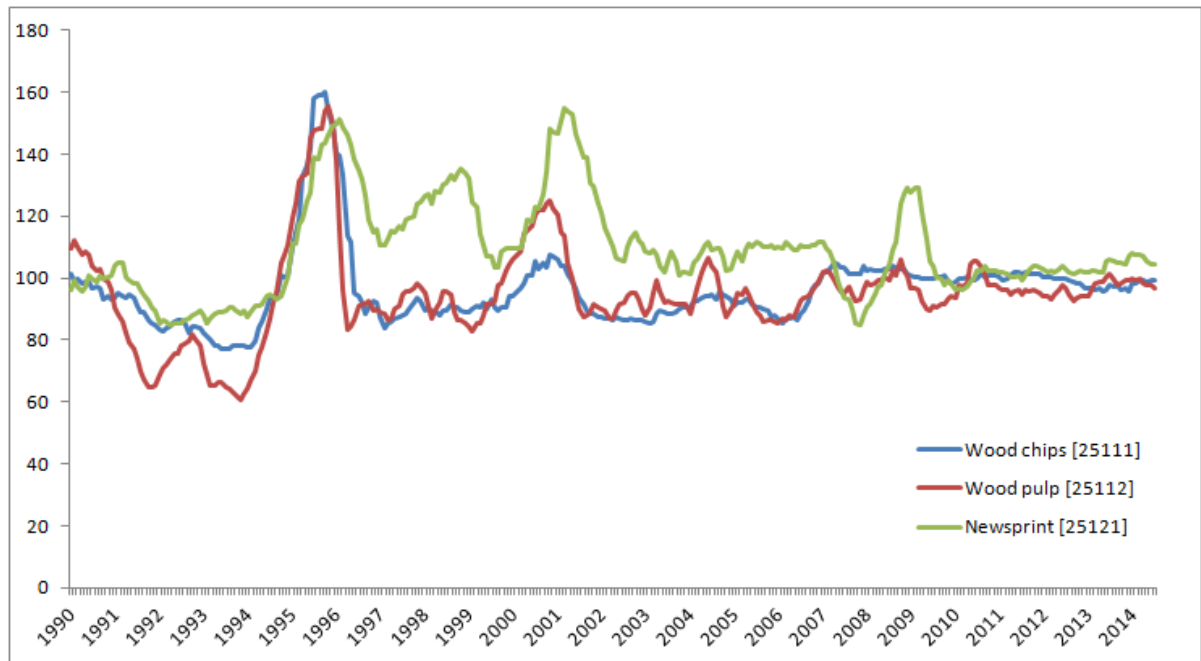


Figure 9 : Price index for wood chips, wood pulp and newsprint in Canada (1990-2014)

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 10).

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. However, British Columbia is the main contributor to round wood exports from Canada, which means that the exports of round wood from other provinces, and in particularly Nova Scotia, are nearly nonexistent.

The significant exports from Nova Scotia are lumber (sawnwood), as well as pulp and paper. There also no significant wood panels and veneer production, hence no export of those products.

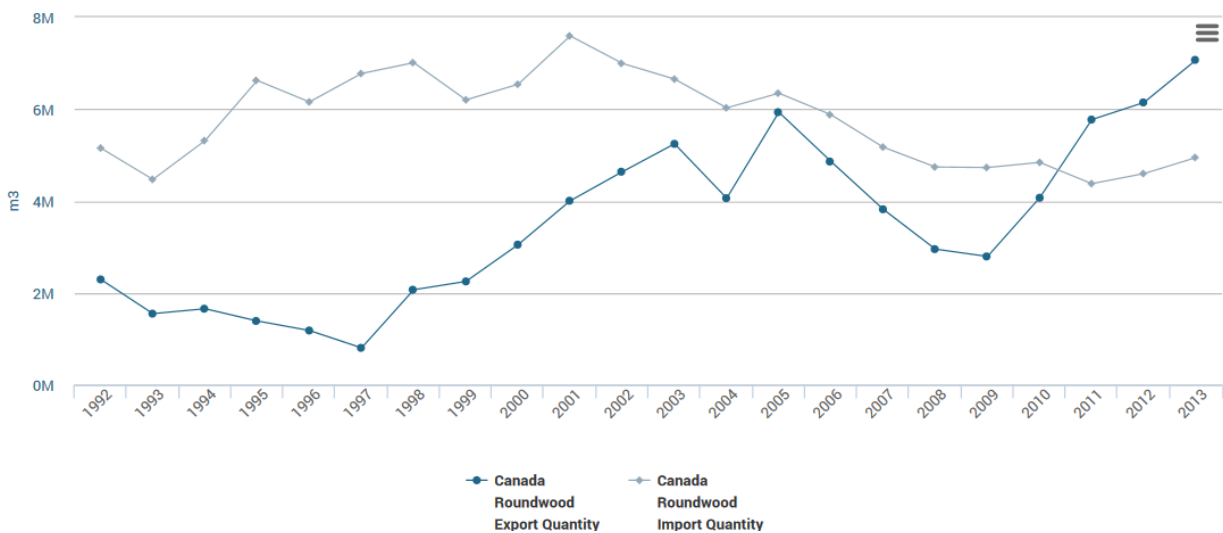


Figure 10 : imports and exports of round wood in Canada (1992-2013)
(source : FAOstat)

The exports of pulp for paper from Canada have remained rather stable, with only a small increase between 2005 and 2009, while the production of pulp for paper was falling sharply (Figure 11). 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.

In Nova Scotia, the period 2006 to 2010 was good for the paper export, with significant increase in value reflecting good prices and larger export volumes (Figure 12). During the same time, the exports of pulp remained rather constant. However, during the period 2010-2012 Nova Scotia will experience the loss of about half its paper production capacity with the closure of 3 mills out of 6, because of deterioration export markets. In 2012, the export value of paper from Nova Scotia was only 120 millions CAD⁵, which means there was a drop by 80% in two years.

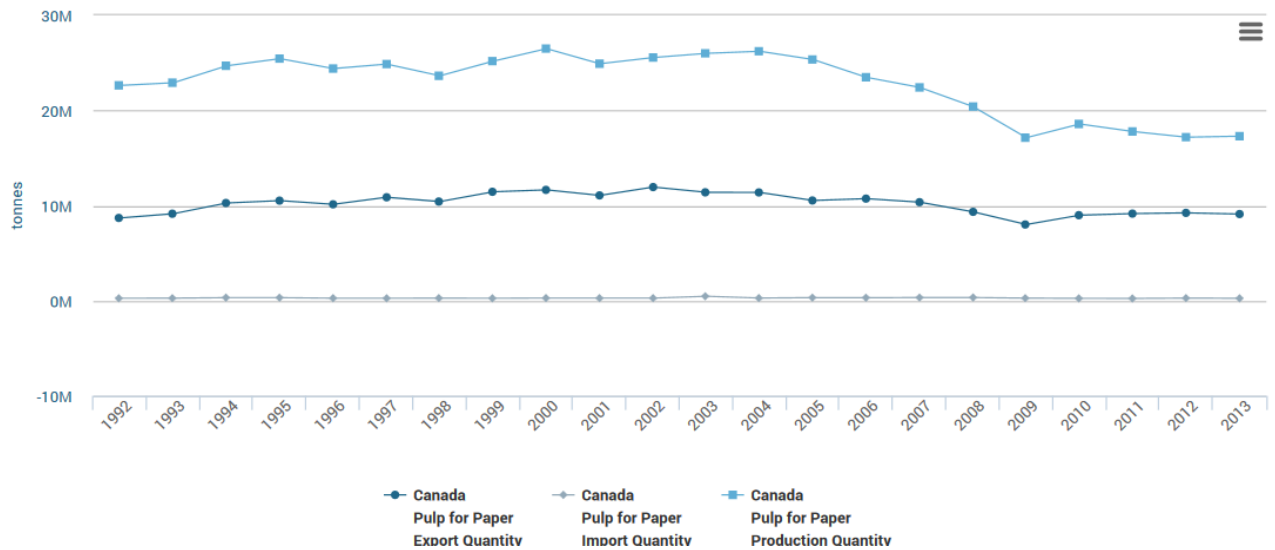


Figure 11 : Production, imports and exports of pulp and paper in Canada (1992-2013)
(source : FAOstat)

⁵ Nova Scotia State of trade - Economic and Rural Development and Tourism, 2010 (Government of Nova Scotia) <http://www.novascotia.ca/econ/publications/Nova%20Scotia%202012%20State%20of%20Trade-11272013.pdf>

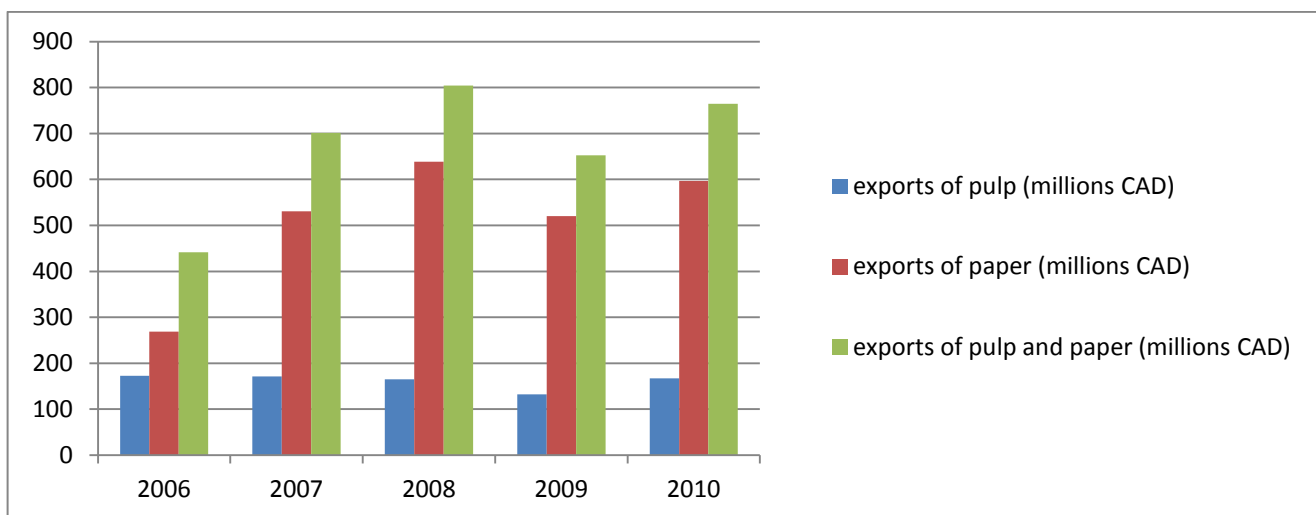


Figure 12 : Exports of pulp and paper from Nova Scotia (2006-2010)

(source : adapted from FP Innovations, Wood Market Statistics Canada, 2011)

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 13), 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

The increase of the Canadian lumber exports after 2009 (visible on Figure 13) mostly reflects British Columbia, thanks to its access to the Pacific ocean for the Asian markets. The lumber exports from Nova Scotia does slightly increase as they slowly recover from the crisis (Figure 14), but not as quickly as in Canada as a whole.

The traditional export destinations for forest products from Nova Scotia (USA and Europe) tend to decrease and are compensated by emerging markets mostly in Asia (Turkey and China).

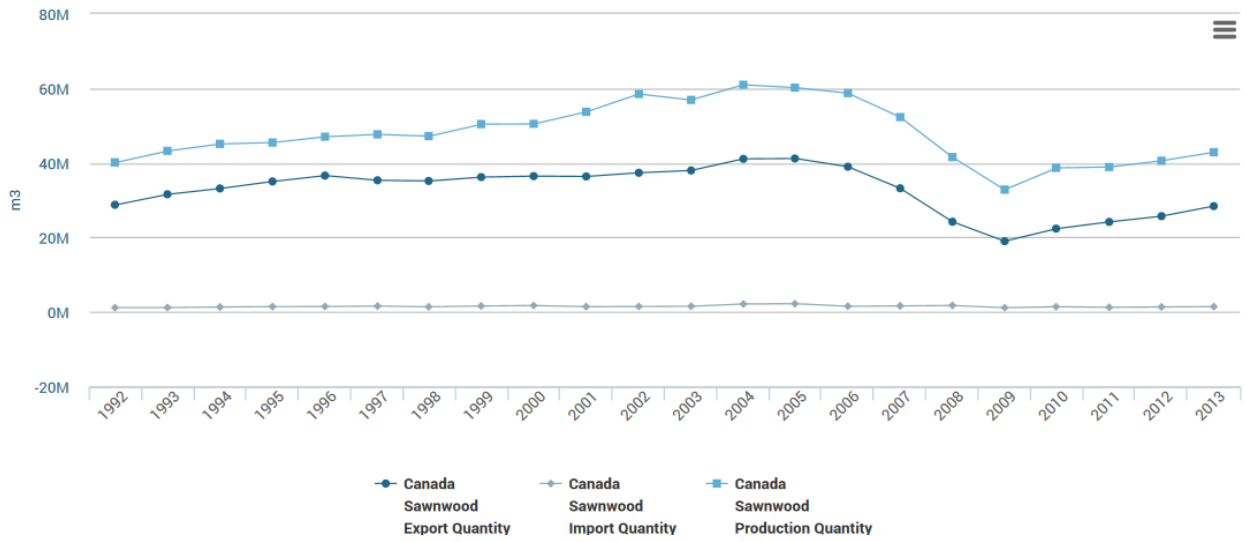


Figure 13 : Production, imports and exports of sawnwood in Canada (1992-2013)
(source : FAOstat)

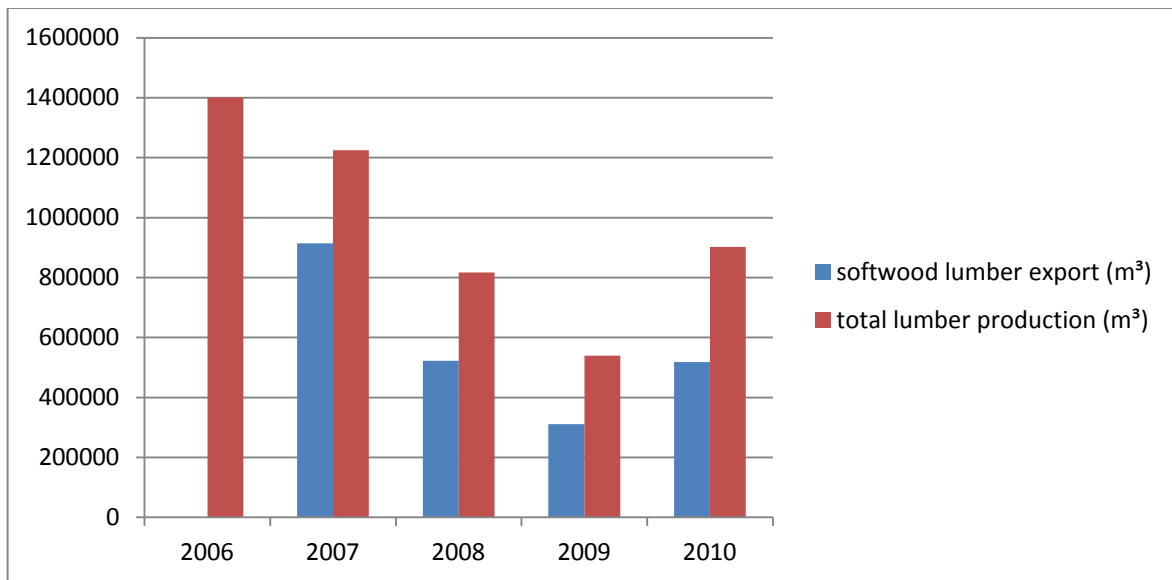


Figure 14 : Production of lumber and exports of softwood lumber from Nova Scotia
(source : adapted from FP Innovations, Wood Market Statistics Canada, 2011)

6. Conclusion

Canada and especially Nova Scotia 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. Nova Scotia does not produce any significant amounts of wood panels, so the main products are lumber as well pulp and paper. No significant amounts of round wood are exported from Nova Scotia.

The analysis of the wood market in Nova Scotia, shows that a major decrease of round wood production (by about 50%) was triggered by the subprime mortgage crisis in USA between 2005 and 2013, which caused the demand for lumber to collapse. The production levels have hardly recovered afterwards in Nova Scotia. The production levels of round wood in Canada as a whole do show signs of recovery after 2009, but it mostly reflects good performances in British Columbia, while the other provinces hardly recover from the crisis.

One of the reasons why the round wood sector does not seem to recover after 2009 in Nova Scotia, is that the pulp and paper industry experienced a major crisis, with the closure of 3 paper mills (out of six) between 2010 and 2012, due to the economic difficulties of Canadian paper products on the global market. It resulted in a permanent diminution of the production capacity. There are signs that the decreased demand of wood chips and sawmill residues resulting from the downturn of the pulp and paper industry propagates upstream to the forestry sector and the sawmill sector alike.

The total merchantable wood volume of standing tree is estimated to have increase by 1.9% between 1995 and 2005. The sharp reduction of forest harvesting after 2005 suggests that the increase in terms of volumes of standing trees has amplified ever since. As a result large volumes of wood are available for harvesting in Nova Scotia's forest if the demand of round wood was to start again.

Since the production capacity of pulp and paper has significantly decreased during the period 2010-2012, large amounts of chips and sawmill residues are available on the local market. Bioenergy can be an alternative use for those materials.

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