



Wood processing and trade of wood products in Africa

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Acronyms and Abbreviations

AfCFTA	African Continental Free Trade Agreement
AfDB	African Development Bank
AFF	African Forest Forum
CAR	Central African Republic
DRC	Democratic Republic of Congo
ANRC	African Natural Resources Centre
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Databases
GDP	Gross Domestic Product
GSEZ	Gabon Special Economic Zone
ITTO	International Tropical Timber Organization
SPWP	Secondary processed wood products
US\$	United States Dollar

Foreword

THIS report is derived from a desk-analysis of wood processing and trade in Africa with case studies from five central African and seven West African Countries. The study objective was to shed light on the level of value addition to wood products from African countries as well as trade balances linked to their trade. Value addition to raw materials in Africa before export is central to the African Development Bank's 'Industrialise Africa' High 5 priority development strategy for Africa. Moreover, adding value to wood products is a way to create jobs and wealth in Africa. Despite this understanding, the report highlights how many African countries with abundant forest resources are still importing huge volumes of timber products because low capacity of their wood processing industry.

For African countries to be importing more wood products than they are exporting them imply that the countries are suffering from trade deficits in the products that they could otherwise produce within their national borders. The report also try to capture how some countries in Asia and Latin America are performing better and enjoying trade surpluses in similar products over same reporting period. The examples from Asia and Latin America suggest African countries with wood raw materials could do better and enjoy trade surpluses in future. However, this would require greater investments to ensure value addition to wood products in Africa.

The report goes further to argue for opportunities for African countries to transform primary to secondary and tertiary wood products for home consumption and

export by proffering some research and policy recommendations. Most importantly African countries need to conduct analyses on both the furniture and other further processed wood product categories, in order to understand their current state of development, market size and trends, market segments by products, market forecast and their main constraints. Moreover, countries need to formulate and implement policies as well as put in place the necessary interventions to accelerate the growth of secondary and tertiary wood processing technologies for increased value added and jobs creation.

This report was produced jointly with the African Forest Forum, a strategic partner of the African Natural Resources Centre of the African Development Bank, under the supervision of Dr Julius Chupezi Tieguhong, Chief Forestry Officer of the Bank. Much appreciation goes to close collaborators in the African Forest Forum especially Professor Godwin Kowero, Executive Secretary and Dr Doris Mutta, Senior Programme Officer.

Many thanks equally to all the stakeholders contacted during this study in the various countries, including the staff of Statistics agencies, Customs departments, and government ministries in charge of forests, finance and trade.

The opinions expressed in this document do not necessarily represent those of the African Development Bank.

Emmanuel Pinto Moriera
Acting Director, African Natural Resources Centre

Executive Summary

ALTHOUGH many African countries harbour very valuable forest resources, the continent still imports huge volumes of timber products amounting to around US\$ 4 billion annually. One of the explanations to this is the low capacity of the wood processing industry on the continent. Raw logs can be processed into primary, secondary and tertiary wood products for home consumption and export. This provides prospects for upgrading the exports of the primary wood raw materials to the export of secondary and tertiary processed products. Adding value to wood products in this way can lead to jobs and wealth creation in Africa.

This report provides results of the analysis of trade balances for four primary, three secondary and eight tertiary processed wood products in 12 selected West and Central African countries. Data on secondary wood processing was drawn from the ITTO Assessment of Trade database (2011-2020) and on tertiary processed wood products from FAOSTAT-Forestry over a period of ten

years (2010 to 2019).

Preliminary findings showed that from 2011 to 2020, Africa had a total trade deficit of over US\$ 20.4 billion associated with the trade in only three secondary processed wood products. On the contrary, Asian countries made a trade surplus of US\$ 250 billion. Latin American countries made a modest deficit of US\$ 48 million over the same period. With respect to only seven tertiary wood products, the 12 selected African countries registered a trade deficit of US\$ 6.98 billion while a single country in Asia such as Indonesia registered a surplus of US\$ 41.2 billion between 2010 and 2019.

These results suggest the need for greater investments to ensure value addition to wood products in Africa for job creation, poverty alleviation, inclusive green growth and development. Such pursuits will be in alignment with the African Development Bank's 'Industrialise Africa' High 5 priority development strategy for Africa.

TWO KEY RECOMMENDATIONS DERIVED FROM THIS STUDY ARE:

African countries should conduct analyses on both the furniture and other further processed wood product categories, in order to understand their current state of development, market size and trends, market segments by products, market forecast and their main constraints.

African countries should formulate and implement policies as well as put in place the necessary interventions to accelerate the growth of secondary and tertiary wood processing technologies for increased value added and jobs creation.

01

Introduction

Although many African countries harbour very valuable forest resources, the continent still imports huge volumes of timber and timber products.

According to the International Tropical Timber Organisation (ITTO), every year, wood products import to African countries amounted to a monetary value of around US\$ 4 billion, with less than 10% derived from the African continent due to the low capacity of the wood processing industry and the lack of policies to promote intra-African trade (ITTO 2016). However, enormous opportunities and challenges exist for the contribution of forests and tree products to sustainable economic development, poverty alleviation and employment, food security and agriculture, biodiversity conservation/management, climate change mitigation and adaptation, improved hydrology and water availability and environmental health. This is specifically so because of the rapid economic and population growth in many African countries that will stimulate future demands for forest products (Lundgren 2015).

Indeed, as a raw material, wood provides a resilient basis for a variety of conversion processes, which are still untapped in most African forested countries (FAO 2013, Adeyoku 1975). In some developed countries, forestry has revealed itself as a major potential solution to endemic rural under-employment and unemployment as well as a pace-maker for the primary sector (Adeyoku 1981). Forestry is intricately connected by a great number of forward and backward linkages to many other industrial branches consequential on a greater part of the productive function of many national industries (AfFB 2018). This is because most wood products are intermediate goods and used as raw materials for other industries such as construction, furniture, packaging, printing, textile manufacture etc. In this regard, the connection between forestry and some of the critical indicators of economic development such as capital, industrialisation, foreign exchange earning, labour and employment are achievable with the right supportive policies in place (Traore and Tieguhong 2018).



The processing of tropical roundwoods into primary products such as sawnwood, veneer, plywood as well as into secondary processed products such as wooden furniture, builder wooden frames, cane and bamboo products is both well-known and labour-intensive.

This provides encouraging prospects for upgrading the exports of the primary wood raw materials to export of secondary and

tertiary processed products for inclusive green growth and economic development. In the past, most forest products imports by developing countries were known to be tertiary processed products such as newsprints, printing and writing papers, case materials, wrapping and packaging papers, household sanitary papers, chemical wood pulp and carton boards from industries that command high capital and have very pronounced economies of scale to produce at competitive unit costs. This still happens today but could be circumvented or reduced (Traore and Tieguhong 2018).

Import substitution industrialization (ISI) is a trade and economic policy that advocates replacing foreign imports with domestic production through various forms of protection and incubation of domestic industries to fully developed sectors so that the goods produced are competitive with imported goods. ISI is based on the premise that a country should attempt to reduce its foreign dependency through the local production of industrialized products (Ershovaa and Ershov 2015, Hirschman 1968)

Conceptually, value added is the difference between the costs of goods purchased by an enterprise and the value of the products it sells in addition to the amount available for payment of wages and salaries, interest, profits, sales taxes and depreciation (Adeyolu 1975).

Given that many forested countries in Africa that export mostly primary processed wood products also import huge volumes of secondary and tertiary processed forest products, suggests windows of opportunities for import substitution industrialisation (ISI).

This is because these products can be produced domestically at a lower cost than it can be imported, can fasten demand growth and stimulate the expansion of wood industries (FAO 2013). For instance, in order to meet governments' objectives of expansion of employment opportunities and regional dispersment of employment and income distribution, a crucial employment strategy will be to choose labour-intensive processes as against capital-intensive techniques of production (Hierold 2010). The techniques for production of secondary processed products are generally more labour-intensive, semi-skilled and require limited training than those of tertiary processed products that are more capital-intensive. In this direction, the forestry sector has the potential to contribute substantially through the secondary and tertiary processed wood products (Dykstra

et al. 1996). The benefits of value addition and industrializing the forestry sector in Africa, where most exports are still in primary forms, will include among others job creation, food security, revenue generation, increased foreign exchange earnings, improved livelihoods and industrialization (AfDB 2018, Traore and Tieguhong 2018, Hierold 2010, ITC and ITTO 2002). Value addition through the fostering of a skilled work base and increasing revenues at the local level can play an important role in forest conservation by reducing poverty that is probably the single biggest underlying cause of forest destruction (ITC/ITTO 2002).

The rationale behind this paper is that good data showing magnitudes, trends and flows is instrumental in making targeted policy interventions in promoting the natural resources sector that includes forestry.

Despite this understanding, the existence of information on market gaps, export performance and potential development outcomes for most African countries remains illusive. With all these in mind most countries in the forested countries in Africa still export primary processed wood products and then import huge volumes of further processed products that could, at least, be produced in part within the countries to avoid huge trade deficits. This paper tries to provide justifications based on facts that may be relevant for national forest policy formulations and actions in Africa on increased downstream processing.



02

Methodology

THE facts and figures in this paper come from the analysis of trade balances for three secondary and seven tertiary processed wood products in 12 selected West and Central African countries. The three secondary processed wood products (SPWP) include wood furniture, builder wood and cane and bamboo products. According to ITTO (2012), the primary categories of tropical SPWP in trade are wooden furniture and parts; builders' woodwork (joinery and carpentry); other SPWP (packing, wooden boxes, etc.; casks, barrels, vats and other cooper's products; picture frames; table/ kitchenware and other articles for domestic/decorative use; and tools, handles, brooms and other manufactured products) and mouldings (continuously shaped or profiled wood, including mouldings, unassembled strips and friezes for parquet flooring, beaded wood, dowels, etc.). Since furniture and parts of bamboo and cane have become important non-wood tropical forest products exports for many ITTO member countries, these products are also included in the analysis (ITTO 2012). This analysis includes only those products explicitly specified as including

wood or non-wood forest products such as bamboo and rattan (ITTO 2012). The tertiary processed wood products include: wrapping papers, printing/writing papers, newsprint, household/sanitary papers, chemical wood pulp, case materials and cartonboards. The selection of the countries is based on the availability of data from 2011 to 2020 from the ITTO Assessment of Trade database linked to their membership to ITTO. For tertiary processed wood products data is analysed from FAOSTAT-Forestry (2010-2019).

West African countries include: Côte d'Ivoire, Ghana, Liberia, Nigeria, Benin, Mali and Togo while those in central Africa include: Cameroon, Central African republic (CAR), Gabon, Congo and DR Congo. The selection of the wood products of interest is based on the abundance of raw materials and rudimentary processing skills in the countries as well as opportunities for upgrading those skills for job creation and value addition. Trade balances for these products are calculated as the value of exports minus the value of imports. When the export value is higher



than the import value for each product in a given year, we have a positive trade balance and the reverse holds true when the import

value is higher. The key words relevant to this analysis include: value addition, import substitution and trade balances.

03

Main Results

AFRICAN countries have different levels of wood processing and trade in primary, secondary and tertiary products, which can be captured in their trade balances.

3.1. Trade balances associated with primary wood products

From 2011 to 2020, most forest-endowed African countries had positive trade balances associated with the export of logs, sawnwood, plywood and veneers. Central African Countries are net exporters of primary wood products with a positive trade balance of US\$ 19.18 billion covering logs, sawnwood, veneers and plywood in the respective proportions of 38%, 50%, 10%,

and 2% (Figure 1). A lion share (42% of the trade balance was captured by Cameroon, followed by Gabon (26%), Congo (22%), DRC (5%) and CAR (4%) (Figure 2).

Except for plywood, West African countries are net exporters of primary wood products with a positive trade balance of US\$ 7.5 billion over the reporting period. Roundwood and sawnwood contribute about 70% and 28% to the total trade surplus followed by veneers with about 9%% but plywood had a trade deficit of -6% (Figure 3). Most of the trade surplus is captured by Ghana (34%) followed by Côte d'Ivoire (27%), Nigeria (17%), Benin (11%), Liberia (5%), Togo (3%) and Mali (2%) (Figure 4).

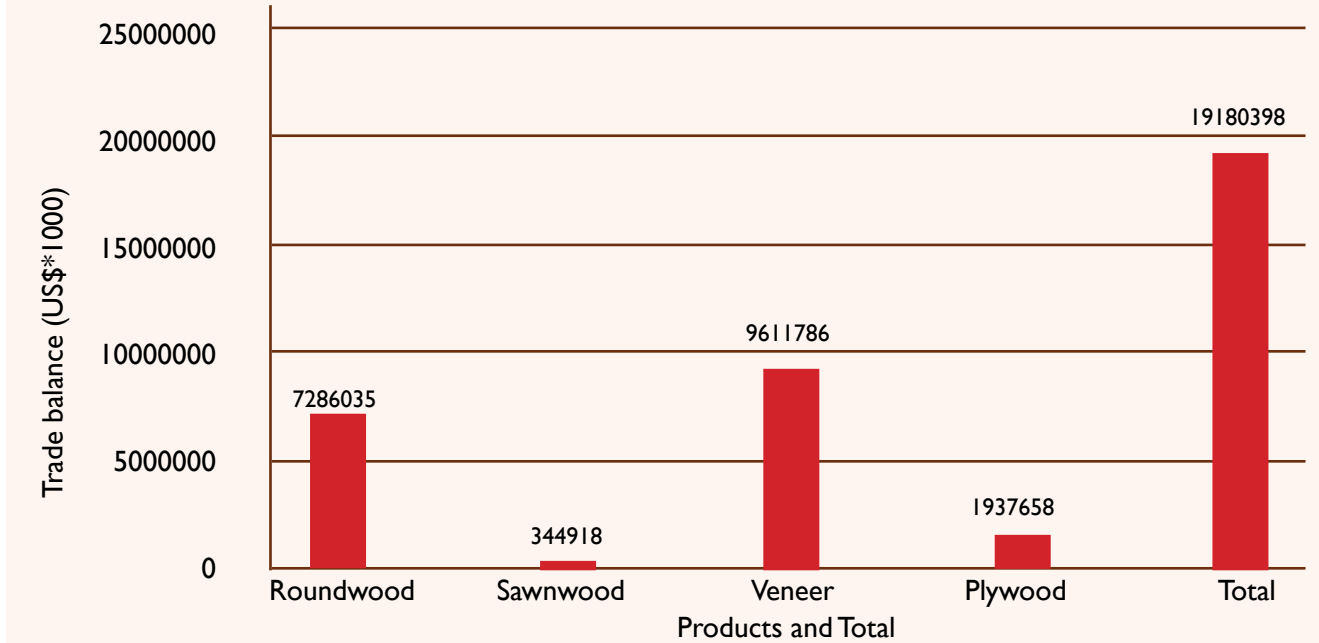


FIGURE 1:Trade balances by primary processed wood products in Central Africa (2011-2020)

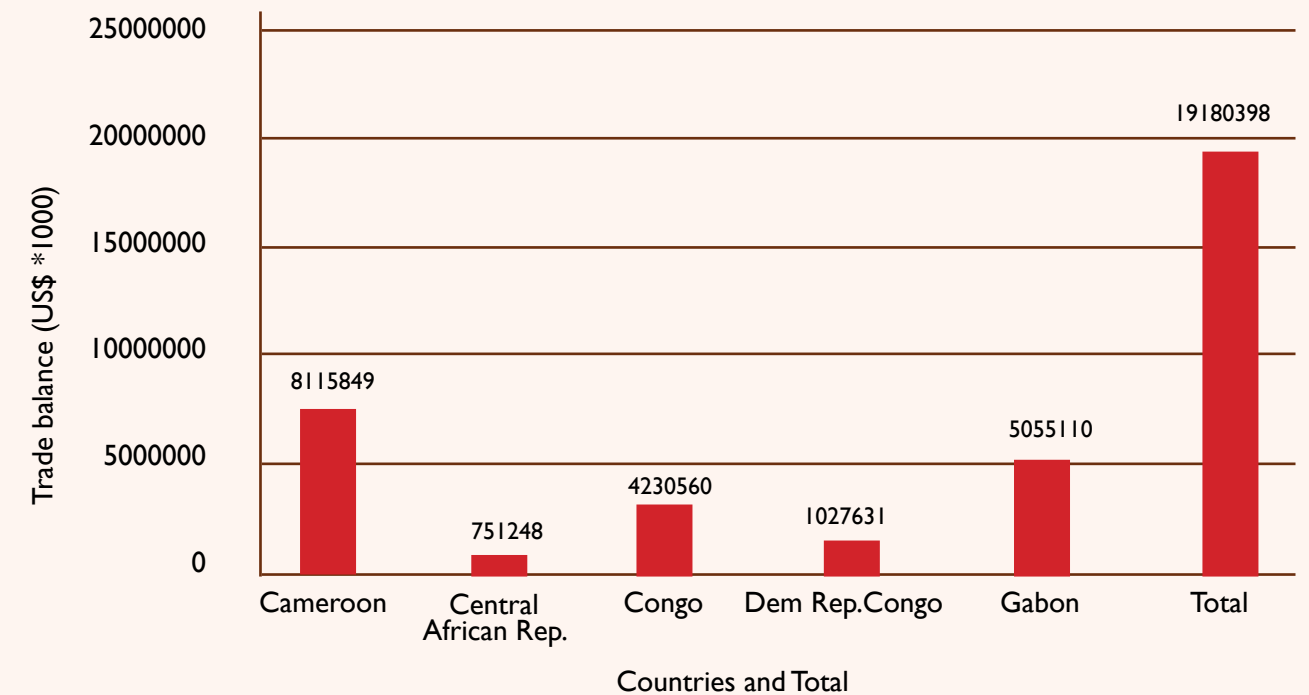


FIGURE 2:Trade balances of primary processed wood products in central Africa by countries (2011-2020)

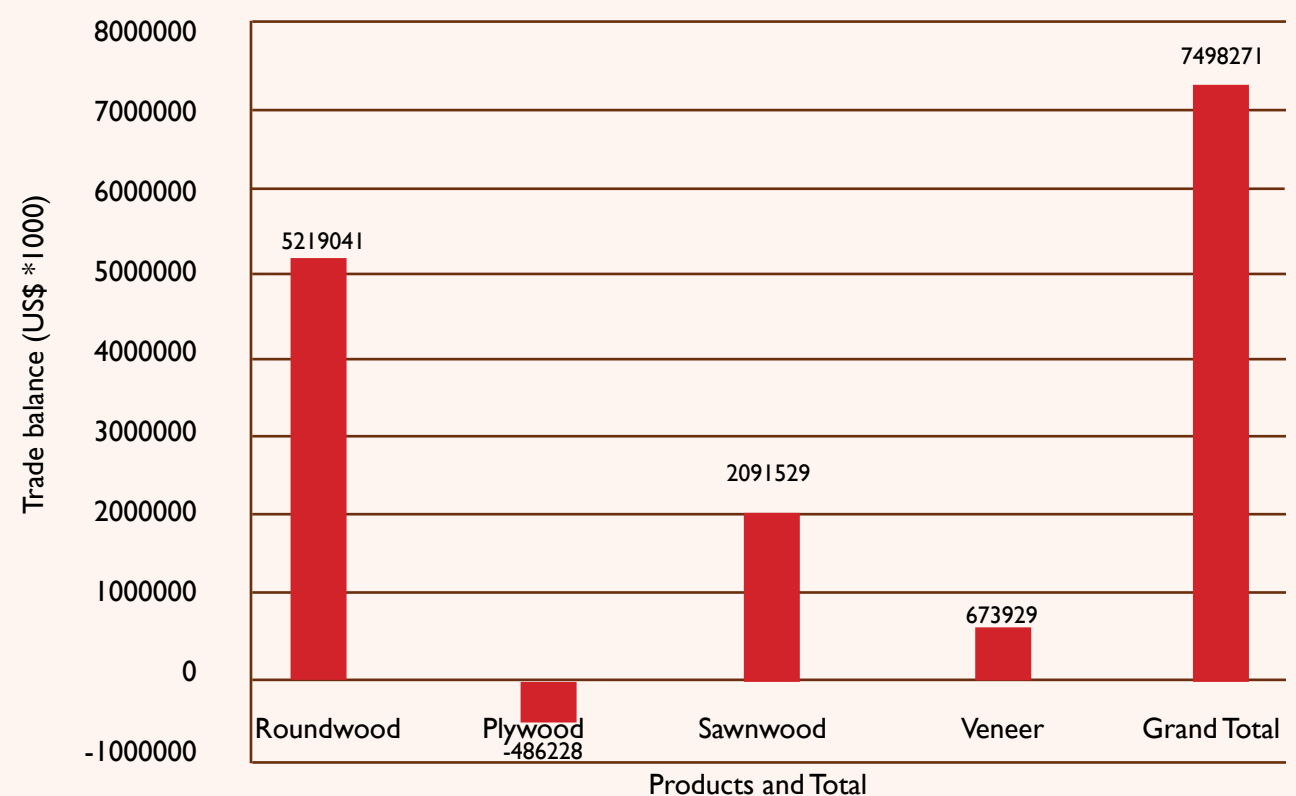


FIGURE 3: Trade balances by primary processed wood products in West Africa (2011-2020)

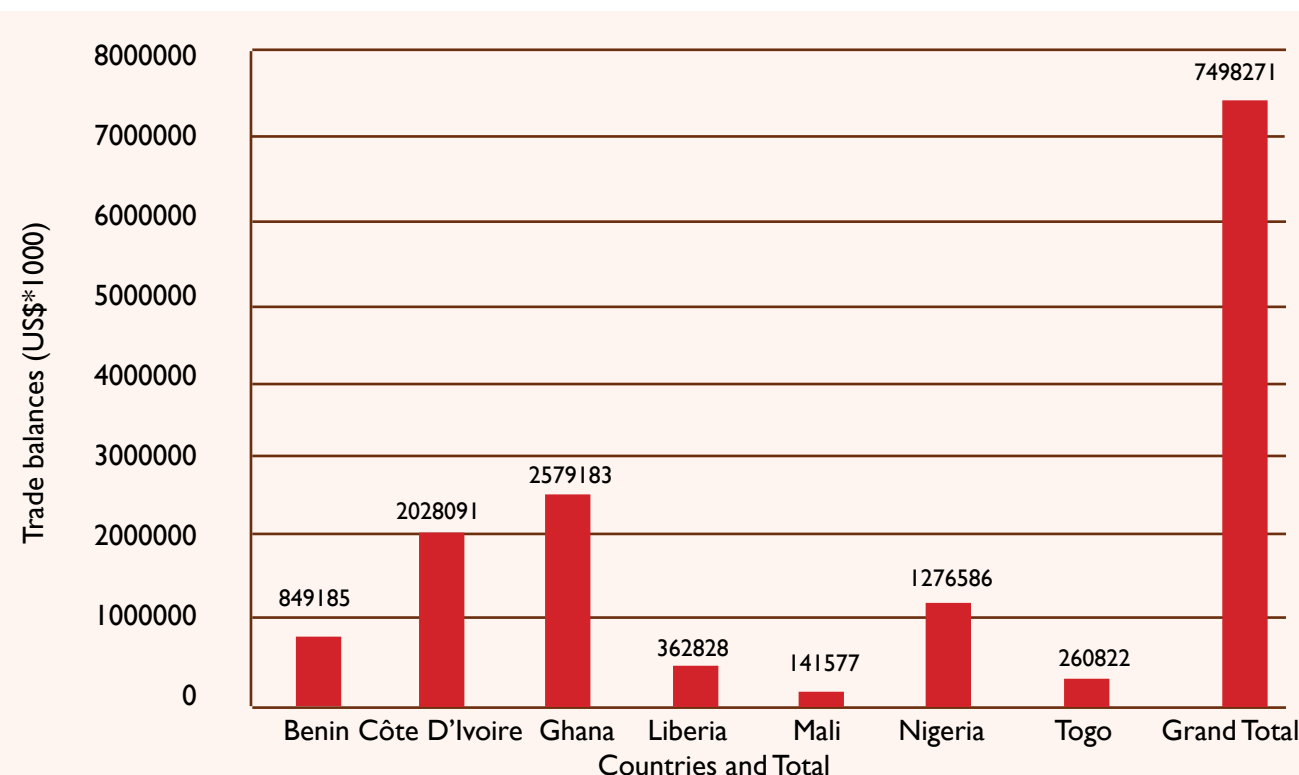


FIGURE 4: Trade balances of primary processed wood products in West Africa by countries (2011-2020)

3.2. Trade balances associated with secondary processed wood products

3.2.1. Wooden furniture

From 2011 to 2020 all the seven West African countries under study registered negative trade balances associated with the importation of wood furniture. The total trade deficit amounted to almost US\$ 1.89 billion with disproportionate amounts per country:

Nigeria (US\$ 745 million), Ghana (US\$ 531 million), Côte d'Ivoire (US\$ 253 million),

Benin (US\$ 173 million), Togo (US\$ 83 million), Mali (US\$ 73 million), and Liberia (US\$ 31 million) (Figure 5).

Similarly, all five central African countries registered negative trade balances amounting to US\$ 705 million:

Congo (US\$ 204 million), DR Congo (US\$ 187 million), Cameroon (US\$ 166 million), Gabon (US\$ 142 million), and Central African Republic (US\$ 6.96 million) (Figure 6). Overall, the total trade deficit associated with the three secondary wood products in the 12 central and west African countries amounted to 2.8 billion over the reporting period.

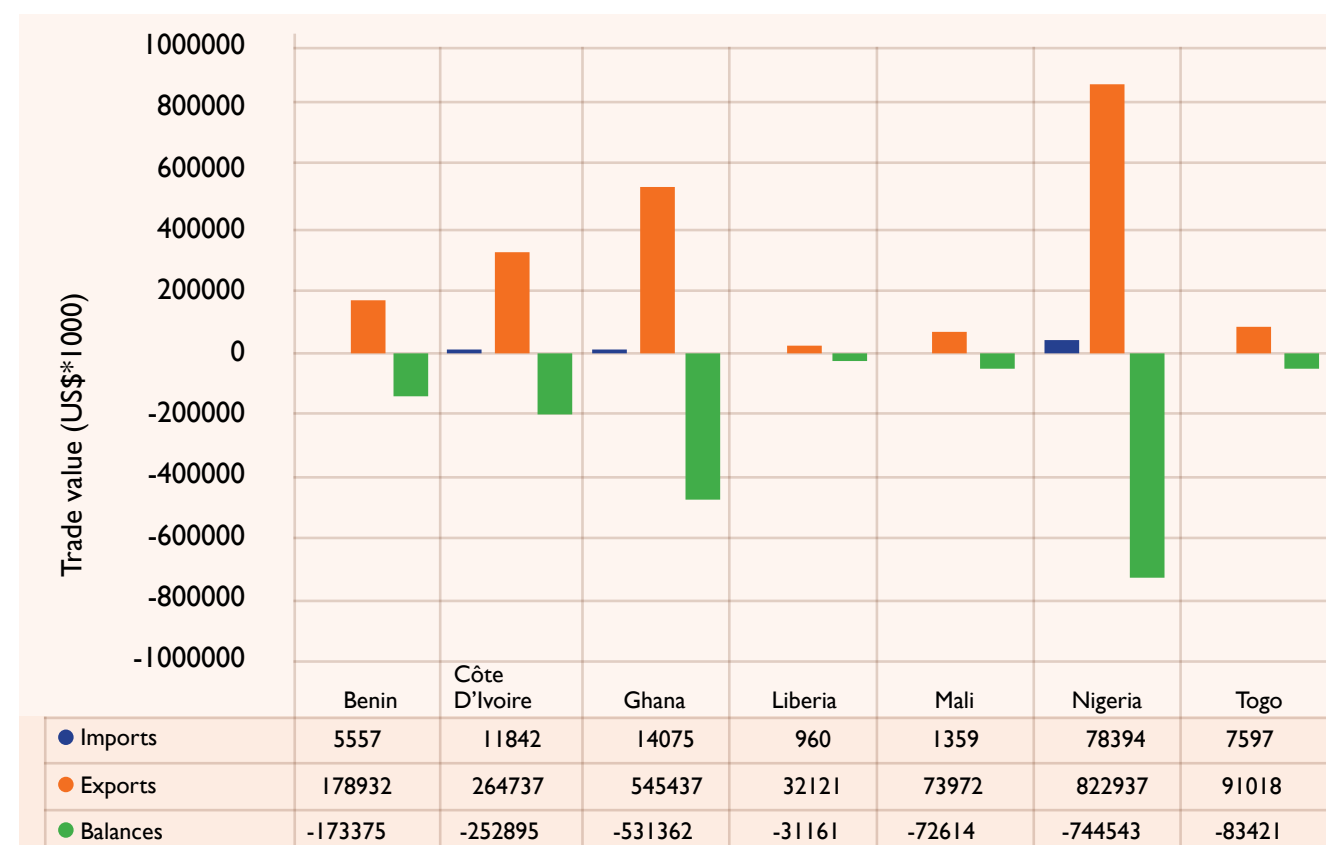


FIGURE 5. Trade balances for wooden furniture in West African countries (2011-2020)

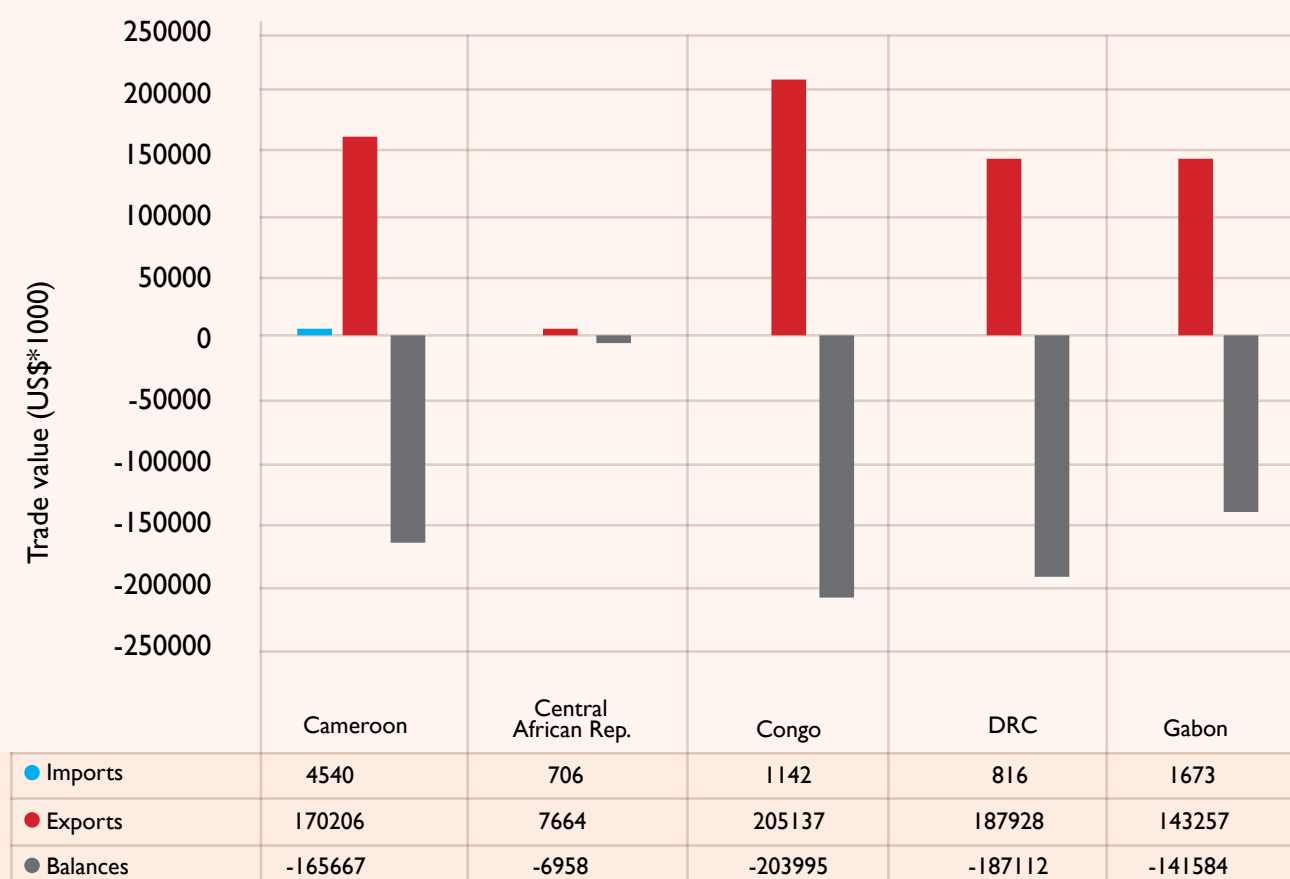


FIGURE 6.Trade balances for wooden furniture in Central African countries (2011-2020)

3.2.2. Builder wood

With respect to builder woodwork such as wooden doors and windows, floorings etc., all the seven countries in West Africa registered negative trade balances during the reporting period amounting to about US\$ 299 million with Nigeria having a lion share of slightly over US\$ 216 million (Figure 7).

All five central African countries under study registered negative trade balances for importing builder wood during the reporting period totaling US\$ 63.5 million.

Three countries in the region, Congo, DR Congo and Gabon were responsible for over 94% of this deficit totaling over US\$ 59.9 million (Figure 8).

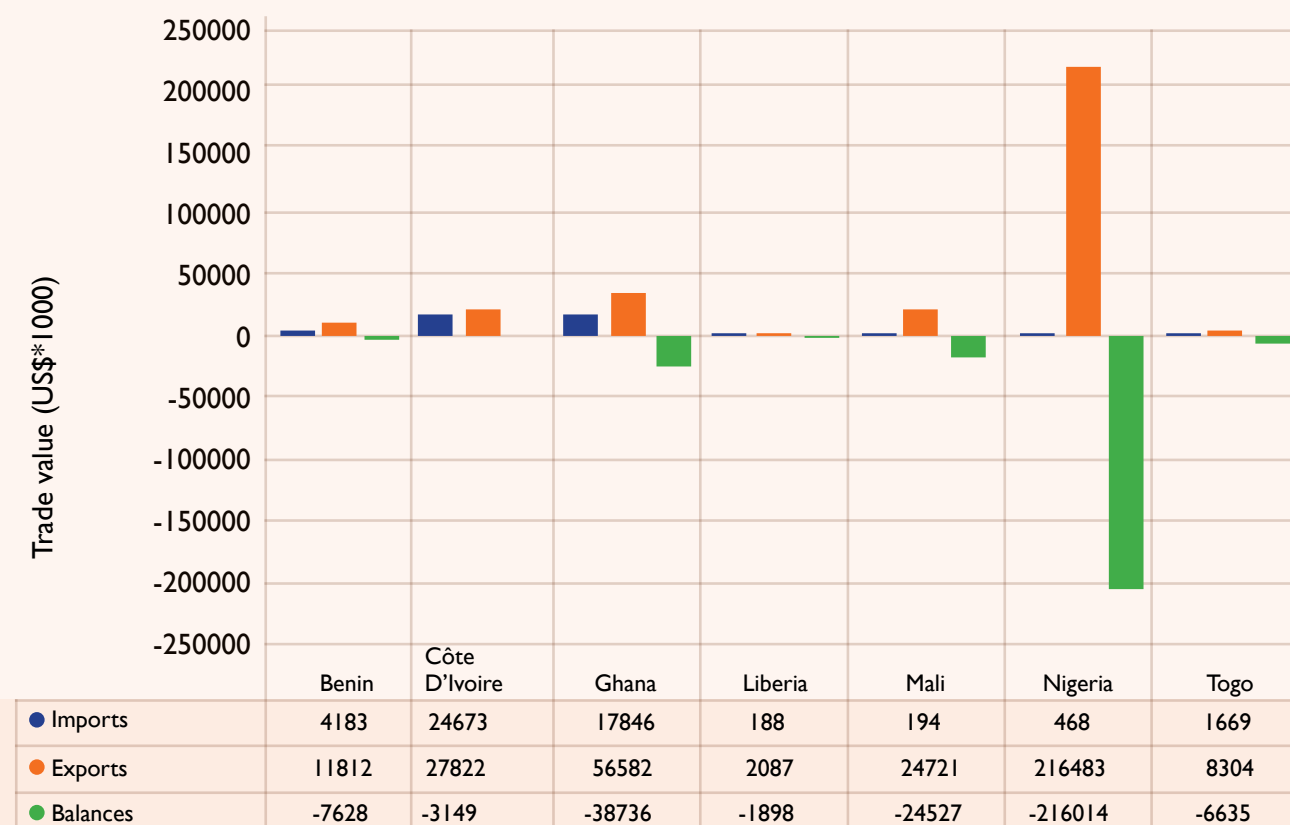


FIGURE 7.Trade balances for builder wood work in West African countries (2011-2020)

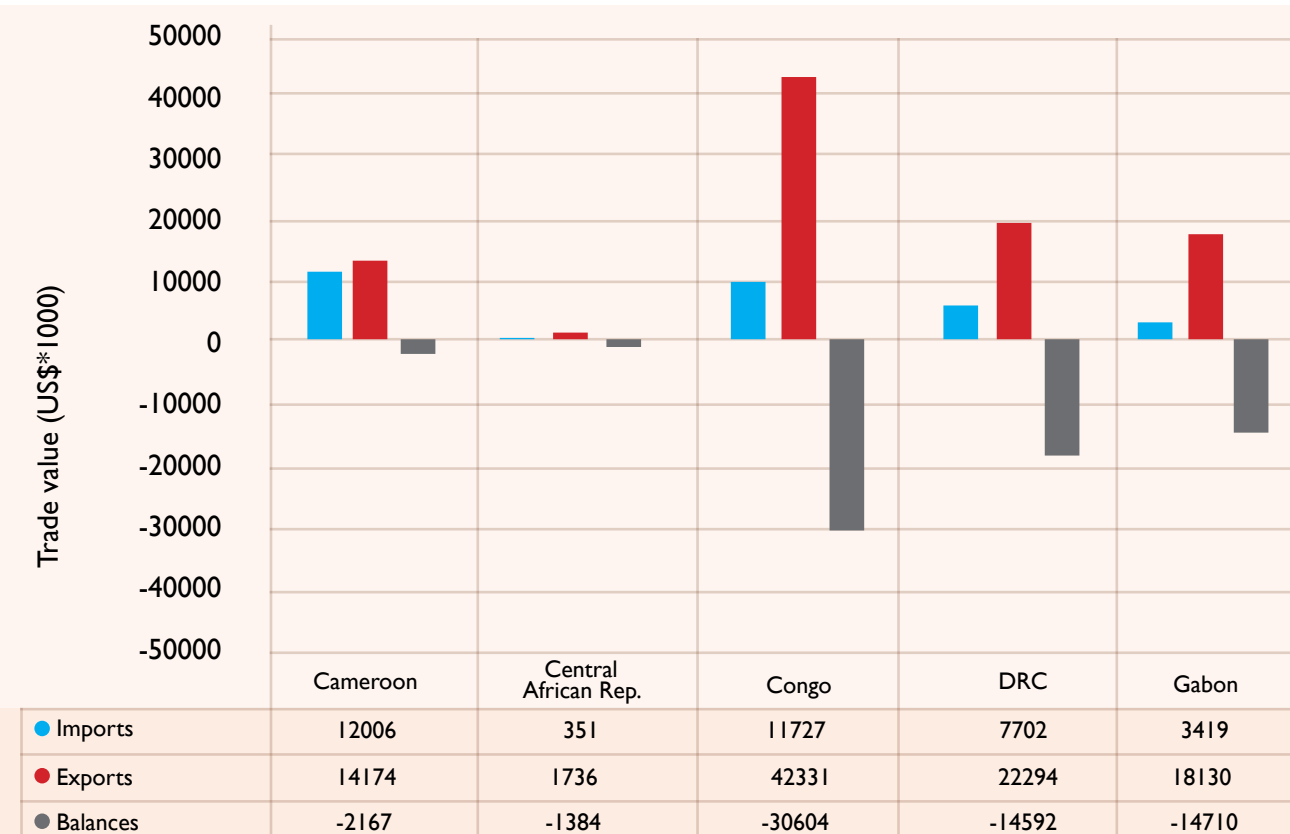


FIGURE 8.Trade balances for builder wood work in central African countries (2011-2020)

3.2.3. Cane and bamboo

Cane and bamboo are known to be abundant in tropical Africa with enormous opportunities for value addition and job creation. Notwithstanding these potentials, all the countries in west and central Africa experienced negative trade balances associated with the importation of cane and bamboo products.

During the reporting period, the seven west African countries registered trade deficits of over US\$ 618.7 million (Figure 9) while central African countries registered a deficit of US\$ 172.7 million (Figure 10).

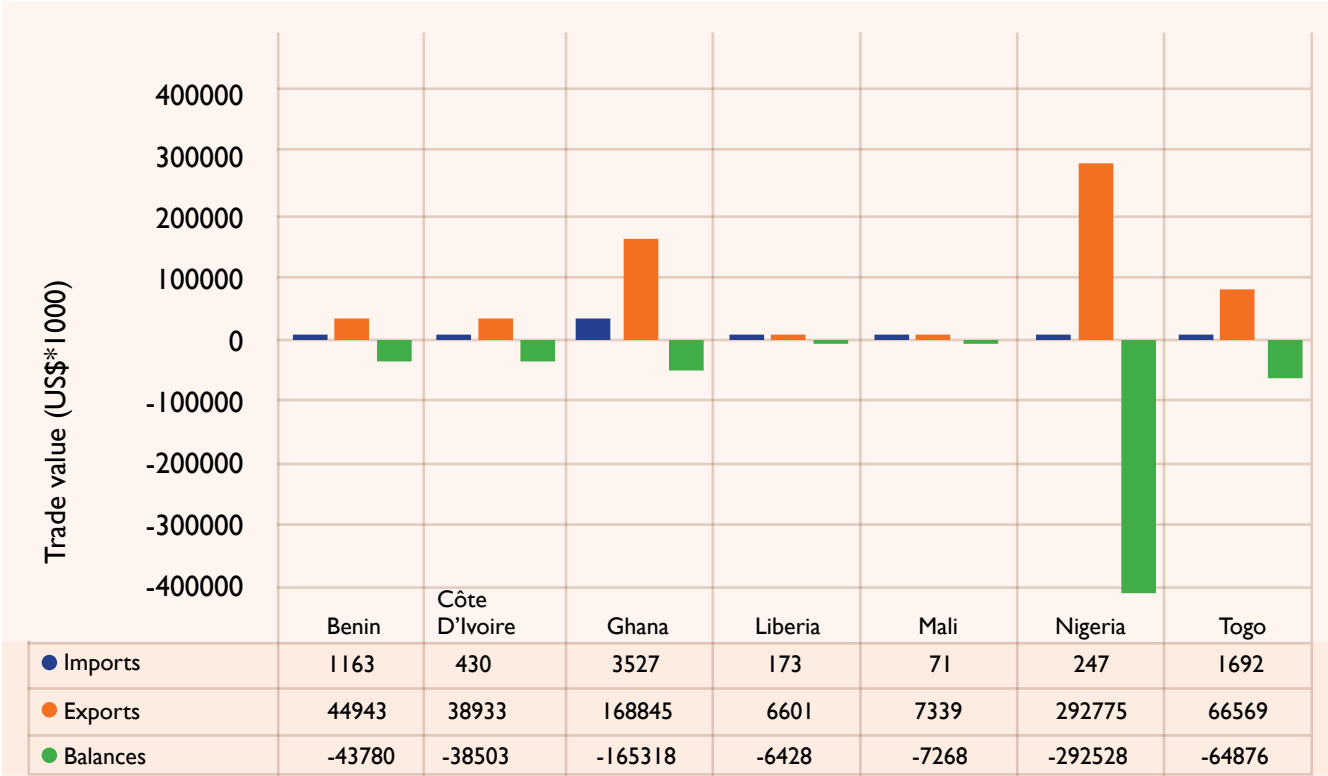


FIGURE 9. Trade balances for cane and bamboo in West African Countries (2011-2020)

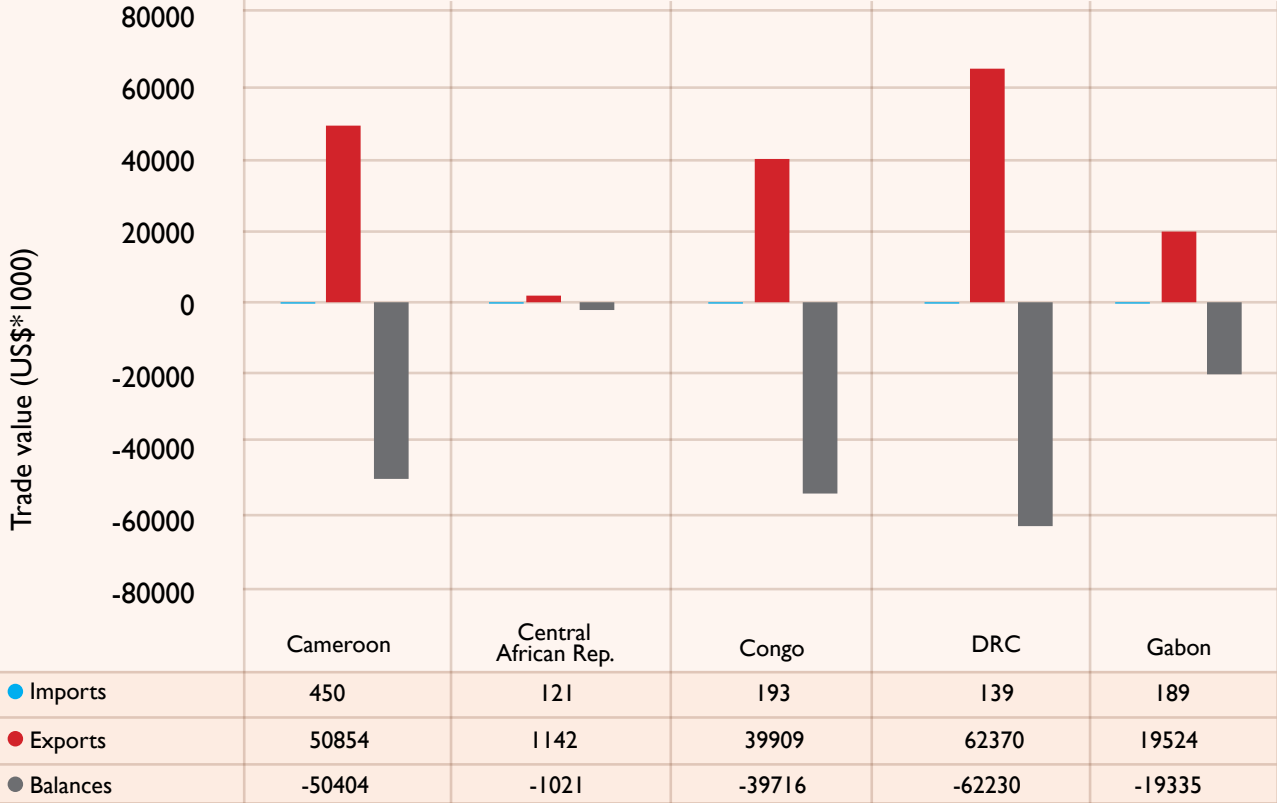


FIGURE 10. Trade balances for cane and bamboo in Central African Countries (2011-2020)

3.3. Trade balances associated with tertiary processed wood products

From 2010 to 2019, five Central and seven West African countries registered negative trade balances totaling over US\$ 6.98 billion linked to seven tertiary processed wood products.

Countries in central Africa recorded a total trade deficit of US\$ 785 million with printing/writing materials commanding the

highest share followed by s, case materials and household and sanitary papers (Figure 11). Cameroon had the highest deficit of US\$ 497 million followed by DR Congo with US\$ 131 million (Figure 12).

Countries in West Africa recorded a total trade deficit of about US\$ 6.2 billion with printing/ writing papers commanding the highest share followed by case materials and carton boards (Figure 13). Nigeria had the highest deficit of US\$ 4.12 billion followed by Côte d'Ivoire with US\$ 912 million (Figure 14).

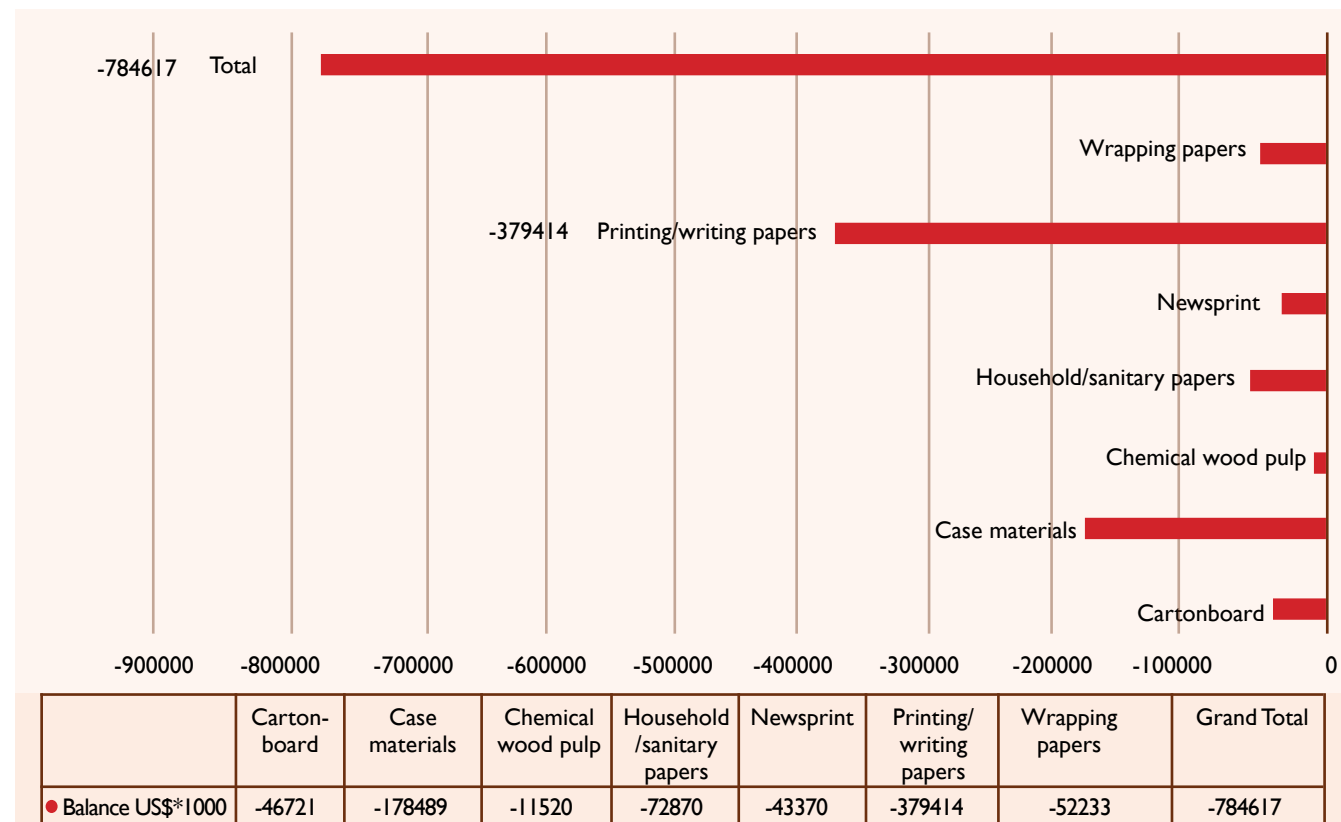


FIGURE 11. Trade balances associated with 7 tertiary processed wood products in 5 Central African countries (2010-2019)

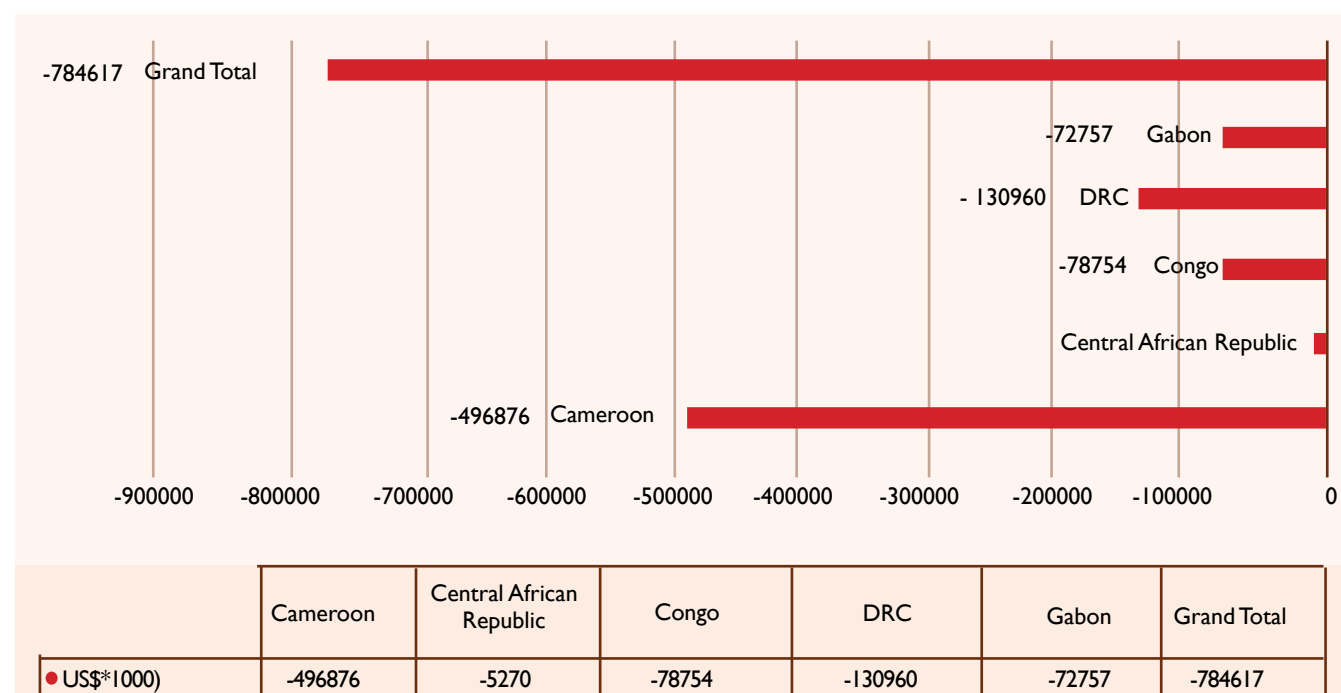


FIGURE 12. Trade balances associated with 7 tertiary processed wood products in 5 Central African countries (2010-2019)

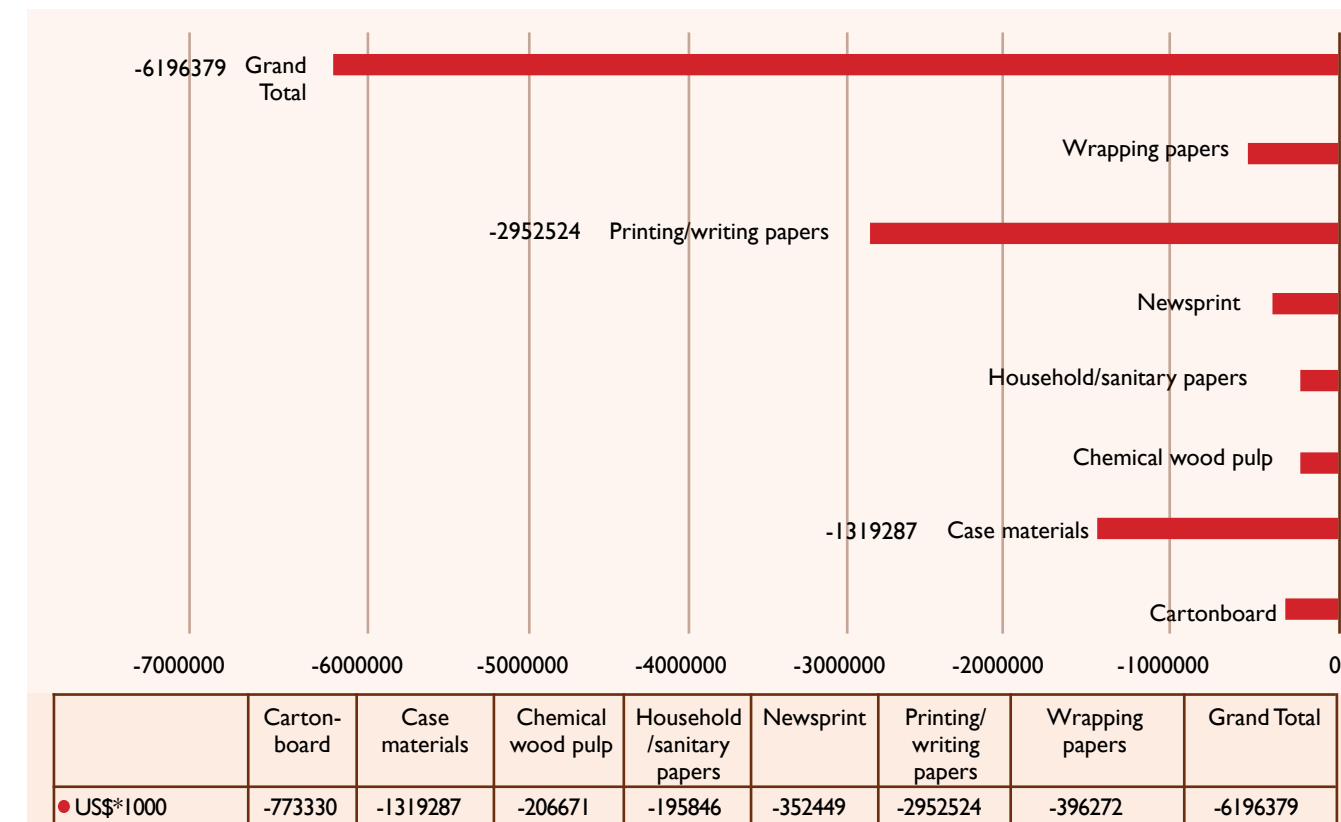


FIGURE 13. Trade balances associated with 7 tertiary processed wood products in 7 West African countries (2010-2019)

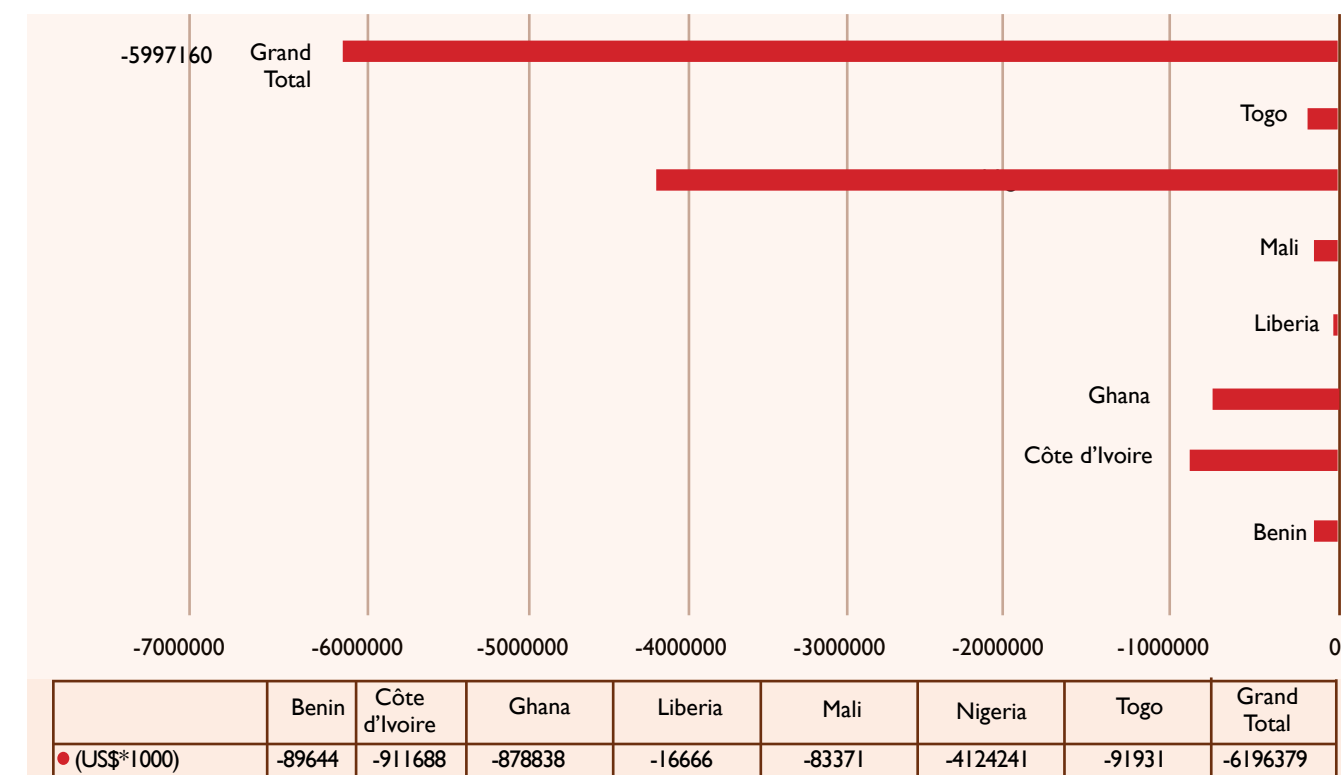


FIGURE 14. Trade balances associated with 7 tertiary processed wood products in 7 West African countries (2010-2019)

Discussions

FORESTRY as a business endeavour has tremendous potentials to contribute to the green economy (Teketay et al. 2016, Grieg-Gran 2015) and to increase state revenues. However, the realisation of these opportunities depends on the governance of the forest industry (Karsenty 2016, Ongolo and Karsenty 2015), the ways in which forests are managed (Karsenty and Vermeulen 2016, Cerruti et al. 2015) and the competitiveness of produced value added products (ITTO 2016, Buongiorno and Zhu 2014, FAO 2013, Hierold 2010, Dykstra et al. 1996). The discussions in this paper dwell on the latter dimension and specifically on adding value to primary wood products and the economic implications for importing secondary and tertiary processed wood products in terms of national trade balances. African countries are seemingly not doing enough in terms of industrialisation of the wood sector because the emphasis on primary wood processing as observed in most countries imply relatively low value-added content (Fessehaie 2016, Grieg-Gran 2015). As argued by Akplogan (2014), a positive relationship exists between economic growth and increased added-value through manufacturing especially when the proportion of natural resources among total exports is less than a certain threshold value of 50%. He

vehemently stated that African economies that dwell on export of basic products with low added-value cannot deliver strong and sustainable economic growth. It is along this understanding that the African Development Bank has 'Industrialise Africa' as one of her High 5 priority development strategies for Africa. The thrust is for African countries to undergo structural transformation of their economies by adding value to their resources and raw materials and turning them into processed products (AfDB 2017).

Overall, the President of the African Development Bank, Dr Akinwumi Adesina vehemently summarizes as follows: "The secret of the wealth of nations is clear: developed nations add value to everything they produce, while poor nations export raw materials. Africa must quit being at the bottom of the global value chains and move to rapidly industrialise, with value addition to everything that it produces. Africa must work for itself, its people, not exporting wealth to others" (AfDB 2017).

4.1. African countries are lagging behind

The issue pinpointed in this paper is linked to the fact that most forest endowed African countries with abundant raw materials lose all the opportunities for value addition and job creation in Africa and comfort themselves in the importation of processed wood products with consequential huge trade deficits. In this direction, it could be argued that most

African countries are lagging behind. For instance, from 2011 to 2020, Africa had a total trade deficit of over US\$ 20.4 billion associated with the trade in only three secondary processed wood products (wood furniture, builder wood, cane and bamboo products). On the contrary, with these same products and over the same period, Asian countries made a total trade surplus of US\$ 250 billion (Figure 15).

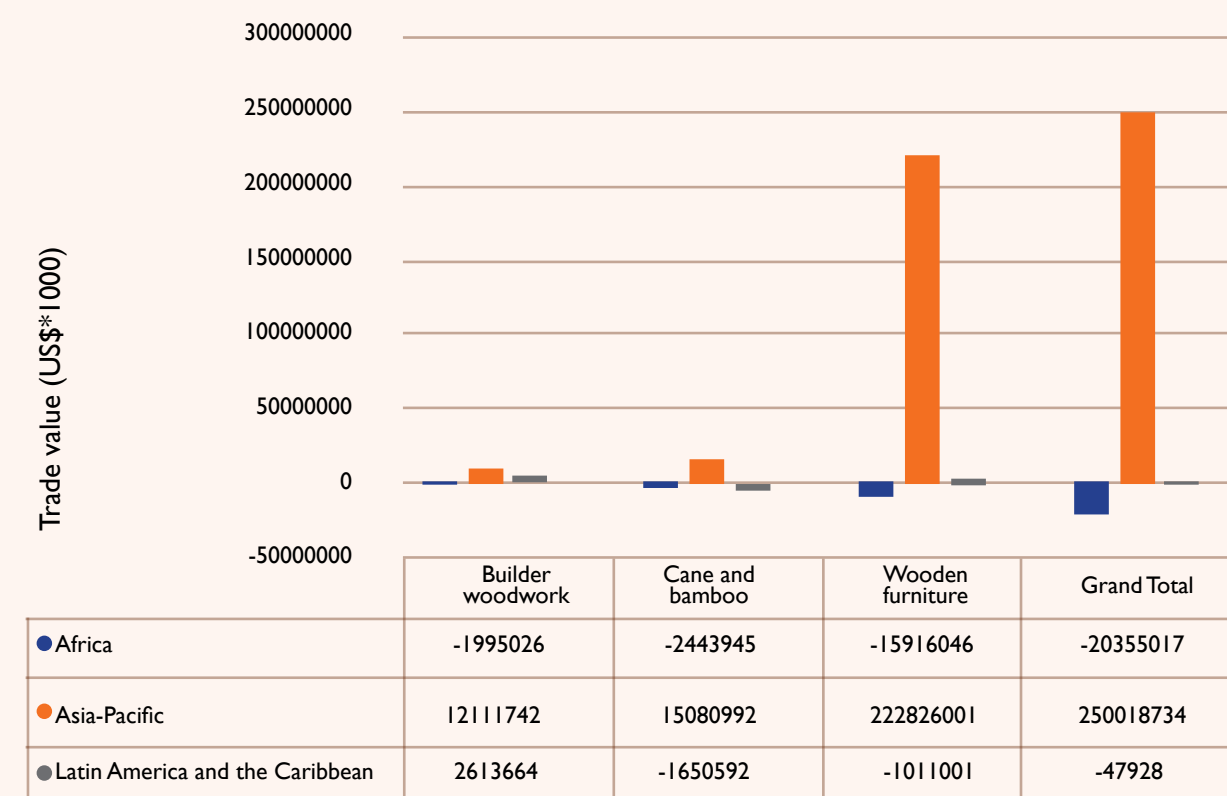


FIGURE 15: Figure 15: Continental trade balances for three secondary processed wood products (2011-2020)

Latin American countries had a negative trade balance of US\$ 48 million during the 2011-2020 period down from a surplus of US\$ 6.8 billion in the period 2006-2013 (AfDB 2018). Statistics from individual Asian countries are even more encouraging. For

instance, the Vietnamese's furniture exports reached US\$ 7 billion in 2016 (ITTO 2017). The Malaysian furniture exports to over 180 countries grew by 6.4% in 2017 to record US\$ 2.56 billion (ITTO 2018).

The lagging trend is even worse with tertiary processed wood products with the 12 African countries under study having a lamenting trade deficit totaling US\$ 6.98 billion from 2010 to 2019. For the same products and over the same reporting period, a single country in Asia like Indonesia enjoyed a

trade surplus of over US\$ 41.2 billion with printing/writing paper commanding the lion share of about US\$ 24 billion (Figure 16). This disparity seems pivotal for relevant and more targeted policies in favour of value addition and trade promotion for forest products in Africa.

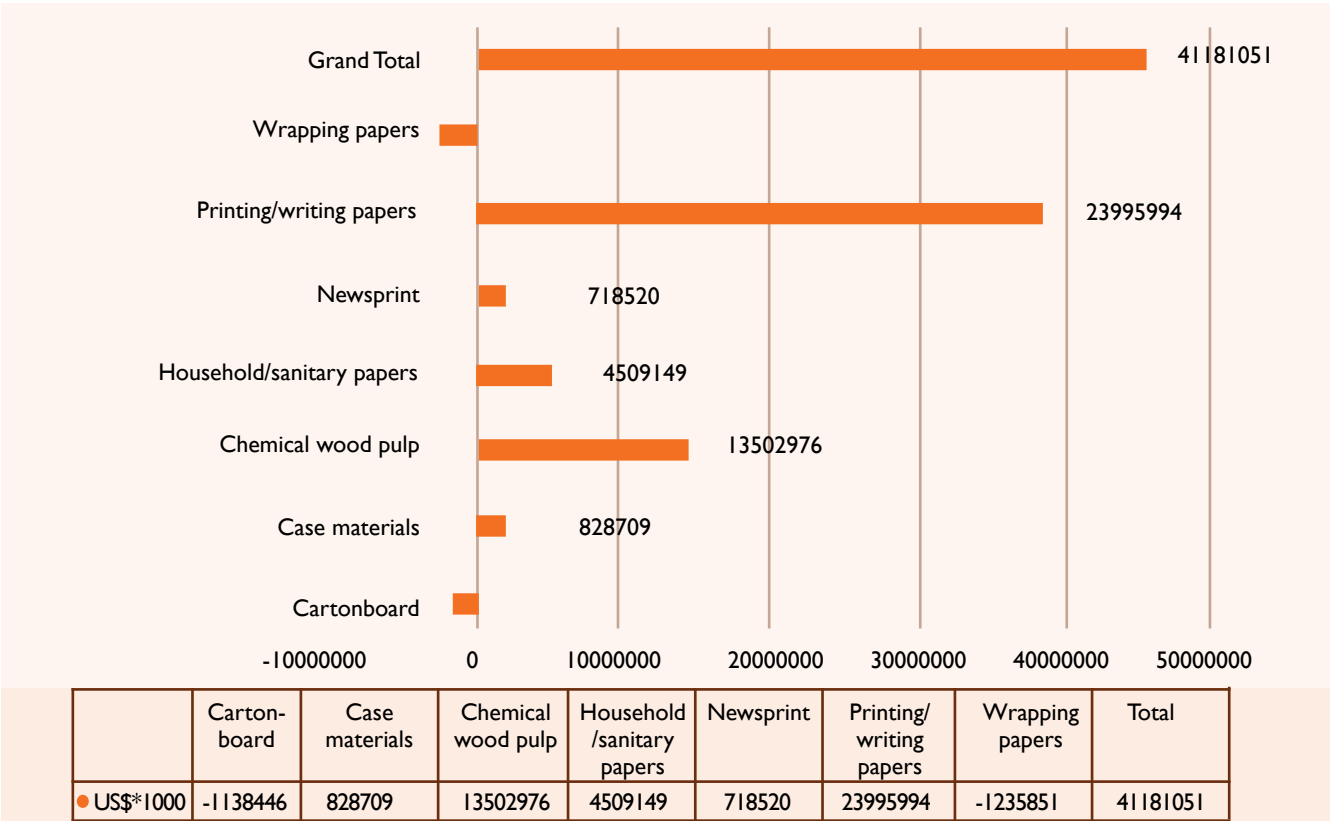


FIGURE 16:Total Indonesian trade balance in seven tertiary processed wood products (2010-2019)

4.2. Investment opportunities and the need for value addition to African wood products

4.2.1. Value added

It is possible for African countries to realize a potential net value added of US\$ 44–271 if only one cubic meter of sawnwood is processed into fine furniture (Bickel

and Cerutti 2017). Another estimate for plantation-grown eucalyptus in South Africa showed that the price for eucalypt timber if converted to pulp/paper is US\$ 62-63/m³ but if converted to high-end furniture could fetch US\$ 2500-3000/m³ (Blacklow 2017). According to Buongiorno and Zhu (2014), aggregate margins (per unit value added based on price analysis alone in the global market)



of 568%, 878%, 930%, 1008%, and 1256% are possible by transforming industrial round wood into newsprint, paperboard, writing paper, veneers, and fibre pulp respectively. These large aggregate margins should justify investments on these industries in Africa and suggest that industrial development may not be the limiting factor to achieving value addition.

Moreover, volume/value indices for roundwood, sawnwood, plywood and veneers in the Democratic Republic of Congo were calculated to be US\$ 283/m³, 499/m³, 548/m³ and 1318/m³ respectively (Tieguhong 2016). These figures suggest that it could be desirable to produce and export veneers than exporting roundwood as value-added products fetch up to four times more income than exporting in the raw form. The results further suggest that it could still be profitable producing veneers rather than sawnwood even if we consider the roundwood equivalents for plywood/ veneers and sawnwood.

4.2.2. Jobs creation

On average, such value added by the furniture industry could generate as many as four to 12 times more jobs than primary sawmills alone (Hierold 2010). The implication is that developing the furniture industry is the type of innovation or technological enhancement that will create jobs, which is a challenge to many African countries. This is contrasting to most innovations across the globe that focus on saving labour. To this, Stieglitz (2017) reiterates that sustained economic growth in Africa will require making sure that industrial policies are framed to create employment and shared prosperity, as well as save the planet.

From the foregoing economic underpinnings, it could be argued that value addition through industrial processing of forest products could help diversify the economies of many African countries to achieve green growth. This tendency is not only applicable to the timber sector but also to other products from trees such as cashew (*Anacardium occidentale*) trees, shea butter (*Vitellaria paradoxa*) trees,

Pygeum (Prunus Africana) trees etc. For instance, Africa has over two million farmers that produce nearly half of the world's supply of raw cashew nuts with apparent annual consumption of processed nuts increasing by an average of 9% but unfortunately about 90% of the nuts are still being exported in the raw form (Musa 2017, Morgen 2016). A ton of raw cashew nut is sold at US\$ 1200 but if roasted and supplied to supermarkets in the USA can fetch up to US\$ 10,000 (Agbota 2017, Faseru 2016). This underpins grievous loss of economic opportunities for countries. For example, Côte d'Ivoire that is the highest producer of raw cashew nuts in the world earned only US\$ 589 million (1.6%) from exporting 625,000 tons in 2015 instead of the potential earning of US\$ 37 billion if the nuts were processed before export (Traore and Tieguhong 2018).

4.3. Tapping from opportunities and remaining optimistic

The population of Africa is expected to rise to 2.5 billion by 2050 and to 4 billion

by the turn of the century (Adesina 2015) and GDP growth for African countries will remain stable at over 5% through 2060 with implications for increased wood demand (Grieg-Gran 2015). According to Traore and Tieguhong (2018), the questions that the forestry sector should ask itself could include:

How will Africa meet the wood products needs of this growing population? And, will Africa simply depend on ever-increasing wood product imports?

These questions are pertinent 'food for thoughts' that should trigger a change in the way forestry is contributing to the industrialization of the continent. In accordance with the trade deficits reported for the wood sector in West and Central Africa, some World Bank experts estimated that the East African furniture market is valued at US\$1.2 billion whereas the regional trade is worth only US\$298 million per



year indicating high dependence on imports (Helsinki et al. 2015). The negative trends on imports of processed wood products can be reversed with increased investments to meet increasing demands in different parts of Africa. For instance, between 2001 and 2015, Africa's imports of forest products grew at 9% per annum, while exports grew at only 5% per annum (FAO 2013). Based on the current demand, industrial wood is projected to grow from about 77 million m³ per year today to 300 million m³ per year by 2030 and supply from 46 million m³ to 81 million m³ per year during the same period (Indufor 2016). The supply gap of 219 million m³ by 2030 in Africa will be met by global wood imports unless forest production and industrialisation is enhanced sufficiently to match the growing demand. In order to meet the growth in demand for wood, annual establishment of over 300,000 new hectares of planted forests will be needed, based on an assumed growth rate of 18 m³/ha/year (Indufor 2016). This provides justification for the need to invest in establishment of plantation forests of desirable timber tree species (Buttoud et al. 2002, Evans 2001) to ensure the sustainable supply of raw materials to burgeoning African timber industries.

Nonetheless, there is a handful of reasons to be optimistic and confident about the industrialisation of the forestry sector in Africa. Some of these reasons include:

- Availability of natural forests for the provision of wood raw materials in a strategic number of African countries. The emergence of forest plantations in forest landscape restoration initiatives and private sector commercial forest plantations/out-grower schemes.
- The possibility for intra-African trade

in wood products given that some regions are forest endowed while others are not, with the emergence and promotion of African Continental Free Trade Area (ACFTA) fully being supported by most African countries.

- With growing populations and the continuous GDP growth of 5% on average in real terms in most African economies (Govoni 2014), the demand for wood products will continue to rise as underdeveloped countries evolve toward developed green economies. The consumption of most processed forest products is positively correlated with income levels; especially with the fast growth rates of most African economies (AfDB 2018). World civilization was accelerated with the discovery and extensive use of wood pulp around AD 105, when the Chinese first made paper (Adeyoku 1981).
- Awareness is growing about the value of wood as one of the most versatile and renewable raw materials compared to plastics and other synthetics that pollute the environment. Prospects for industrialization are encouraging, as African countries look at moving from the export of primary commodities like timber to the export of secondary and tertiary processed wood products. Most wood products are intermediate goods as they can be used in other industries like construction, boat building, furniture, packaging, printing, and textile manufacturing.
- Over the years, the international prices of wood products have tended to be more stable than those of most primary commodities.
- Modest cost of establishing processing factories. The estimated cost of

establishing an exemplary wood processing factory similar to those established at the Gabon Special Economic Zone (GSEZ) at Nkok is between 2 and 3.5 million Euros (Mays Mouissi Consulting 2018).

Moreover, there are few recent positive experiences in West and Central Africa that are worth mentioning to trigger enthusiasm and optimism in the industrialization of the wood sector in Africa. For example, in West Africa, Côte d'Ivoire is said to have a pulp and paper industry which shows export capabilities, with over US\$100 million of paper and packaging material exports (Fessehaie 2016). Within Central Africa, in less than ten years after the ban on the export of logs by the Gabonese Government, the country is fast developing an advanced value chain for wood and wood products.

Gabon is already registered as the sixth largest producer of tropical veneer with 2016 production of 270,000 m³ or 6% of global production. This is stimulated by the establishment of Special Economic Zone that has increased the countries wood industrial capacity by 29% with projected annual production of 500,000 m³ of veneer in the coming years, second largest exporter of tropical veneer after Vietnam (ITTO 2018).

With the sustenance of this momentum through 2020, the contribution of the veneers and sawnwood sectors to GDP could increase by 35% and 20% respectively (Mays Mouissi Consulting 2018).

Overall, macroeconomic analysis shows that the implementation of the industrialisation and economic diversification strategy of Gabon is encouraging with overall increases in sector contributions to GDP moving from 2.8% in 2010 to 3.7% in 2017 for forestry, 3.6% to 5% for agriculture and 3.7% to 6% for minerals (Mays Mouissi Consulting 2018). In addition to the primary processing of veneers, the Gabonese 2018 value chain also includes secondary and tertiary processing comprising of wood products such as flooring, plywood and veneer, laminates and boards, furniture and fittings, paints, adhesives and glues (GSEZ 2018). It is expected that the competitiveness of the wood industry in Africa could benefit from the progress achieved in Gabon to develop a model for wood production, processing and trade to ensure job creation, wealth creation and industrialization of the forestry sector. This is in line with the success of the global value chains that is generally determined by the level of forward and backward integration (AfDB 2018, AfDB et al. 2014).



Conclusion and policy recommendations

OVERALL, African governments recognize that the performance of the wood processing industries is important both to employment and industrial growth. However, the findings presented in this paper further confirm past discourses on natural resources in which forest-rich countries experience huge negative trade balances associated with the importation of processed wood products, most often fashioned out of exported raw materials. The narrow diversity of wood products and the huge trade deficits are pointers to local and national demands for finished products in West and Central African countries.

The question is on whether forestry as a business is being done in the right way with the unfathomable huge regional trade deficits that are associated with the importation of further processed wood products such as furniture, builder wood, cane and bamboo, printing and writing papers, wrapping papers, chemical pulp, newsprint and household sanitary papers.

Indeed, the huge trade deficits for forest-endowed regions of

Africa provide hard evidence to spur policy changes in favour of downstream processing of quality products (wooden doors, windows, furniture and joinery) within countries for job creation, increase in export earnings and sustainable development.

According to Groutel (2013), quality products cover both considerations of respect for standards and contractual elements: dimension, aspect and moisture content or honouring of delivery times as well as expertise, the incorporation of technological advances in the manufacturing process, logistics or packaging. Mainstreaming regional and international standards for wooden furniture, e.g. single beds, double beds, family beds and so on while ensuring testing methods for their stability, strength and durability. This holds true for other wood products such as builder wood, wood flooring, paper and paper products etc. These ingredients will increase the competitiveness and industrialization of the wood sector in Africa.

According to Dykstra et al. (1996), a downstream processing policy that ensures higher conversion rates and the development of quality products need to be implemented and should address the following:

- the total number of mills and overall processing capacity should be guided by national annual allowable cut;
- processing should focus on secondary and tertiary products;
- processing of smaller materials such as branches from mature trees;
- utilisation of sawdust and other sawmill residues;
- total ban on round log exports; and
- exporting lumber by mixed species according to colour, density and end use so as to remove pressure on individual or single species.

In addition, there is need for the ministries in charge of industrial development in each country to conduct analyses on both the

furniture and other further processed wood product categories, in order to understand their current state of development, market size and trends, market segments by products, market forecast, their main constraints, and the interventions necessary to accelerate their growth. The goal of such analyses is to provide a comprehensive value-chain analysis of each segment of the wood processing industry, in order to assess policy options available to the line ministries and recommend critical interventions to stimulate the industry's development (Helsinki et al. 2015). Instituting such policy changes and appropriately implementing them will be in conformity with the some of the priority areas of intervention the Convergent Plans of the Central and West African Forest Economic Commissions that put emphasis on promoting the production of further processed wood products for increased contribution of forestry sector to gross domestic products of member countries.

TWO KEY RECOMMENDATIONS DERIVED FROM THIS STUDY ARE:

African countries should conduct analyses on both the furniture and other further processed wood product categories, in order to understand their current state of development, market size and trends, market segments by products, market forecast and their main constraints.

African countries should formulate and implement policies as well as put in place the necessary interventions to accelerate the growth of secondary and tertiary wood processing technologies for increased value added and jobs creation.

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