Agricultural Exports in Guinea

Opportunities for Export Expansion and Diversification

International Trade Centre

Acknowledgements

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For more information on Export Potential Map, see: https://exportpotential.intracen.org/en

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Acronyms

Unless otherwise specified, all references to dollars ($) are to United States dollars, and all references to tons are to metric tons.

AfCFTA	African Continental Free Trade Agreement
ECOWAS	Economic Community of West African States
EPI	Export potential indicator
ITA	International Trade Administration
ITC	International Trade Centre
PDI	Product diversification indicator
RCA	Revealed comparative advantage
RoW	Rest of the World
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
VCI	Value chain indicator
WTO	World Trade Organization

Executive summary

Once a major agricultural producer on the African continent, Guinea is now a net importer of many agricultural products. Between 2016 and 2020, its agricultural trade deficit stood at an average of $350 million per year, indicating reliance on imported raw and processed foods. Despite an impressive increase in overall exports, driven by gold and bauxite, Guinea's agricultural export growth stalled in the past decade. Intra-African exports represent 10% of total agricultural exports and have seen a decline in the past years. Guinea's intra-African agricultural export basket is limited and comprised of low value-added products – primarily coffee, wheat by-products and wood.

However, there are indications that a revitalization of Guinea's agricultural sector is possible in coming years. Investment opportunities are being explored by the national government, as well as by foreign investors (ITA, 2021). Further, the implementation of the African Continental Free Trade Agreement (AfCFTA) is expected to open up a large and growing market for Guinea to tap into. In line with this potential, this report explores avenues for the expansion and diversification of Guinea's agricultural exports to African markets.

In order to provide a preliminary overview of the range of products and markets that Guinea could consider targeting to increase or diversify its agricultural exports to Africa, the report uses ITC indicators for export potential, export diversification and value-added diversification. These indicators reveal opportunities for Guinean agricultural exports to Africa from three distinct angles: increasing current exports by tapping into their unused export potential, diversifying exports to new products that are similar to the current export basket, and diversifying exports into products with higher local value addition by leaning on inputs in which Guinea is already competitive. Some of the key findings are:

Increasing existing agricultural exports: tapping into unused export potential

- Guinea holds an unused agricultural export potential of $42 million across African markets (62% associated to growth expectations up to 2026, 38% associated to frictions)
- A full tariff liberalization under the AfCFTA could increase Guinea's intra-African export potential for agricultural products by 42%, increasing the unused potential to $73 million.
- The most promising products with export growth potential include frozen fish, wheat bran and sharps, coffee, and sesamum seeds.
- The most promising markets with export growth potential include Morocco, the Republic of the Congo, Senegal, Mali, and Algeria.
- Africa's high tariffs on fish and coffee imply that Guinea will benefit from a tariff advantage over other competitors under AfCFTA.

Diversifying agricultural exports to products similar to the ones currently exported

- Rice, both broken and semi/wholly milled are the most promising diversification opportunities, followed by horticulture products including bananas, pepper, pineapples, and fresh coconuts, cane sugar and various types of oil seeds.
- Under AfCFTA tariffs, frozen, boneless bovine meat and beans gain appeal over pineapples and fresh coconuts.
- Demand is expected to be highest for rice, both broken and milled, and for raw and cane sugar both in the ECOWAS region and in all Africa by 2026.

Diversifying exports into products with higher local value addition

Subject to investment in production and processing capacities, Guinea may add value to its commodity exports and develop the following value chains:

Raw fish for prepared or preserved fish

- Combined exports of raw fish during 2016-2020: $46 million.
- African demand for prepared or preserved fish is projected to double from the current $59 million to $111 million by 2026.
- Guinean prepared or preserved fish currently face high tariffs faced in Africa, reaching up to 40% and 30% in several markets, with averages on par with the tariffs imposed on the rest of the world.
- On implementation of AfCFTA, the average tariff imposed by African countries will be 9% - rendering a tariff advantage for Guinea.

Cocoa for food products

- Guinea's exports of cocoa beans averaged $31 million between 2016 and 2020.
- From cocoa beans, there is potential for diversification to a variety of value-added products including cocoa powder, chocolates, purees and pastes and ice-creams.
- Combined, African demand for these products could reach $2.3 billion as of 2026; 50% stemming from chocolates.
- High tariffs on chocolates in Africa (up to 60%) could be dismantled under the AfCFTA, raising the competitiveness of continental producers.

Sesamum seeds and cashew nuts for food products

- Guinea's exports of sesamum seeds were on average $4 million a year between 2016 and 2020, and $59 million for cashew nuts (in shell).
- A number of food products derived from sesamum seeds and cashew nuts have potential for Guinea, among them: jams, jellies, marmalades, purées or pastes, nuts and seed mixtures, protein concentrates, and other forms of preserved fruits and vegetables.
- Combined, the African demand for these products is projected to reach $732 million as of 2026, most of it beyond ECOWAS.
- Currently, when exporting these food products to Africa, Guinea face averages tariffs between 11% and 22%, while other exporters to the continent face average tariffs between 9% and 18%.
- Average tariffs imposed on other exporters will remain similar under AfCFTA, while Guinea's will decrease, granting Guinea a tariff advantage.

Natural rubber

- Rubber feeds into the production of multiple goods, among them the most promising for Guinea are footwear, umbrellas, some types of machinery, equipment and mechanical appliances, light boats and vessels (e.g., inflatable boats), parts of furniture and bedding (e.g., mattresses), and others.
- Combined, African demand for these products is projected to nearly double from the current $7.8 billion to $15.1 billion as of 2026, with footwear accounting for almost 60% of this demand.
- Guinean exports of these products face average tariffs between 2% and 22% in Africa, as do all other competitors.
- Under AfCFTA, the average tariffs faced by other countries are expected to experience little change, while Guinea's will be lower (tariff advantage).

A final call for caution when interpreting these results is in order: the ITC indicators used to compute these results rely on a methodology that identifies opportunities for export growth and diversification on a global scale based on international trade data. As such, the indicators cannot account for all relevant factors, in all contexts. In particular, there are three aspects relevant for the case of Guinea that readers should consider in addition to the results obtained:

- Shea, shea butter and the Harmonized System

The Harmonized System (HS) used to codify products does not necessarily define a code for each product, in some instances multiple products are reported under the same code, limiting the possibility to precisely identify the potential for exports of that product. This is the case for shea and shea butter, which are reported under codes shared with other nuts and fats and oils.

- Palm oil and environmental impact

The methodology assesses growth or diversification potential without factoring in all relevant environmental and social considerations, such as deforestation or labour conditions.

In the case of Guinea, this is of special importance when considering palm oil and related products. While the analysis of supply, demand and market access conditions associates these products with large potential for exports, the potentially devastating environmental effects of palm oil cultivation and processing may still call for refraining from dedicating more support to this sector.

- Investment and support to production capacities

The indicators used in this report cannot reflect some intangible or difficult to measure aspects of the production and export process, for example the willingness and possibility to attract the sort of investment or financing necessary to develop the local value chains that can lead to higher value-added exports. Realizing the opportunities identified, particularly in the natural rubber value chains, will require large investments across the spectrum, as well as significant support to production capacities.

The opportunities identified in this report are to be considered a starting point to inform the discussions with key stakeholders, experts and the private sector.

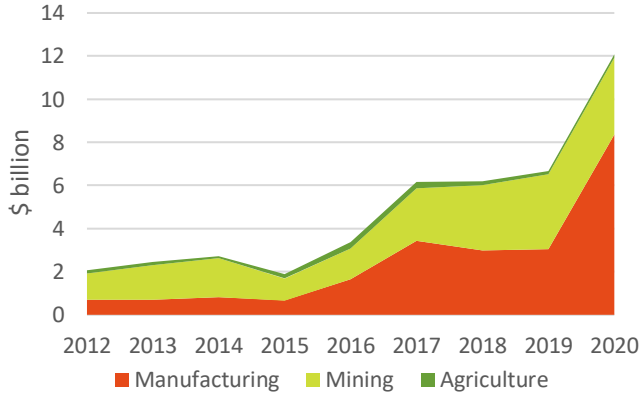
SECTION 1 GUINEA'S AGRICULTURAL EXPORTS LANDSCAPE

Global perspective

Guinea's export growth, as seen in the past decade, has been driven mainly by manufacturing, and to a lesser extent by mining

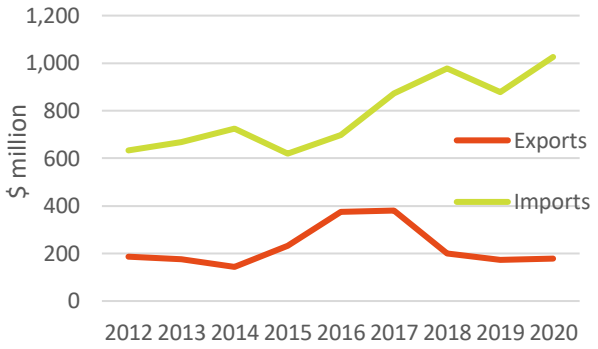
Figure 1Figure 1). Together, the two sectors were responsible for a nearly sixfold increase in total exports: from $2.1 billion in 2012 to $12.1 billion in 2020. Marked increases in exports in 2017 (83%) and 2020 (81%) can be attributed largely to a striking expansion in gold exports. Between 2016 and 2020, less than 10% of the country's overall exports were agricultural.[1]

Figure 1: Exports, by industry



Source: Trade Map (2022).

Figure 2: Agricultural exports and imports

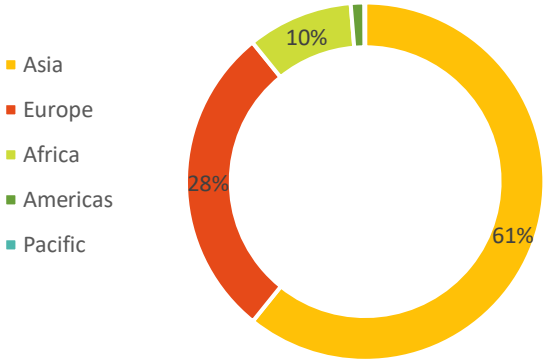


Note: based on average values for 2016-2020.
Source: Trade Map (2022).

Despite the trajectory of total exports, Guinea's agricultural exports have remained between $144 and $380 million since 2012, without a clear trend (Figure 2). During the same period, agricultural imports have increased from $620 to $1,026 million, making Guinea a net agricultural importer.

Guinea's agricultural exports are mainly destined to Asia (61%) and Europe (28%). Intra-African exports account for 10% of Guinea's agricultural export basket (Figure 3). The main agricultural products exported are cashews, fish, cocoa beans, a type of natural rubber and some fresh fruits (Box 1).

Figure 3: Agricultural exports, by destination



Note: based on average values for 2016-2020.
Source: Trade Map (2022).

Box 1 Main agricultural exports*

- ✓ Cashew nuts, in shell
- ✓ Other frozen fish**
- ✓ Cocoa beans, whole or broken, raw or roasted
- ✓ Technically specified natural rubber
- ✓ Coffee, not roasted, not decaffeinated
- ✓ Fresh peaches & nectarines
- ✓ Fresh pears and quinces

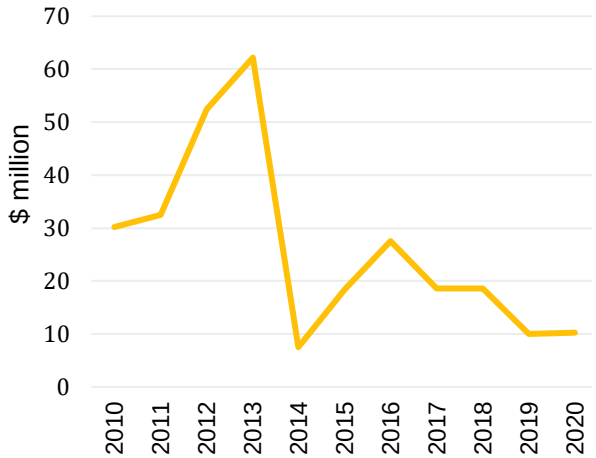
* average 2016-2020
** salmon, tilapia, catfish, carp, Nile perch and flatfish.

[1] For the purpose of this report, *"agriculture"* is defined broadly and meant to include raw agricultural commodities, fisheries, processed foods (of plant or animal origin), natural rubber and latex, as well as wood. For an overview of all sub-sectors covered under the definition, please refer to Appendix I.

African[2] perspective

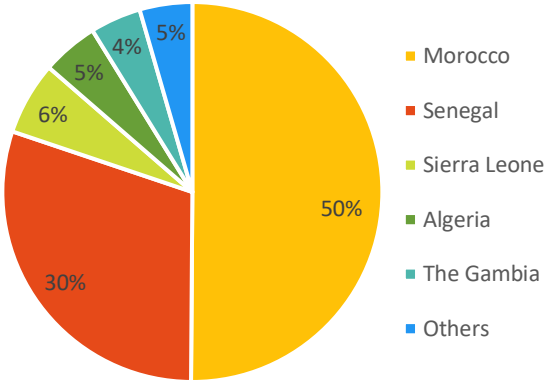
In contrast to global exports, agricultural products represent a large part of Guinea's exports to Africa (69% in 2020). However, in value terms, Guinea's agricultural exports to Africa have been inconsistent, peaking in 2014 at $62 million, only to plummet to $8 million in 2014, and range between $10 and $28 million ever since (Figure 4). This volatility can be traced back to intra-African fisheries exports, which experienced a striking decline in 2014 and remained low thereafter, despite Guinea's extra-African fisheries exports remaining consistent during the same period.

Figure 4: Intra-African agricultural exports



Source: Trade Map (2022).

Figure 5: Intra-African agricultural exports, by destination

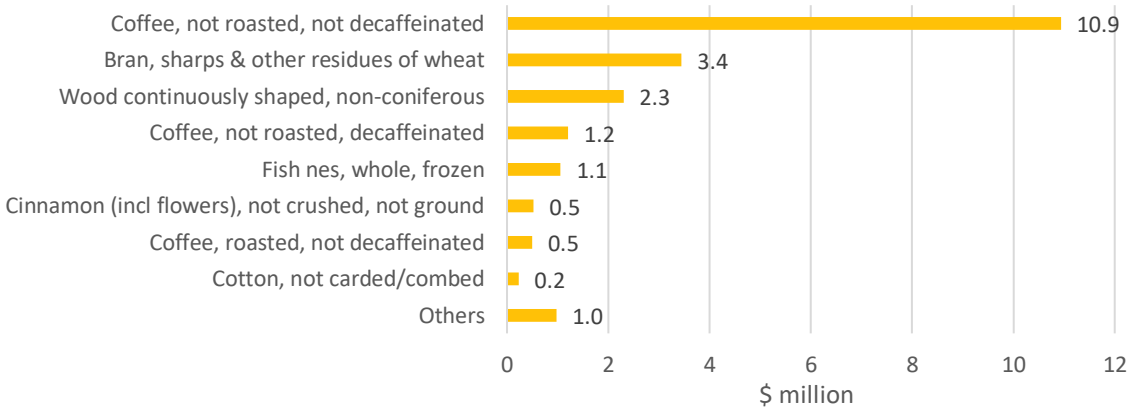


Note: based on average values for 2016-2020.
Source: Trade Map (2022).

Guinea's agricultural exports to Africa are mostly destined to a few markets in Northern and Western Africa (Figure 5): Morocco (50%), Senegal (30%), Sierra Leone (6%), Algeria (5%) and The Gambia (4%).

Additionally, agricultural exports to Africa also concentrate in a limited number of products (Figure 6). Between 2016 and 2020, *Coffee, not roasted, not decaffeinated* was the most exported product, with a value of $10.9 million on average. *Bran, sharps & other residues of wheat* and *wood continuously shaped, non-coniferous* were the second and third most exported products, with export values amounting to $3.4 million and $2.3 million, respectively.

Figure 6: Intra-African agricultural exports, by product



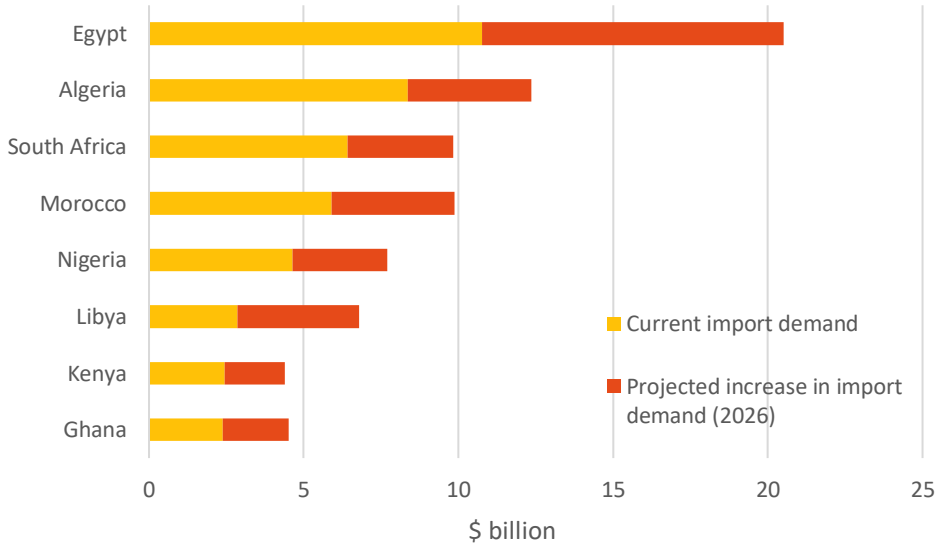
Note: based on average values for 2016-2020. The acronym nes stands for not elsewhere specified. Fish nes encompasses salmon, tilapia, catfish, carp, and Nile perch.
Source: Trade Map (2022).

Despite their concentration in few destination markets and products, agricultural exports to Africa offer some variety in comparison to agricultural exports to the world (**Error! Reference source not found.** and Box 1). This in itself positions Africa as an appealing target market for agricultural export growth and diversification.

[2] Throughout this report, "*Africa*" refers to all signatory members of the African Continental Free Trade Area (AfCFTA), i.e., all African countries except Eritrea.

In addition, the demand for agricultural imports in the rest of Africa is projected to increase remarkably.[3] Calculations show up to a 76% increase in demand for agricultural imports in the rest of Africa by 2026, compared to a 59% estimated for the rest of the world, bolstering Africa's appeal as a target market for Guinea. Figure 7 shows the African markets expected to experience the largest increases in their demand for agricultural imports.

Figure 7: Current and projected import demand for agricultural products in Africa, selected countries



Note: import demands are projected to 2026 based on each market's current total imports of specific products, its projected GDP per capita growth, and the sensitivity of that product's import demand to changes in GDP per capita, as defined by revenue elasticities calculated at the HS2 chapter level. The countries featured represent 80% of current African demand for agricultural imports.
Source: ITC calculations based on Export Potential Map (2022) data.

Lastly, as the implementation of the African Continental Free Trade Area (AfCFTA) progresses, new opportunities for agricultural export growth and diversification emerge in the continent, as will be explored later on in this report.

[3] Import demands are projected to 2026 based on each market's current total imports of specific products, its projected GDP per capita growth, and the sensitivity of that product's import demand to changes in GDP per capita, as defined by revenue elasticities calculated at the HS2 chapter level.

SECTION 2 METHODOLOGY AT A GLANCE

The export potential indicator (EPI) was developed by ITC to identify opportunities for growth of existing exports and market diversification. Similarly, ITC also developed methodologies to identify opportunities for product diversification in general (the product diversification indicator or PDI) and specifically in higher value-added products or in value chains (the value chain indicator or VCI).

The three indicators are calculated for Guinea at the product level, for all possible importers, and with a horizon in 2026. Identifying growth and diversification opportunities for 2026 instead of current ones allows us to consider expected growth trends in Guinea, in destination markets and competitors, and expected changes in tariffs.

Export potential

The EPI is built on three components:

- the total export ***supply*** capacity of the exporter for a given product in 2026,

  To estimate Guinea's export supply capacity of a given product in 2026, we consider its current share in the world exports of that product, the expected growth of Guinea until 2026 compared to the expected growth of all other countries that export that same product, as well as the average tariffs faced by Guinea when exporting this product compared to the average tariffs other countries face when exporting it.

- the total import ***demand*** for that product in any given market in 2026, and

  To estimate any market's import demand for a product in 2026 we consider its current imports of the product, its expected per capita growth until 2026, how its import demand is affected by growth, the tariff that market will impose on Guinea for that product in 2026 compared to the one it will impose on other countries, and the distance between the market and Guinea compared to its distance to Guinea's competitors.

- the ***ease*** of trade between the exporter and importer.

  The ease of trade is a measure that captures how easy or difficult it is for Guinea to export to any given market, compared with world markets on average.

Using these three components, we calculate the potential export values in 2026, for each product Guinea already exports consistently, in dollar terms, to any given market, including markets currently not served.[4]

The estimated potential export value in 2026 can then be compared to the current export value to identify growth opportunities: the gap constitutes the unused export potential. Note that, for any given product, the unused export potential may refer to opportunities to increase exports to an existing partner or, importantly, to opportunities to diversify into new markets. Additionally, the unused export potential may be associated to changes expected in coming years (growth trends or tariff changes), or to currently existing frictions.[5]

Export diversification potential

As noted above, the EPI is only computed for products Guinea already exports consistently. This is the case because the export supply component of the calculation requires Guinea's current share in world export markets for the product in question. It is not possible to compute it for products that are not yet exported.

That is the reason why, for products not yet consistently exported, we consider the product diversification indicator (or PDI) instead. The PDI produces a ranking that reflects the likelihood for Guinea to successfully

[4] Not all products are considered. Products that are classified as harmful or not relevant to export potential are omitted from calculations. A full list of the products excluded can be found here.

[5] See additional details on the methodology in Decreux and Spies (2016).

export new products to specific markets. Much as the EPI, the PDI is based on demand, supply, and ease of trade components, but in this case the supply component is identified using the concept of *product space*.[6]

The product space establishes how likely Guinea is to be able to export a given product by comparing the products it already exports to the export baskets of other countries. If Guinea already exports product A, and other countries often export products A and B together, it is more likely that Guinea will be able to export B, than other products that are not usually exported together with A. A key assumption of this measure is that the abilities and capacities needed to export "close" products are similar and transferable. For instance, a country producing oranges is likely to have the right climatic conditions, skills, and storage facilities to also export other citrus fruits.[7]

Value-added diversification of exports

As described above, the EPI can identify opportunities to increase existing exports to current or new markets, and the PDI to identify opportunities to export new products. But often times developing countries are not only looking to increase their existing exports or to export new similar products, but rather to leverage their existing structures into higher value-added exports. In line with this, the value chain indicator (VCI) extends the methodology of the PDI to identify opportunities for local value-chain development that can enable exports of processed, higher-value added, products.

In order to identify such opportunities, much like the EPI and PDI, the VCI considers demand, ease and supply components. In the case of the VCI, the supply component reflects the probability of Guinea to be able to export a certain new processed product, given how competitive it is in exporting its inputs. According to this, we will consider that Guinea is more likely to be able to export a processed product if:

- Guinea already exports, with a comparative advantage, many of the inputs required to produce that product, or
- Guinea already exports, with a comparative advantage, key inputs required to produce that product, or
- other countries that export the processed product have similar comparative advantages as Guinea in the inputs it requires.

Combining this supply component with demand and ease components, the VCI ranks what processed products Guinea is likely to be able to export.[8]

Limitations of the methodology

The EPI, PDI, and VCI methodologies constitute a fully automated approach to identify opportunities for export growth and diversification on a global scale. As such, the indicators cannot account for all relevant factors, in all contexts.

As described above, EPI, PDI, and VCI reflect existing export structures of all countries, projected growth rates of exporters and importers, existing tariffs, expected tariffs, distances between partners, existing production technologies, and a number of other factors.

However, the indicators cannot capture some of the factors we know define trade patterns. For example, the indicators cannot reflect very recent events, such as recent pests or weather conditions affecting the harvest of agricultural products, export bans, or large investments. Similarly, diversification opportunities are

[6] For details on the concept of product space and its uses, see Hausmann and Klinger (2007), Hidalgo et al. (2007).

[7] See additional details on the methodology in Decreux and Spies (2016).

[8] See additional details on the methodology in ITC (2018).

deduced from correlations in the export baskets of countries, which do not account for potential future greenfield investments. These factors may influence the "feasibility" of exporting (more of) certain products.

More importantly, the indicators cannot capture some intangible or difficult to measure aspects of the production and export process. Some relevant factors that may be overlooked because of this are the willingness and possibility to attract (foreign direct) investment or financing necessary to support production capacity and trade, the possibilities of marketing and branding, the existence of synergies with development plans or sector strategies, the trade-offs between competing exports sectors, the costs related to the promotion of export activities, the power balances behind market structures, the lack of knowledge or difficulties to comply with market entry requirements, consumer preferences or tastes, quality considerations or other intangible features specific to the trade of a product and partner. These aspects are indeed the hurdles or bottlenecks that hinder the realization of the export potential and diversification opportunities.

Additionally, the results of EPI, PDI and VCI cannot constitute recommendations by themselves, as they do not encompass all relevant environmental and social factors associated with the realization of export potential or diversification opportunities, such as deforestation or labour conditions.

Lastly, while several steps are undertaken to reduce the impact of incorrectly or inconsistently reported data, misreported data, the conversion between different industry and product classifications and the inclusion of different products in the same product code of the Harmonized System (HS) may affect the calculated export and diversification potential and thus, the prioritization of products and markets.

This last point is particularly relevant in the case of this project for Guinea. While shea and shea butter are among the focus products of this project, it was not possible to analyse their export potential or the projected demand for these products as the HS codes assigned to them include other products as well. For example, heading 12.07 applies, inter alia, to palm nuts and kernels, cotton seeds, castor oil seeds, sesamum seeds, mustard seeds, safflower seeds, poppy seeds, and shea nuts (karite nuts). Within this code, *HS 120799 Other Oil seeds and oleaginous fruits, whether or not broken* likely covers shea nuts alongside other types of nuts. Similarly, heading 15.15 covers *Fixed vegetable or microbial fats and oils and their fractions, whether or not refined, but not chemically modified*, which includes shea butter. Within this code, *HS 151590 – Other,* likely includes shea butter among other forms of fats and oils. This means that it is not possible for us to fully identify the trade of shea and shea butter in international trade data.

Considering the limitations outlined above, the opportunities detected by the EPI, PDI and VCI can benefit from contextualization based on discussion with key stakeholders on the field, experts in national agencies and the private sector. Such contextualization can validate the findings presented below and complement them by identifying specific difficulties in realizing export growth and diversification opportunities.

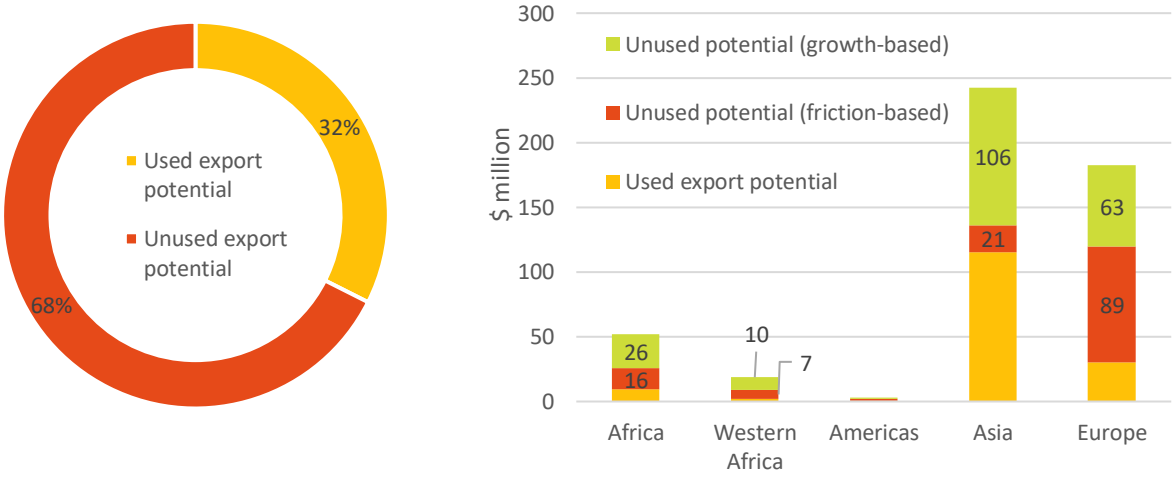
SECTION 3 TAPPING INTO AGRICULTURAL EXPORT POTENTIAL

This section explores the untapped agricultural export potential of Guinea for 2026 based on the methodology outlined above. As highlighted earlier, this methodology produces results that show, by product and partner, what the exports of Guinea could be in 2026, for any given product that Guinea is already exporting. The gap between current exports and that potential is the unused export potential, i.e., the space for growth of existing exports. The unused export potential can be attributed to existing frictions or to the growth trends projected until 2026.This section additionally explores how these results will change once the liberalization of tariffs envisaged in the African Continental Free Trade Area (AfCFTA) is fully implemented.[9]

Global perspective

There is significant potential for Guinea to boost its agricultural exports to the world in coming years. Its total export potential in agriculture is estimated at $480 million for 2026, 68% of which is still unused (Figure 8, left). Almost 40% of the unused potential is static ($128 million), i.e., not used due to some type of friction such as lacking information about the rules and regulations of the target market, difficulties to comply with them or to meet the (quality) preferences of its consumers. The remaining unused potential ($196 million) is dynamic, i.e., arising from global expectations of GDP and population growth in the coming years.

Figure 8: Used and unused agricultural export potential, total and by region



Source: ITC calculations based on Export Potential Map (2022) data.

As shown in Figure 8 (right) Guinea's unused export potential in agriculture is highest in Europe ($152 million), which accounts for 45% of the total unused agricultural export potential. Next comes Asia with an unused potential of $127 million, or 37% of the total, followed by Africa with $42 million, or 12% of the total. Within that, Western Africa holds $17 million, 5% of the total.[10]

Figure 8 (right) also distinguishes between unused potential in agricultural exports related to frictions and unused potential associated to growth trends. We can see that both types are present in all regions, but in Asia 84% of it is linked to expected growth trends, whereas in Europe 59% of it is determined by existing frictions. In the case of Africa, 62% ($26 million) of the untapped potential is connected to growth expectations. Nevertheless, the remaining 38% ($16 million) that relates to frictions highlights that tapping into the agricultural export potential in Africa will still depend to a significant extent on how effectively African

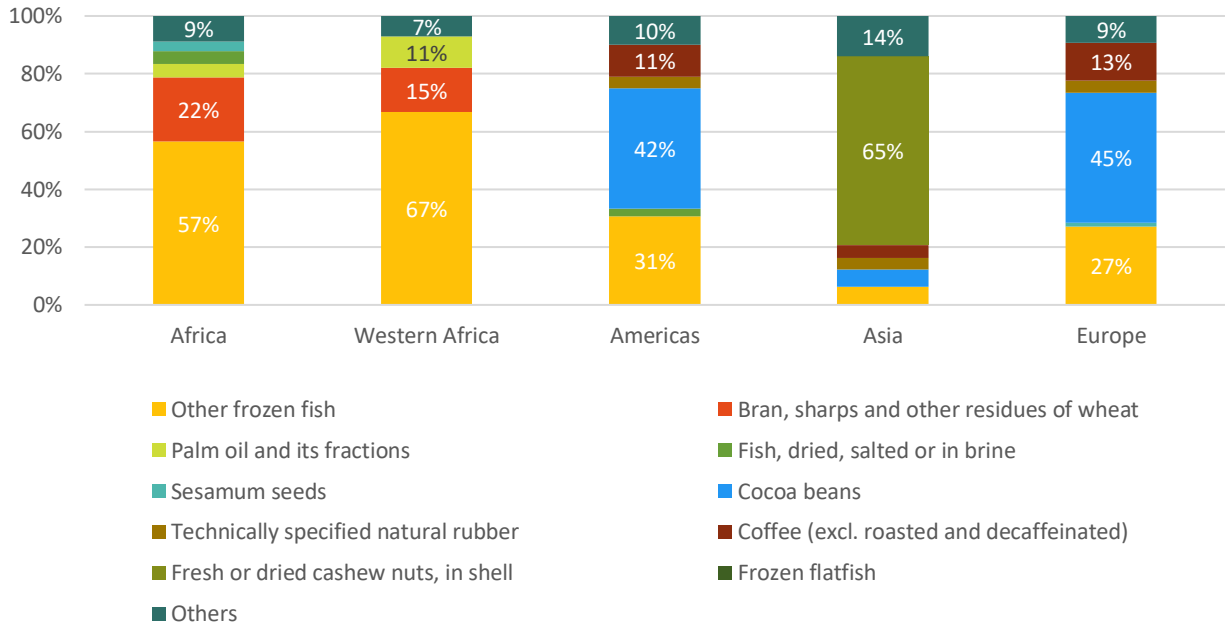
[9] Note that not all AfCFTA members have submitted and verified their tariff concession schedules. For the purpose of this exercise, we assume that full implementation of the AfCFTA entails 0% tariffs across the board between African countries. However, in practice, some tariff reduction schedules are not going to be exhausted by 2026, and there are going to be some exceptions to full liberalization.

[10] Western Africa encompasses al members of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

countries can resolve the several intra-continental trade and logistical hurdles that currently hinder greater trade integration.

The untapped agricultural export potential also differs among regions in its product composition (Figure 9). Opportunities for growth in agricultural exports to Asia are largely in cashew nuts in shell, whereas in Europe and the Americas they spring from cocoa beans, some types of frozen fish and coffee. In the case of Africa, the unused agricultural export potential stems largely from some types of frozen fish, as well as from by-products of wheat processing. This is particularly the case in Western Africa, where there is also a significant unused export potential for palm oil.

Figure 9: Untapped agricultural export potential, product composition by region



Source: ITC calculations based on Export Potential Map (2022) data.

African perspective

Guinea's total agricultural export potential to African markets is estimated to be $52 million in 2026. As mentioned earlier, a large part of that potential (82%, or $42 million) remains currently unused, with $26 of the unused potential connected to growth expectations and $16 million related to trade frictions (Figure 10, left).

Figure 10 also shows the change expected in export potential once AfCFTA tariffs are implemented (assumed to be 0% for this exercise). With the AfCFTA fully in force, a reduction in the export potential to Western Africa can be expected (-$2 million). This is due to the erosion of the ECOWAS tariff advantage in the region once other African competitors can also access ECOWAS markets at 0% tariffs.[11] Despite this reduction, plenty of opportunities for export growth remain in Western Africa, through the removal of frictions and the projected growth in coming years. Additionally, Figure 10 shows that the sizable boost AfCFTA brings in export potential to other African markets more than compensates for the loss of regional tariff advantage in Western Africa. In total, the export potential to Africa in agriculture is expected to increase by $22 million under AfCFTA.

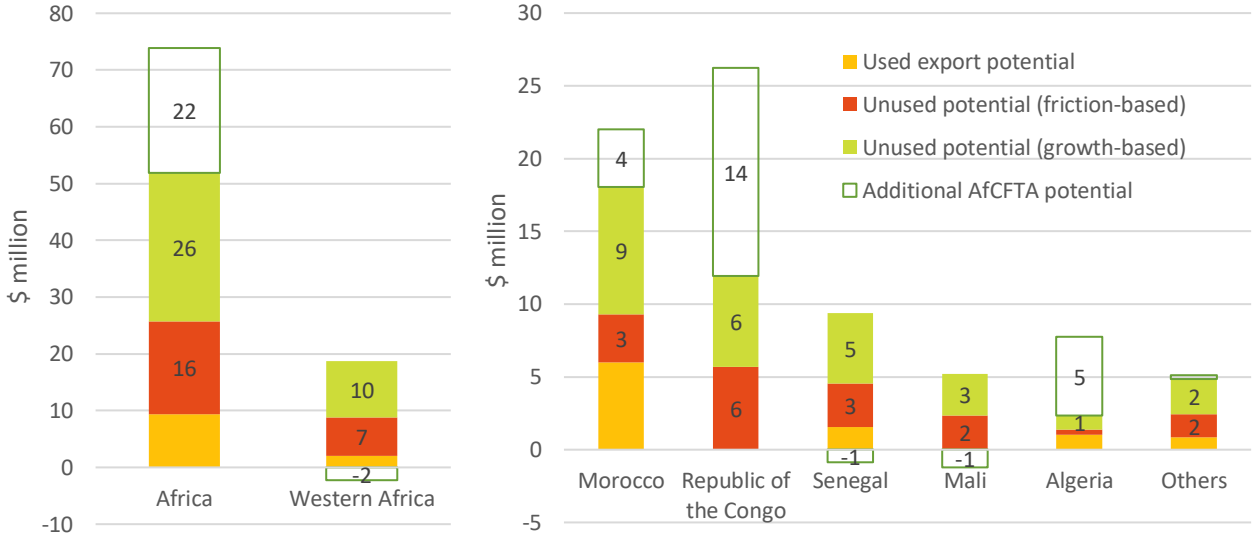
Morocco (35%), the Republic of the Congo (23%), Senegal (18%), Mali (10%), and Algeria (5%) are the largest markets with export potential for Guinea (Figure 9, right). While some of the potential in Morocco, Senegal and Algeria already is realized, export growth opportunities worth $21 million across the three markets still exists. The Republic of the Congo and Mali would be new destinations for Guinea's agricultural

[11] Keep in mind that this effect refers only to the changes AfCFTA brings about through tariffs.

produce with potential exports amounting to $12 million and $5 million, respectively. Across all markets, growth expectations drive a larger part of the untapped potential than frictions do, in particular in Morocco. However, frictions remain relevant in all cases.

We can also see on the right panel of Figure 10 how AfCFTA-related tariff changes will affect the export potential to each market. The impact will be most significant in the Republic of the Congo where the export potential will increase by $14 million, followed by Algeria ($5 million), and Morocco ($4 million). As described for Western Africa in general, the erosion of tariff advantages associated to ECOWAS is likely to reduce the export potential in Senegal (-$1 million) and Mali (-$1 million).

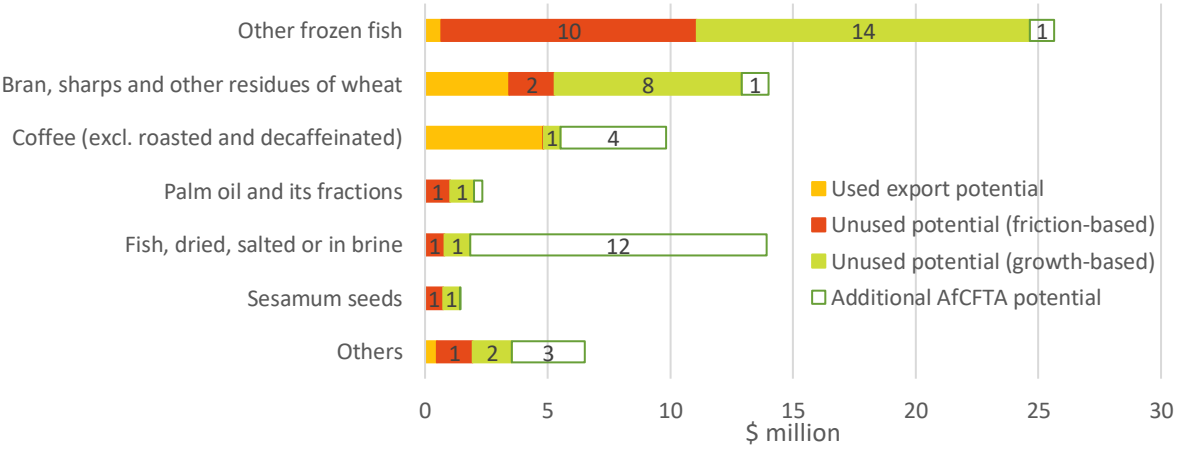
Figure 10: Used and unused intra-African agricultural export potential, total and by market



Source: ITC calculations based on Export Potential Map (2022) data.

Focusing now on the product dimension, Figure 11 shows a breakdown of Guinea's intra-African agricultural export potential and the likely increase in potential resulting from the AfCFTA. While for some products, such as dried fish, the potential is almost completely unused, for others, such as coffee, a sizable part of the potential is already used. As mentioned earlier, the unused export potential is highest for some types of frozen fish ($24 million) and wheat processing by-products ($9 million), which together represent almost 80% of the unused agricultural export potential to Africa. Other products with significant unused export potential are palm oil and dried fish, with $2 million each, and sesamum seeds and coffee, with $1 million each. It is also noteworthy that in the case of coffee, the unused potential is almost entirely driven by expectations of growth in coming years, whereas for the other main products, frictions also determine a significant part of the unused export potential.

Figure 11: Used and unused intra-African agricultural export potential, by product

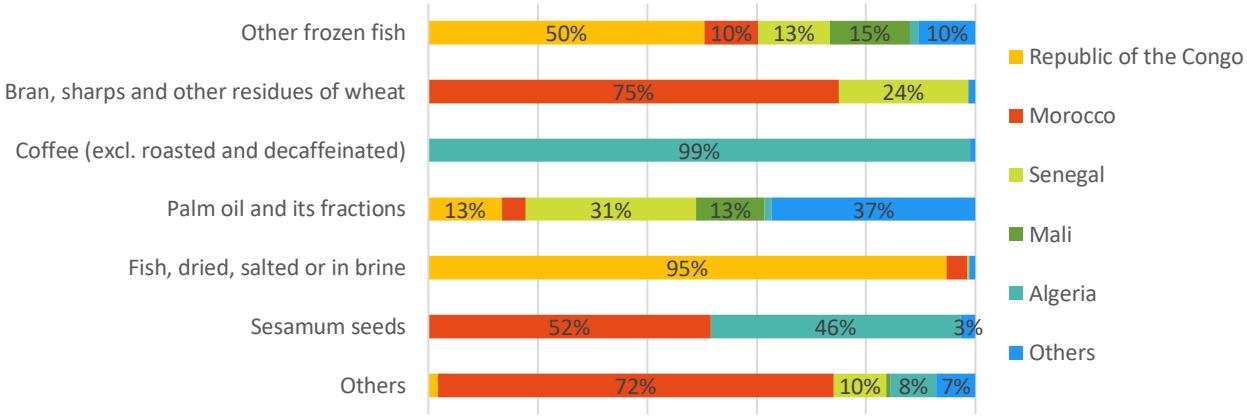


Source: ITC calculations based on Export Potential Map (2022) data.

Per projections, the AfCFTA could bring about new opportunities for exports, most remarkably for dried fish and coffee, adding an additional $12 million and $4 million to the export potential of those products, respectively.

Lastly, Figure 12 shows, for all key products mentioned above, what specific markets have untapped export potential, including the post-AfCFTA boost. For fish, both frozen and dried, the unused export potential is largely directed to the Republic of the Congo (50% and 95%, respectively), with relevant opportunities in Mali (15%), Senegal (13%) and Morocco (10%) for frozen fish as well. A significant part of the untapped potential of wheat by-products (75%) and sesamum seeds (52%) is in the Moroccan market. There are also substantial opportunities for export growth of coffee (99%) and sesamum seeds (46%) in Algeria.

Figure 12: Intra-Africa unused agriculture export potential, by market (post-AfCFTA)



Source: ITC calculations based on Export Potential Map (2022) data.

Note that the identification of unused export potential in the products highlighted above does not necessarily mean that the realization of that potential is desirable. As explained in more detail in Section II, the methodology applied cannot account for the consequences of the realization of the potential identified and should be complemented with additional contextual information whenever possible. This is relevant for example in the case of palm oil and its fractions, identified above as a product with a large untapped potential, but with well-known detrimental environmental effects.

Market access: tariffs

As described in Section 2, the export potential methodology takes into account the tariffs faced by Guinea in target markets and in other markets, as well as the tariffs faced by competitors in target markets and in other markets. This means that the results explored above already consider any tariff advantages or disadvantages Guinea may have in all possible markets.

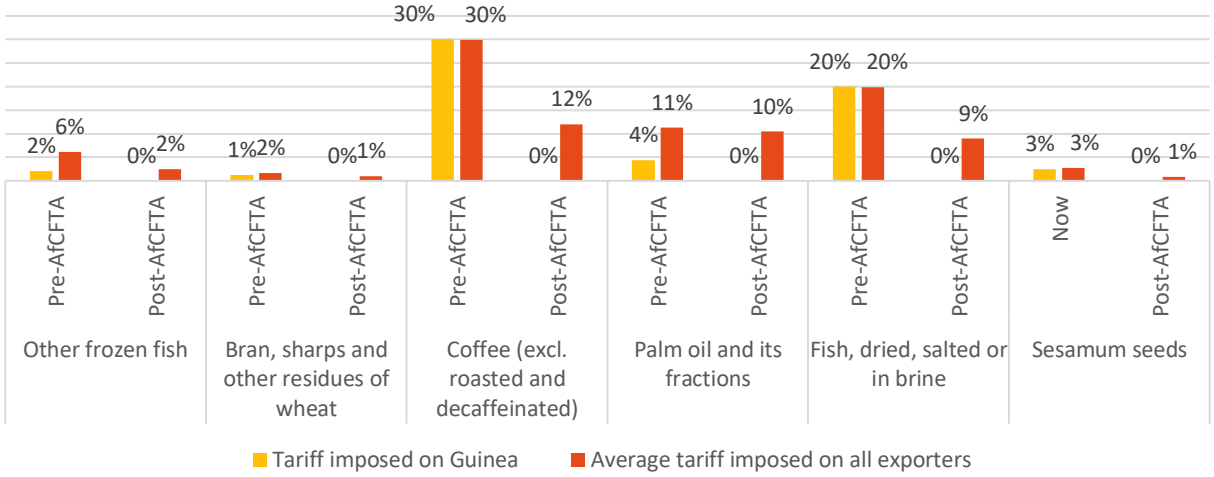
It is nevertheless relevant to explore the tariffs Guinea encounters in the products and markets identified in Figure 11 and Figure 12, to better understand the market access conditions exporters face in those cases and how their competitive position will change as AfCFTA tariffs are implemented. Figure 13 compares the tariffs faced by Guinea to the average tariff imposed on all exporters in the markets and products identified in Figure 11 and Figure 12, both currently and post-AfCFTA.

In the case of other frozen fish, the tariffs faced by Guinea are already low in the main markets (2%), giving Guinea a tariff advantage over competitors facing on average a 6% tariff rate. Under AfCFTA the tariffs faced by Guinea are 0% across the continent, but the average tariffs imposed on competitors descends as well, as African countries liberalize their intra-regional imports. This erodes the tariff advantage Guinea has in this product.

We can see that the opposite is the case for coffee and dried fish. For those products, Guinea faces on average high tariffs in the markets with the most untapped potential, 30% and 20% respectively, on par with the tariffs faced by competitors. Once AfCFTA tariffs are implemented, the average tariff faced by Guinea will become 0%, while the average tariff faced by competitors will be 12% and 9% respectively, giving Guinea a tariff advantage in exporting coffee and dried fish to markets with unused export potential. This increase in

the tariff advantage of Guinea explains the large increases in export potential observed for coffee and dried fish in Figure 11.

Figure 13: Pre- and post AfCFTA average tariffs in Africa, selected products



Source: ITC calculations based on Market Access Map (2022) data.

Market access: non-tariff measures (NTMs)

Besides tariffs, all countries in Africa have national rules and regulations, particularly sanitary and phytosanitary (SPS) procedures such as inspection and testing requirements, governing trade in agricultural products. These are applied on both exports and imports and can often become obstacles to trade owing to the multiple administrative requirements as well as the often unavoidable, high fees and charges they may impose on exporters. The types on non-tariff measures (NTMs) can be the sort of hurdles that explain the friction-based unused export potential discussed so far.

While NTMs are pervasive, detailed data on them is difficult to obtain. An ITC survey on the matter deployed in 2012 reported several challenges faced by exporters of coffee.[12] Guinean exporters face several inspection and product certification or licensing requirements at home, when exporting. At the time of the survey, exporters reported some of their main challenges to be frequent delays, additional unexpected fees at the border, the requirement to furnish multiple documents and high inspections costs. Damage of export goods is also reported by some exporters. In importing countries, Guinean exporters of coffee find product certification, inspection, and testing requirements particularly strict and hard to comply with. Delays at the border as well as high costs when exporting to Senegal, Algeria, and Morocco, were also reported.

Box 2: Commonly reported non-tariff barriers at home and in partner countries

- ✗ Time consuming and expensive inspections, often resulting in damage
- ✗ Multiple documentation requirements
- ✗ Complex product registration and certification requirements
- ✗ Expensive storage and transportation requirements
- ✗ Unexpected additional fees

For fish and fish products, strict and expensive inspections requirements at the time of export were cited as a key cause of delays. Storage and transportation related requirements too can become challenging in some cases. For instance, Senegal and Mali require imported fish to be stored in special containers, which are often difficult to obtain, as well as to be transported in refrigerated trucks, which are often expensive. Product registration requirements applied by these countries are also indicated as being cumbersome by a few Guinean exporters.

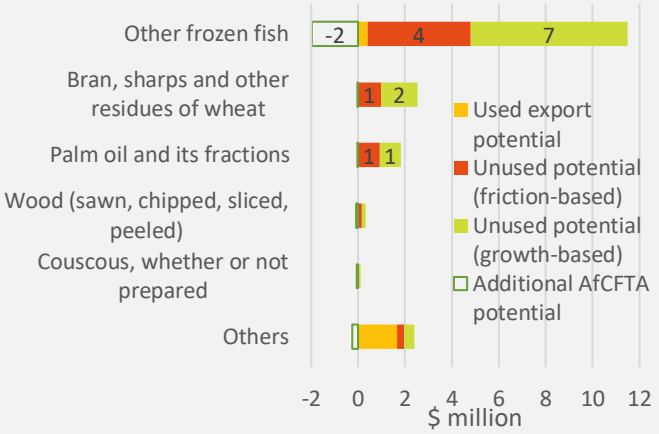
[12] Additional information on the survey, its methodology and results can be found in https://ntmsurvey.intracen.org.

Box 3: Western African markets and the AfCFTA in focus

Barring the uncertain context of the past year, ECOWAS has long been a natural trading partner for Guinea. Agriculture has not been an exception, as shown in Figure 5 a large part of Guinea's agricultural exports to Africa is concentrated in Western Africa. Additionally, a significant part of the untapped agricultural export potential is destined for that region, as explored in Figure 8.

Against this background, it is of special interest to understand how the full implementation of AfCFTA might affect Guinea's opportunities for agricultural exports in Western Africa. Figure 10 showed a total of $7 million of unused agricultural export potential to the region related to frictions, and $10 million connected to global expectations of growth, but also a decrease of -$2 million in total export potential under the full implementation of AfCFTA tariffs.

Figure B. 1: Used and unused agricultural export potential to Western Africa, by product



Source: ITC calculations based on Export Potential Map (2022) data.

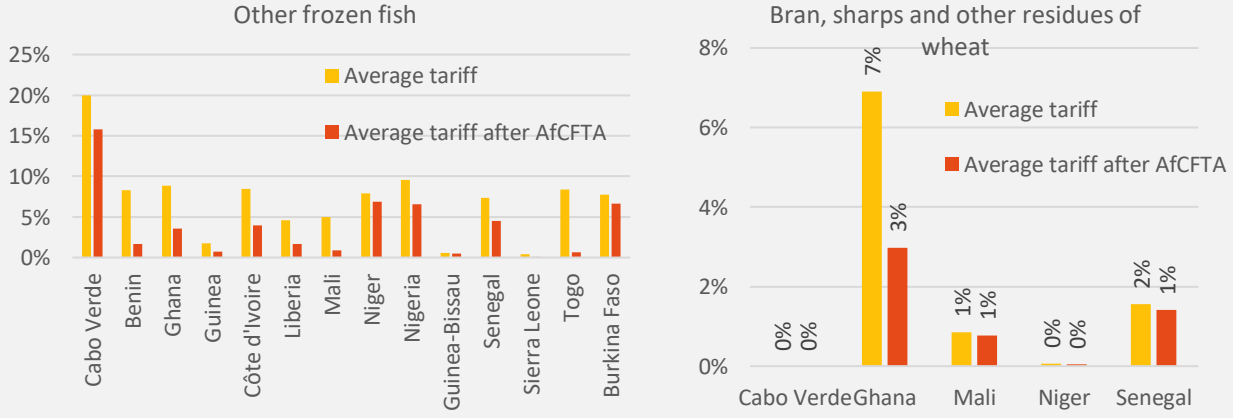
In order to better understand this effect, Figure B. 1 explores Guinea's used and unused agricultural export potential to Western Africa by product. The products with the most untapped export potential are some types of frozen fish, by-products of wheat and palm oil, some types of wood and couscous. It is clear from Figure B. 1 that the effect of AfCFTA tariffs on export potential is concentrated on some types of frozen fish.

Figure B. 2 can shed some light on this, by exploring side by side the change in the average tariffs imposed by Western African countries on all partners pre- and post-AfCFTA, on other frozen fish on the left and on wheat by-products on the right.

In both cases, the countries featured are those in which Guinea has export potential in 2026. We can see on the left that all countries will be lowering the average tariff they impose on other frozen fish significantly under AfCFTA. Importantly, that is the case for Mali and Senegal, Guinea's main potential markets for the product in the region. This means that part of the advantage that Guinea has before AfCFTA is eroded once tariffs are reduced for competitors in Mali and Senegal, reducing Guinea's export potential.

In contrast, on the right we can see that for most of the countries in which Guinea has export potential for wheat by-products, average tariffs imposed will barely change under AfCFTA, except for the case of Ghana, where Guinea's potential is extremely small. This means that the tariff advantage that Guinea has when exporting this product to the region will remain largely unaffected by the implementation of AfCFTA tariffs.

Figure B. 2: Pre- and post-AfCFTA average Western African tariffs on imports of select products



Source: ITC calculations based on Market Access Map (2022) data.

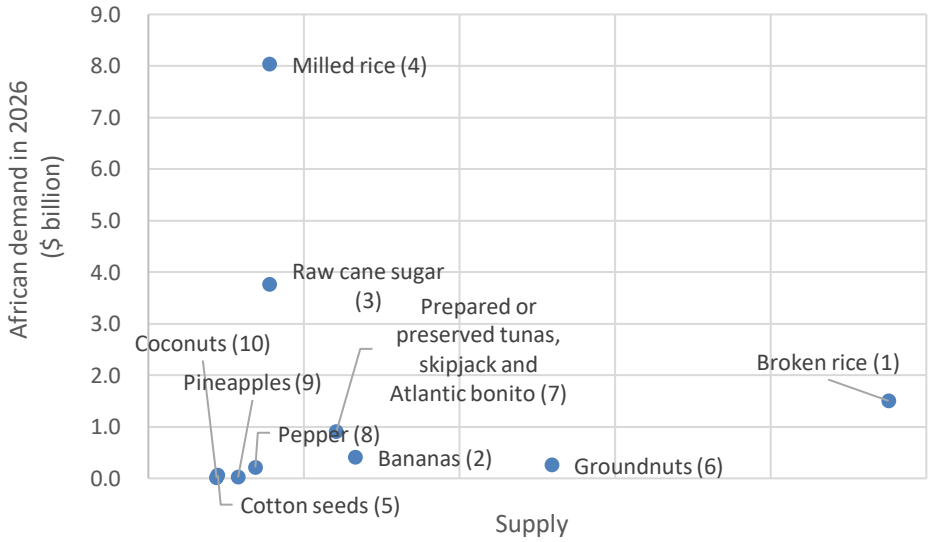
SECTION 4 EXPLORING DIVERSIFICATION OPPORTUNITIES

The previous section explored the opportunities for Guinea to increase its existing agricultural exports and to diversify them to new markets, focusing on Africa. That exercise is complemented by this section, which explores opportunities for Guinea to diversify its exports to new agricultural products, and to products with value added derived from agricultural products, again focusing on African markets.

Export diversification potential

Agricultural export diversification opportunities for Guinea lie mainly among vegetal products, cereals and cereal products and horticulture. Figure 14 showcases the top 10 most promising products for agricultural export diversification in Africa, including their ranking. An indicator of supply likelihood by Guinea is plotted on the x-axis, and the projected demand for each product in Africa in 2026 on the y-axis.[13] Note how in some cases, such as broken rice and groundnuts, the likelihood of Guinea exporting a product successfully to Africa is driven by supply considerations, whereas in other cases, such as milled rice and raw cane sugar, it is driven by the demand for that product projected for Africa in 2026.

Figure 14: Top 10 opportunities for agricultural product diversification in Africa



Note: values on the x-axis correspond to the estimated supply factor considered in the horizontal diversification methodology, a measure that reflects the "similarity" of the product in question with Guinea's current export basket. The scale of the measure is not informative, just the relative position of different products. The values after each label correspond to the PDI ranking of these products, among agricultural exports to Africa.
Source: ITC calculations based on the PDI methodology outlined in Section II.

Rice, both broken and semi/wholly milled stand out. Currently, rice is a key staple in the Guinean diet, and accounted for over 70% of the country's total agricultural imports during 2016-2020. This suggests that domestic production is unable to meet domestic demand, which in turn may indicate a need to increase investment in the sector. In fact, foreign firms are already looking to invest in rice production in the northern region of Boke. The government too, is self-funding the construction of a rice irrigation project on the Koundian plain outside of Kankan (ITA, 2021).

Amongst horticulture products, bananas, pepper, pineapples, and fresh coconuts are promising. Bananas and pineapples have already been identified, along other plants, fruits and vegetables, as having significant

[13] The product descriptions have been shortened to better fit the chart, for a full description and product code, please see Table A. 2.

investment potential, if compliance with sanitary and phytosanitary (SPS) regulations is enhanced (ITA, 2021).

Cane sugar and some types of oil seeds including cotton seeds and groundnuts, too, carry diversification potential. Note that Guinea already exports, and has untapped export potential in, sesamum, as indicated in the preceding section. Prepared or preserved tunas, skipjack and Atlantic bonito can also be considered for diversification of Guinea's agricultural export bundle.

As far as projected demand is concerned, rice (both broken and milled) and raw cane sugar have the highest import demand in Africa, projected to reach a total of $9.5 billion and $3.8 billion in 2026, respectively. The African import demand for Prepared or preserved tunas, skipjack and Atlantic bonito is projected at $907 million for 2026, that of bananas at $406 million, groundnuts at $259 million, pepper at $212 million, cotton seeds at $59 million, pineapples at $20 million and fresh coconuts at $9 million. Only in the cases of rice (both broken and milled) and cotton seeds does this projected demand originate mostly or largely in Western Africa. Box 4 details the main projected importing markets in Africa for the products identified in Figure 14 as Guinea's best opportunities to diversify its agricultural exports to the continent.

Box 4: Projected import demand (2026) in main African markets

✓ **Broken rice (1):** Senegal ($603 million), Côte d'Ivoire ($227 million), Gambia ($94 million)

✓ **Bananas (2):** Algeria ($147 million), South Africa ($69 million), Senegal ($44 million)

✓ **Raw cane sugar (3):** Algeria ($1 billion), Nigeria ($675 million), Morocco ($565 million)

✓ **Semi-milled or wholly milled rice (4):** Benin ($1.4 billion), Côte d'Ivoire ($841 million), South Africa ($599 million)

✓ **Cotton seeds (5):** Mali ($37 million), South Africa ($5 million), Burkina Faso ($4 million)

✓ **Groundnuts (6):** Algeria ($105 million), South Africa ($53 million), Kenya ($20 million)

✓ **Prepared or preserved tunas, skipjack, and Atlantic bonito (7)**: Libya ($345 million), Egypt ($300 million), Algeria ($73 million)

✓ **Pepper (8):** Egypt ($84 million), Senegal ($39 million), Morocco ($32 million)

✓ **Fresh or dried pineapples (9):** Morocco ($10 million), Egypt ($3 million), Cabo Verde ($1 million)

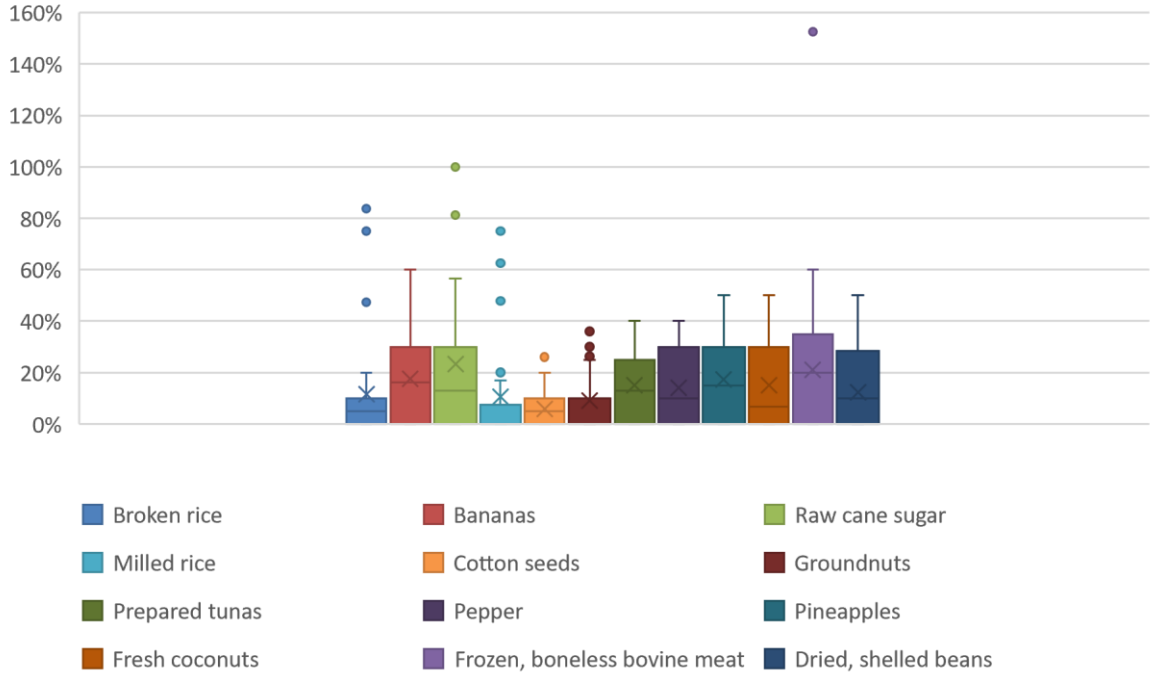
✓ **Fresh coconuts (10):** Egypt ($2 million), Senegal ($1 million), Mauritius ($1 million)

Note: import demands projected to 2026 are calculated based on the market's current total imports of the specific product, its projected GDP per capita growth, and the sensitivity of that product's import demand to changes in GDP per capita, as defined by the revenue elasticities calculated at the HS2 chapter level.

As detailed in Section II, the methodology used to identify the products featured in Figure 14 already takes into account all tariffs applied on imports from Guinea and from competitors. It is nevertheless interesting to see that, with the exception of Western African countries, where Guinean exporters enjoy duty-free access through ECOWAS, tariffs on these products in Africa can be quite high (Figure 15). For example, for broken and semi-milled or wholly milled rice, tariffs can be as high as 84% in Uganda and 75% in Burundi, while average tariffs for bananas and raw cane sugar are close to 20% with peaks at 60% and 100%, respectively.

Among the products highlighted, average tariffs for cotton seeds and groundnuts are the lowest, at 6% and 9%.

Figure 15: Tariffs faced in Africa, selected products



Note: the middle line of the box represents the median tariff faced in Africa by Guinean exports of each product, x in the box represents the mean. The bottom line of the box represents the first quartile. The top line of the box represents the third quartile. The vertical lines extend from the ends of the box to the minimum and maximum values. The dots are outliers.
Source: ITC calculations based on Market Access Map (2022) data.

The full implementation of the AfCFTA will drastically change this tariff landscape, as 0% tariffs are expected for most products across the continent. Despite the large changes in tariffs, the diversification opportunities identified so far will hardly be altered: frozen, boneless, frozen meat of bovine animals and dried, shelled beans will join the top 10 products Guinea is most likely to be able to successfully export to Africa, while pineapples and fresh coconuts will become relatively less attractive options for diversification. Under AfCFTA tariffs, the remaining products featured in Figure 14 will still be Guinea's best options for product diversification in agricultural exports to Africa, but they will be in higher demand, prompted by the lower tariffs.

Value-added diversification of exports

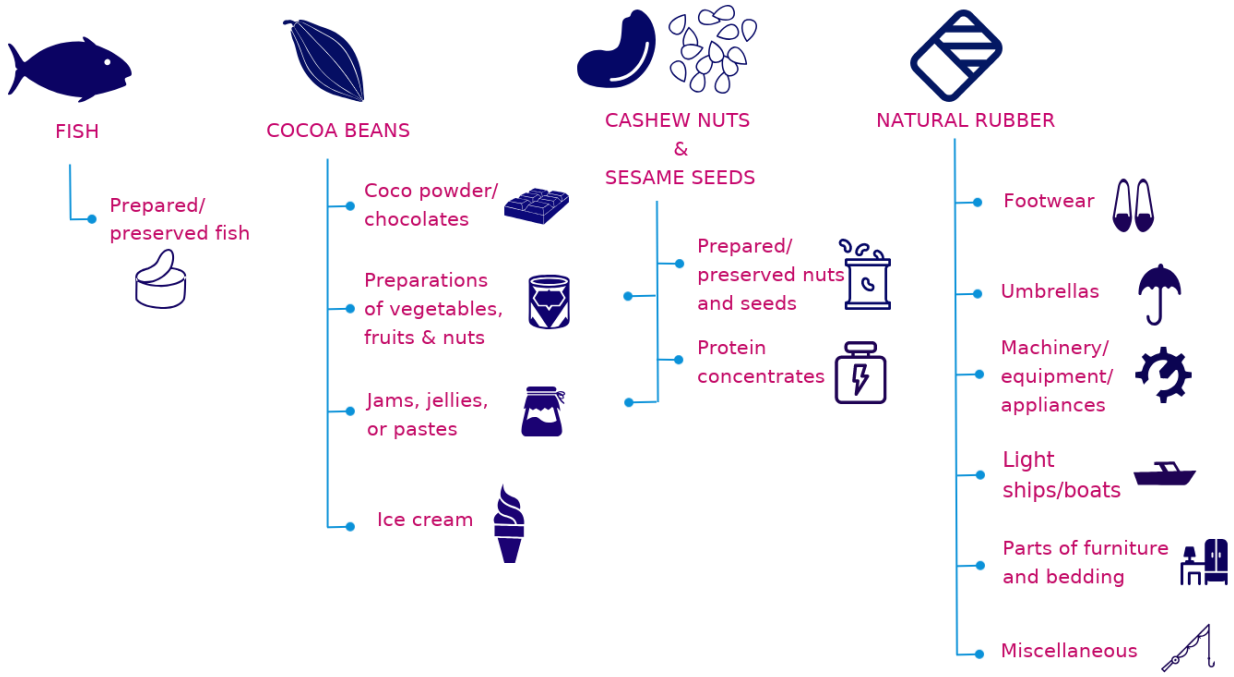
As mentioned in Section II, to identify opportunities for exports of processed, higher value-added products, the VCI methodology takes into account aspects of demand and ease of trade with specific partners, as the EPI and PDI do. In addition, when considering supply aspects, the VCI methodology focuses on the probability that Guinea will be able to export a certain new processed product, given how competitive it is in exporting its inputs and given its similarity, in terms of competitiveness, to other countries that are able to export the processed product in question.

Guinea enjoys a revealed comparative advantage (RCA) in several products, implying that it is competitive in exporting them.[14] Nearly all of these products can be used as inputs to produce higher value-added products, facilitating export diversification through value chain upgrading.

[14] The revealed comparative advantage (RCA) of a country in a product is measured by the product's share in the country's exports relative to its share in world trade. If the RCA is less than 1, this implies that the country is not specialized in exporting the product (the

For agri-based inputs, the VCI shows a wide set of such transformation opportunities available to Guinea that mainly revolve around four groups of input products, in which Guinea enjoys an RCA. These are: (i) fish (ii) cocoa beans, (iii) sesamum seeds and cashew nuts, and (iv) natural rubber. Figure 16 links these products as inputs to their corresponding outputs with potential, identifying these value chains as promising avenues for investment.

Figure 16: Value chain development opportunities, by selected input products



Note: a detailed list of inputs and outputs can be found in Appendix III.
Source: ITC calculations based on the methodology used in ITC (2018).

Note that the VCI results shown in Figure 16 are based on pre-AfCFTA simulations. However, similar simulations were explored under AfCFTA tariffs, which showed negligible differences in results. The value-added products Guinea is most likely to export successfully are the same under AfCFTA tariffs, but they will benefit from an increased demand in Africa.

Beyond the results presented in this section, it is important to recall that agri-processing in Guinea is currently negatively impacted by low firm capabilities in technology, research and development, and innovation, as well as in some types of labour skills (IFC, 2020). Consequently, developing these value chains will require large investments across the spectrum, as well as significant support to production capacities.

A full list of the products (inputs and corresponding outputs) featured in Figure 16 can be found in Appendix III. Additional information on each of these value chains follows.

Fish and fish products for the preparation or preservation of fish

Other frozen fish (0303Xa), frozen flatfish (0303Xb) and frozen sole "Solea spp." (030333) are fish products in which Guinea has an RCA and that can be inputs for prepared or preserved fish (160420).

share of that product in the country's exports is less than the corresponding world share). Similarly, if the index exceeds 1, this implies that the country is specialized in exporting that product.

The combined exports of these inputs were on average $46 million per year during 2016-2020. African import demand for prepared or preserved fish is projected to be $111 million by 2026, almost doubling its current level.

The average tariff faced by Guinea on its exports of prepared or preserved fished to the continent is 16%, not much lower than the average tariff imposed by African countries in general, of 18%. With the exception of other ECOWAS member states, where Guinean exporters face no tariffs, prepared or preserved fish from Guinea can face significant tariffs in the rest of Africa, reaching for example 40% in Morocco and Sudan, 30% in several markets, such as Algeria, Chad and Cameroon, and 20% in Mauritania, Madagascar and Mozambique, among others. The elimination of such tariffs within the continent under AfCFTA is expected to boost the demand for prepared or preserved fish, and also to give Guinea a tariff advantage over competitors that will face an average 9% tariff.

Cocoa beans as an input in the production of chocolates and related food products

Guinea's exports of cocoa beans, whole or broken, raw or roasted (180100) averaged $31 million between 2016 and 2020. Cocoa beans can be used as inputs in the production of cocoa powder, chocolates, purees and pastes, ice-creams, and other food products. Combined African demand for these products, now at $1.2 billion, is expected to reach $2.3 billion by 2026, half of which is demand for chocolates.

Aside from tariff-free access to ECOWAS markets, the tariffs currently faced by Guinea on chocolates and related food products in Africa are high, on par with those faced by the rest of the world, with averages between 16% and 21%. These tariffs are expected to be eliminated for Guinea under the AfCFTA, while tariffs imposed on these products to the world in general will remain significant, with averages between 6% and 18%.

Sesamum seeds and cashew nuts as inputs for food products

Sesamum seeds (120740) and cashew nuts (080131) can be used as inputs in a variety of food products including jams, jellies, marmalades, purées or pastes of fruit (200799), nuts and seed mixtures (200819), protein concentrates (210610), as well as other forms of preserved fruits and vegetables (200190 and 200600).

Guinea's exports of sesamum seeds were on average $4 million a year between 2016 and 2020, and $59 million for cashew nuts (in shell). The food products to which sesamum seeds and cashews can contribute will face a demand of $732 million by 2026 in Africa, up from their current $402 million. Demand for these products within the ECOWAS region is and will continue to be small.

These food products currently face average tariffs between 11% and 22% in Africa, while other exporters to the continent face average tariffs between 9% and 18%. Average tariffs imposed on other exporters will remain similar under AfCFTA, granting Guinea a tariff advantage.

Additionally, per ITC survey data, non-tariff bottlenecks to trade are reported by Guinean exporters of nuts and seed mixtures to some African countries. For example, some exporters have indicated having to pay a high surcharge or landing fee at the border when exporting to Mali.

Natural rubber as an input for footwear, parts of furniture and bedding, and some types of machinery and appliances

Technically specified natural rubber "TSNR" (400122) and natural rubber in primary forms or in plates, sheets, or strip (400129) reached an average of $23 million in export value during 2016-2020. These rubber products can serve as important inputs in the production of a wide range of outputs. Among them, some of the most promising products for Guinea are footwear, umbrellas, some types of machinery, equipment and mechanical appliances, light boats and vessels (e.g., inflatable boats), parts of furniture and bedding (e.g., mattresses), and others.

The combined demand for all of these products within Africa is projected to nearly double by 2026, from the current $8 billion to $15 billion, 60% of which corresponds to demand for footwear. The ECOWAS region will account for a third of this demand.

Currently, Guinean exports of these products face average tariffs between 2% and 22% in Africa, as do all other competitors. With the implementation of the AfCFTA, average tariffs for other countries are expected to experience little change. This implies that Guinea will have a tariff advantage under AfCFTA.

Box 5: Spotlight on cashews

Currently, over 80% of Africa's $49 million demand for imports of shelled cashews is served by Viet Nam. African import demand for shelled cashew nuts is expected to be close to $100 million in 2026.

Guinea currently exports both shelled and in-shell cashew nuts. Cashew nuts in shell are among Guinea's top 10 products with potential for export growth, to all regions in the world, among them Africa. Conversely, shelled cashew nuts only show a low potential for export growth for Guinea.

The average unit value, a proxy for price, of cashews in shell exported by African countries between 2016 and 2020 was $1,538 per ton. During the same period, the unit value for shelled cashews exported by African countries averaged $3,861 per ton.* The difference in unit prices between in shell and shelled cashews shows that, while the processing stage requires capital investment and increases labour costs, there is a large mark-up for value-addition. It is important therefore to understand why Guinean producers and exporters find difficulty to move downstream.

In addition, shelling cashew nuts opens up a number of additional opportunities to produce and export other products, some of them discussed in Figure 16. Cashew nut shells can be used to produce oil and biofuel.

However, it is important to also highlight the well-known concerns over the rights, health and safety of workers that are inherent to the processing of cashews, due to the labour-intensive nature of cashew processing and the exposure it requires to the toxic substances released by the nut skin. In considering the development of exports of cashew nuts and by-products in Guinea, efforts should be planned to pre-empt such concerns.

* Data from Trade Map (2022).

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APPENDICES

Appendix I Definition of agricultural sector

Table A. 1: Definition of agricultural sector

Industry	Sub-sector
Agriculture	Cereals (except wheat & rice)
	Coffee
	Crops n.e.s.
	Fruits
	Live animals (except poultry)
	Live animals (poultry)
	Live plants, flowers, foliage
	Nuts
	Pulses
	Raw silk & wool
	Rice
	Seeds for sowing
	Spices
	Tobacco leaves
	Vegetables
	Vegetal residues & animal feed
	Vegetal textile fibres
	Wheat
Fisheries	Fish & shellfish
Food	Animal fat
	Animal products (not edible)
	Beverages (alcoholic)
	Beverages (not alcoholic)
	Cereals (processed)
	Cocoa beans & products
	Dairy products
	Eggs, honey and edible animal products n.e.s.
	Fish products (processed)
	Food products n.e.s. (processed or preserved)
	Meat (except poultry)
	Meat (poultry)
	Oil seeds
	Processed meat
	Sugar
	Tea & mate
	Vegetable oils & fats
Others	Natural latex & rubber
	Wood

Appendix II Opportunities for agricultural diversification in Africa

The top 10 products with potential for export diversification destined to Africa, as identified by the PDI and reflected in Figure 14, are as follows:

Table A. 2: Top 10 products with potential for export diversification destined to Africa

Rank	Code	Description
1	100640	Broken rice
2	0803	Bananas, incl. plantains, fresh or dried
3	170111, 170113, 170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter
4	100630	Semi-milled or wholly milled rice, whether or not polished or glazed
5	120720, 120721, 120729	Cotton seeds
6	1202	Groundnuts, whether or not shelled or broken (excl. roasted or otherwise cooked)
7	160414	Prepared or preserved tunas, skipjack and Atlantic bonito, whole or in pieces (excl. minced)
8	090411	Pepper of the genus Piper, neither crushed nor ground
9	080430	Fresh or dried pineapples
10	080112 080119	Fresh coconuts
9 (post-AfCFTA)	020230	Frozen, boneless meat of bovine animals
10 (post-AfCFTA)	071334, 071335, 071339	Dried, shelled beans "Vigna and Phaseolus" (excl. beans of species "Vigna mungo [L.] Hepper or Vigna radiata [L.] Wilczek", small red "Adzuki" beans and kidney beans)

Source: ITC calculations based on the PDI methodology outlined in Section II.

Appendix III Opportunities for value-added diversification in Africa based on agricultural inputs

Fish and prepared/preserved fish products

Inputs	Output
030333 Frozen sole "Solea spp."	160420 Prepared or preserved fish (excl. whole or in pieces)
0303Xa Other frozen fish	
0303Xb Frozen flatfish "Psetta maxima, Pleuronectidae, Bothidae, Cynoglossidae, Soleidae, Scophthalmidae and Catharidae" (excl. halibut, plaice and sole)	

Cocoa beans and products

Inputs	Output
180100 Cocoa beans, whole or broken, raw or roasted	180610 Cocoa powder, sweetened
	180620 Chocolate and other food preparations containing cocoa, in blocks, slabs or bars weighing > 2 kg or in liquid, paste, powder, granular or other bulk form, in containers or immediate packings of a content > 2 kg (excl. cocoa powder)
	180631 Chocolate and other preparations containing cocoa, in blocks, slabs or bars of <= 2 kg, filled
	180632 Chocolate and other preparations containing cocoa, in blocks, slabs or bars of <= 2 kg (excl. filled)
	180690 Chocolate and other preparations containing cocoa, in containers or immediate packings of <= 2 kg (excl. in blocks, slabs or bars and cocoa powder)
	200600 Vegetables, fruit, nuts, fruit-peel and other edible parts of plants, preserved by sugar "drained, glacé or crystallised"
	200799 Jams, jellies, marmalades, purées or pastes of fruit, obtained by cooking, whether or not containing added sugar or other sweetening matter (excl. citrus fruit and homogenised preparations of subheading 2007.10)
	210390 Preparations for sauces and prepared sauces; mixed condiments and seasonings (excl. soya sauce, tomato ketchup and other tomato sauces, mustard, and mustard flour and meal)
	210500 Ice cream and other edible ice, whether or not containing cocoa

Cashew nuts, sesamum seeds and prepared/processed food products

Inputs	Output
080131 Fresh or dried cashew nuts, in shell	151790 Edible mixtures or preparations of animal or vegetable fats or oils and edible fractions of different fats or oils (excl. fats, oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refine
120740 Sesamum seeds, whether or not broken	200190 Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid (excl. cucumbers and gherkins)
	200600 Vegetables, fruit, nuts, fruit-peel and other edible parts of plants, preserved by sugar "drained, glacé or crystallised"
	200799 Jams, jellies, marmalades, purées or pastes of fruit, obtained by cooking, whether or not containing added sugar or other sweetening matter (excl. citrus fruit and homogenised preparations of subheading 2007.10)
	200819 Nuts and other seeds, incl. mixtures, prepared or preserved (excl. prepared or preserved with vinegar, preserved with sugar but not laid in syrup, jams, fruit jellies, marmalades, fruit purée and pastes, obtained by cooking, and groundnuts)
	210610 Protein concentrates and textured protein substances

Natural rubber and rubber products

Input	Output
400122 Technically specified natural rubber "TSNR"	392620 Articles of apparel and clothing accessories produced by the stitching or sticking together of plastic sheeting, incl. gloves, mittens, and mitts (excl. goods of 9619)
400129 Natural rubber in primary forms or in plates, sheets or strip	630790 Made-up articles of textile materials, incl. dress patterns, n.e.s.
	640220 Footwear with outer soles and uppers of rubber or plastics, with upper straps or thongs assembled to the sole by means of plugs (excl. toy footwear)
	6402XX Footwear with outer soles and uppers of rubber or plastics (excl. with upper straps or thongs assembled to the sole by means of plugs, waterproof footwear of heading 6401, sports footwear, orthopaedic footwear and toy footwear)
	640319 Sports footwear, with outer soles of rubber, plastics, leather or composition leather and uppers of leather (excl. ski-boots, cross-country ski footwear, snowboard boots and skating boots with ice or roller skates attached)
	640340 Footwear, incorporating a protective metal toecap, with outer soles of rubber, plastics, leather or composition leather and uppers of leather (excl. sports footwear and orthopaedic footwear)
	6403XX Footwear with outer soles of rubber, plastics or composition leather, with uppers of leather (excl. incorporating a protective metal toecap, sports footwear, orthopaedic footwear and toy footwear)
	640411 Sports footwear, incl. tennis shoes, basketball shoes, gym shoes, training shoes and the like, with outer soles of rubber or plastics and uppers of textile materials
	640419 Footwear with outer soles of rubber or plastics and uppers of textile materials (excl. sports footwear, incl. tennis shoes, basketball shoes, gym shoes, training shoes and the like, and toy footwear)
	640420 Footwear with outer soles of leather or composition leather and uppers of textile materials (excl. toy footwear)
	640510 Footwear with uppers of leather or composition leather (excl. with outer soles of rubber, plastics, leather or composition leather and uppers of leather, orthopaedic footwear and toy footwear)
	640520 Footwear with uppers of textile materials (excl. with outer soles of rubber, plastics, leather or composition leather, orthopaedic footwear and toy footwear)
	640590 Footwear with outer soles of rubber or plastics, with uppers other than rubber, plastics, leather or textile materials; footwear with outer soles of leather or composition leather, with uppers other than leather or textile materials; footwear with outer soles of wood, cork, paperboard, furskin, felt, straw, loofah, etc., with uppers other than leather, composition leather or textile materials, n.e.s.
	640610 Uppers and parts thereof (excl. stiffeners and general parts made of asbestos)
	640620 Outer soles and heels of rubber or plastics
	640690 Parts of footwear; removable in-soles, heel cushions and similar articles; gaiters, leggings and similar articles, and parts thereof (excl. outer soles and heels of rubber or plastics, uppers and parts thereof other than stiffeners, and general parts made of asbestos)
	660191 Umbrellas having a telescopic shaft (excl. toy umbrellas)

	660199 Umbrellas and sun umbrellas, incl. walking-stick umbrellas (excl. umbrellas having a telescopic shaft, garden umbrellas and the like, and toy umbrellas)
	842649 Mobile cranes and works trucks fitted with a crane, self-propelled (excl. those on tyres and straddle carriers)
	842911 Self-propelled bulldozers and angledozers, track laying
	842952 Self-propelled mechanical shovels, excavators and shovel loaders, with a 360° revolving superstructure
	842959 Self-propelled mechanical shovels, excavators and shovel loaders (excl.self-propelled mechanical shovels with a 360° revolving superstructure and front-end shovel loaders)
	843351 Combine harvester-threshers
	843780 Machinery used in the milling industry or for the working of cereals or dried leguminous vegetables (excl. farm-type machinery, heat treatment equipment, centrifugal dryers, air filters and machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables)
	8508XX Vacuum cleaners, incl. dry cleaners and wet vacuum cleaners, with self-contained electric motor
	890400 Tugs and pusher craft
	890590 Light-vessels, fire-floats, floating cranes and other vessels, the navigability of which is subsidiary to their main function (excl. dredgers, floating or submersible drilling or production platforms; fishing vessels and warships)
	940390 Parts of furniture, n.e.s. (excl. of seats and medical, surgical, dental or veterinary furniture)
	940421 Mattresses of cellular rubber or plastics, whether or not covered
	940429 Mattresses, fitted with springs or stuffed or internally filled with any material (excl. cellular rubber or plastics, pneumatic or water mattresses and pillows)
	940490 Articles of bedding and similar furnishing, fitted with springs or stuffed or internally filled with any material or of cellular rubber or plastics (excl. mattress supports, mattresses, sleeping bags, pneumatic or water mattresses and pillows, blankets and covers)
	950510 Christmas articles (excl. candles and electric lighting sets, natural Christmas trees and Christmas tree stands)
	960321 Toothbrushes, incl. dental-plate brushes
	960329 Shaving brushes, hair brushes, nail brushes, eyelash brushes and other brushes for use on the person (excl. tooth brushes)
	961700 Vacuum flasks and other vacuum vessels, and parts thereof (excl. glass inners)