Illegal Deforestation for Forest Risk Commodities Dashboard: Tanzania

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This dashboard was written by Cassie Dummett and Sofia Tenorio Fenton. Thank you to Kerstin Canby and Arthur Blundell of Forest Trends and Dr. Nike Doggart of the University of Leeds for providing feedback on this document.

SUMMARY OF RISKS

- Governance Risk Score: 67.95 (Higher risk)[1]
- Conflict State: NO[2]

While there are data broadly linking commodities to deforestation in Tanzania, it is harder to disaggregate by specific commodity. Roughly half of Tanzania's forests are protected. However, due to significant governance and enforcement challenges across both the forest and agricultural sectors, commodities that are not traceable to their source are at risk of being linked to illegal deforestation.

- Agriculture is the main driver of forest loss in Tanzania, mostly due to production of commodities consumed domestically, including maize, cattle products, sunflower seeds, vegetables, and groundnuts.
- Export-oriented cash crops, particularly tobacco, as well as cashew, sesame, cotton, coffee, and sunflower seed are also associated with deforestation. These exports carry a risk of products linked to illegal deforestation entering regulated markets.
- Commodities sourced from Protected Areas (PAs) have a high risk of illegality. Twenty-six percent of all forest loss occurred in PAs between 2001 and 2021, indicating inadequate levels of protection.
- Any forested area outside PAs and without a community management plan is at risk of deforestation and forest degradation. A large portion of the forest land in the country (~ 50 percent) falls under village or general land.
- Domestic forest policy does not focus on agro-conversion, although the national REDD+ strategy highlights the need to address illegal logging. Forest sector development plans have set ambitious targets for the expansion of tree plantations, which caused significant deforestation in the 2010s. The National Agriculture Policy incentivizes agricultural productivity, sometimes to the detriment of forests.

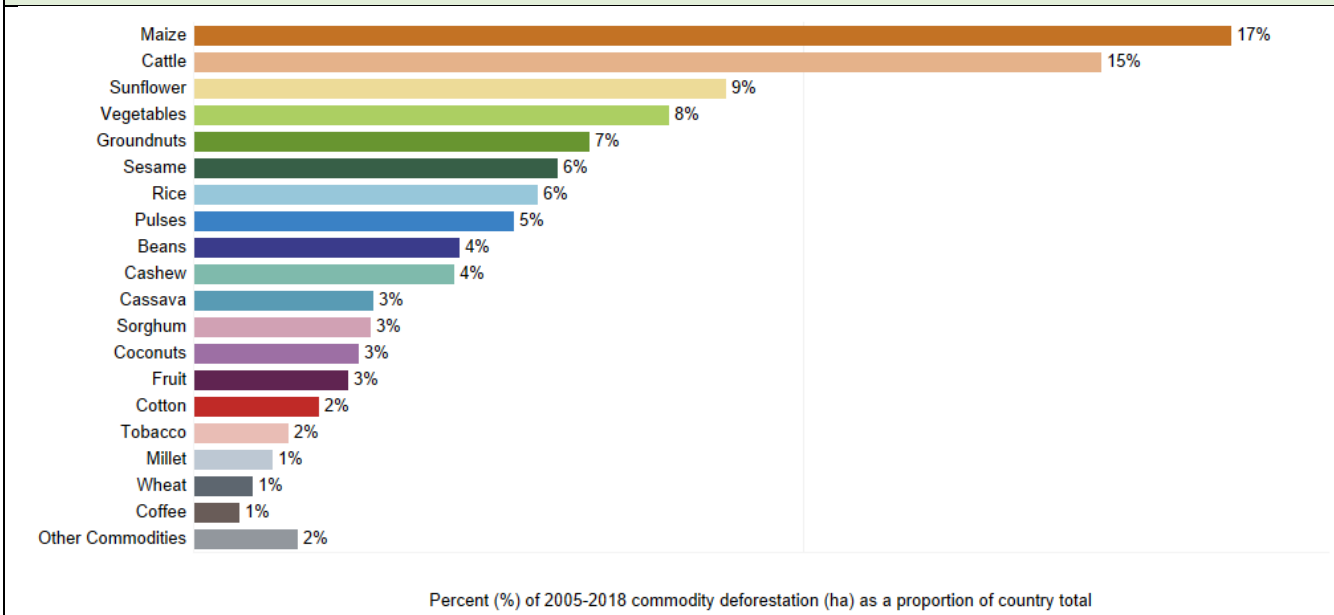
SUMMARY OF FRCs

- Main production of forest-risk commodities (FRCs) tied to deforestation: [a,3]
  - Tobacco*
  - Maize
  - Cattle
  - Sunflower
  - Vegetables
  - Groundnuts
  - Sesame
  - Rice
  - Pulses
  - Beans

*Based on Pendrill et al. data alone, tobacco would not be on the top ten commodities tied to deforestation in Tanzania (see Tanzania's commodity-linked deforestation as a proportion of total chart). However, additional research (see chapter below) shows that if along with cultivated area, the estimate accounts for associated forest clearing for fuel for the curing process, tobacco would then be the top high-risk commodity in the country.

- Main FRCs exported to international markets and percentage of total production[4] exported:
  - Wheat (100%)
  - Coffee (95%)
  - Cashew (90%)
  - Tobacco (78%)
  - Cotton (22%)
  - Sesame (20%)
  - Maize (2%)
  - Rice (3%)
  - Pulses (15%)
  - Sunflower (8%)
  - Vegetables (1%)

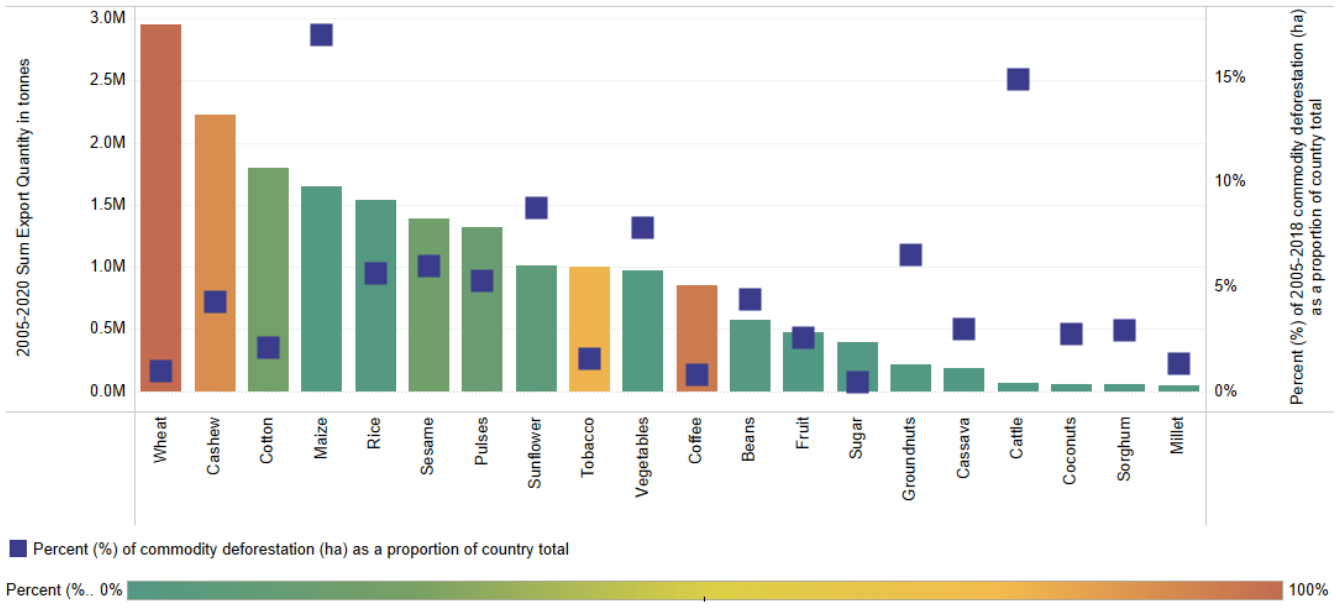
TANZANIA'S COMMODITY-LINKED DEFORESTATION AS A PROPORTION OF COUNTRY TOTAL (%)[b,5]



[a] Data refers to amortized deforestation as reported by Pendrill, et al. 2022. Amortized deforestation refers to amount of deforestation risk embodied in the production of associated commodities. Not all land use change result in production of commodities.

[b] Data considers only Pendrill et al. 2022 values on amortized deforestation risk.

TANZANIA'S FRC EXPORTS AND PROPORTION OF COMMODITY-LINKED DEFORESTATION (%)[c,6]



LAND-USE SECTOR

- Forested area[d]:
  - 45.8 million hectares (Mha) of forest area (10%) in 2020[7]
    - 45.1 Mha of naturally regenerating forest
    - 0.5Mha of planted forest
  - 0.7 Mha of primary forest in 2021[e,8,9]
- Global ranking for forest loss (10%)[10]:
  - 21st globally in forest loss in 2021
  - 15th in forest loss in the tropics in 2021

[c] Data for **2005-2020 Sum Export Quantity in tonnes** and **% of commodity production being exported** come from FAOSTAT (2022). **% of 2005-2018 commodity deforestation as a proportion of country total** considers Pendrill et al. (2022) data on amortized deforestation risk.

[d]For the purpose of this dashboard, Forest Trends defines forest cover as an area with more than 10% tree canopy cover greater than five meters tall. The definition accounts for Tanzania's main forest type, Miombo, characterized by 10-40% tree canopy cover. The data comes from Tanzania's Forest Monitoring and Assessment (NAFORMA) reported to FAO, Global Forest Resources Assessment. NAFORMA is a ground-based forest inventory that may be more reliable at picking up small-scale forest loss than the Landsat analysis available through Global Forest Watch (Tyukavina et al., 2015). NAOFORMA geographical scope covers Tanzania Mainland; it does not include the semi-autonomous islands of Zanzibar. The baseline canopy cover is depicted with 10% in parenthesis.

[e] Primary forest is defined as "mature natural humid tropical forest cover that has not been completely cleared and regrown in recent history." (Turubanova et al., 2018).

- Deforestation rate & area:[f]
    - 1.03% annually or 0.47 Mha/year (10%)[11]
    - 1.9Mha of primary forest in 2021[12]
    - Net change of -7.9 Mha of forest between 2000 and 2020[13]
- Total Gross Emissions from deforestation[14,g]:
    - 43.7 mega-tonnes (Mt) CO_2e in 2021
- Forest Ownership (2015):[15]
    - Village land 21.9 Mha
    - Central government land 16.6 Mha
    - Private ownership 3.5 Mha
    - Local government land 3.1 Mha
    - General land 2.7 Mha
    - Unknown 0.1 Mha
- Domestic Production in tonnes, by FRC, 2020:[16]
    - Maize: 6.7 million
    - Sunflower seed: 1.1 million
    - Groundnuts: 690,000
    - Rice, paddy: 3 million
    - Cashew: 233,000
    - Sesame: 710,000
    - Cotton: 302,000
    - Coffee: 61,000
    - Tobacco: 91,000
    - Cattle products:[h] 650,000

- Table 1 Rate of expansion of land for relevant commodities in production area, 2005-2020[17,i]

FRC	2005 Production Area (ha)	2020 Production Area (ha)	Total increase/decrease (ha)	Percent increase/decrease
Maize	3,109,590	4,200,000	1,090,410	35%
Sesame	156,250	960,000	803,750	514%
Sunflower	340,000	1,030,000	690,000	203%
Cashew	161,380	795,572	634,192	393%
Groundnuts	409,320	1,000,000	590,680	144%
Rice	701,990	1,038,343	336,353	48%
Tobacco	39,253	60,782	21,529	55%
Pasture[j]	25,756	26415	668	3%
Coffee	235,700	219,857	(15,843)	-7%
Cotton	526,720	500,000	(26,720)	-5%

[f] Forest loss is defined as the complete removal of forest cover.
[g] This dashboard considers the amount of greenhouse gas emissions (expressed in megatonnes (Mt) of carbon dioxide equivalent emissions) reported in the Tanzania's Forest Reference Emission Level submission to the UNFCCC.
[h] This accounts for three FAOSTAT-reported datapoints: edible offal of cattle, meat of cattle and raw hides.
[i] This is the based on the area harvested according to FAOSTAT (2023)
[j] The area for cattle uses the FAOSTAT categories of "land under permanent meadows and pasture" and "land under temporary meadows and pasture."

RISKS ASSOCIATED WITH ILLEGAL FOREST CONVERSION

While there are data broadly linking commodities to deforestation in Tanzania, it is harder to disaggregate by specific commodity. Roughly half of Tanzania's forests are protected. However, due to governance and enforcement challenges across both the forest and agricultural sector, commodities that are not traceable to their source are at risk of being linked to illegal deforestation.

- Agriculture is the main driver of forest loss in Tanzania due to production of maize, cattle products, sunflower seeds, vegetables, and groundnuts, which are mostly consumed domestically.

Tanzania's forest area was reported to be 45.8 Mha in 2020 of which 45.1 Mha are naturally regenerating forest and 0.5Mha are planted forests.[18] Only 8.4 Mha (18 percent) has greater than 50 percent cover.[19,20] Most (75 percent) of Tanzania's forest is open woodland (10 to 40 percent cover), known as miombo and acacia savanna.[21] Forest area (tree canopy cover greater than 10 percent) has been decreasing, with a seven percent reduction in forest cover reported between 2000 and 2021. Tanzania had a natural forest loss rate of 1.03 percent or about 0.47Mha/year.[22]

Small-scale crop expansion has been identified as the main driver of forest loss in Tanzania.[23] A study by Doggart et al. (2020) revealed that small-scale agriculture took place in 89 percent of deforested areas (based on ground surveys of over a hundred randomly selected plots). The study found that most deforestation was caused by either a combination of crops and livestock for a mixture of cash and food (47 percent), or by cash only (12 percent) agriculture. Subsistence agriculture took place in only 30 percent of the plots.[24] The Global Forest Watch driver analysis broadly backs this up, with an estimate that 95 percent of forest loss in 2021 was driven by shifting agriculture, a term that includes small scale commercial farming as well as subsistence farming.[k,25] Most agricultural outputs are produced by smallholders with an average farm size of 1.2 ha.[26]

The land-use sector, including agriculture and forestry, accounts for 84 percent of Tanzania's total greenhouse gas (GHG) emissions.[27]The Government of Tanzania estimated emissions from forest loss to be 43.7Mt CO_2e/year between 2002 and 2013.[28]

The REDD+ analysis differentiates drivers of deforestation and degradation by ecosystem. The main drivers in the miombo and acacia savanna forests, accounting for 80 percent of Tanzania's forested area, are agriculture and charcoal production.[29,30] Most of the country's dry open-canopy forests are located in the south, in the regions of Morogoro, Lindi, Ruvuma, Tabora and Mbeya.[31] Tanzania also has tropical high forest in the Eastern Arc Mountains and coastal forest on the East.[32] In these two forests, illegal logging is a major driver of

[k] GFW recognizes that the accuracy of the drivers-algorithm varies regionally. In Africa only 31 percent of the area classified as commodity driven was accurate, mainly because the model misidentified 42 percent of the forest loss as a result of shifting agriculture, rather than correctly as a result of commercial agriculture (Curtis et al. 2018; see Table S6). The term shifting agriculture suggests that land is left fallow on a cyclical basis, but there is little evidence of this, and it is more likely to be small-scale agriculture (pers. comm. Doggart, N. 03.31.2023).

deforestation and degradation. [33]Between 2001 and 2021, Pwani (coast) had the most tree cover loss at 384kha compared to an average of 95.5kha, according to Global Forest Watch.[3435]

The majority of Tanzania's agricultural production is for the domestic market and, as highlighted previously, grown by smallholder farmers.[36] The main agricultural commodities tied to deforestation produced for the domestic market include:

Maize has the biggest deforestation footprint of all agricultural commodities produced in Tanzania between 2005 and 2018 and was tied to an average of over 20,000 ha/year of deforestation during this period. This accounts for 17 percent of deforestation from agricultural commodities.[37] However, since 2015, the rate of agro-conversion for maize halved each year and reached zero in 2017 and 2018.[38] Maize is Tanzania's most important crop, making up nearly 50 percent of rural household income.[39] The total extent of maize production was 4.2 Mha, representing 45 percent of total arable land in 2019.[40] Maize is grown by 88 percent of smallholders in Tanzania and 68 percent of smallholders generate income from its sale.[41] Maize production in 2022 was double that of 2009, 6.71 M metric tonnes (mt) compared 3.3 M mt.[42]

Doggart et al. (2020) identified maize cultivation in 57 percent of deforestation events, noting that nearly half (48 percent) of plots contained more than one type of crop. About one-third of deforested plots were being farmed for food only, while nearly half were being farmed for food and cash.[43] Tanzania produced a surplus of maize in the 2020-2021 season, exceeding demand by nearly one million tonnes.[44] In 2020, nearly 100,000 tonnes of maize worth about US$25 million were exported, two-thirds of which went to Kenya.[45,46]

Beef & leather are linked to nearly 18,000 ha/year of deforestation between 2005 and 2018, representing 14 percent (beef) and one percent (leather) of commodity-linked deforestation.[47] Livestock grazing is associated with forest degradation as well as deforestation, particularly in the uplands of the northwest.[48,49] Charcoal production often occurs with livestock in deforested plots.[50] From 2005 to 2020 cattle heads increased by 64 percent, from 17.7 to 29 million, indicating growing pressure for land use change.[51] The conditions under which livestock grazing acts as a driver of deforestation versus forest degradation requires further research.[52] All leather and almost all beef produced is for the domestic market, with US$6 million in exports in 2020, all going to Kenya.[53]

Sunflower has the third largest deforestation footprint in Tanzania, linked to over 10,000 ha/year of deforestation between 2005 and 2018.[54] It grows on 0.96 Mha of land, of which 94 percent is farmed by smallholders.[5556] It is cultivated throughout the country by 15 percent of smallholders in Tanzania.[57,58] It is important for the domestic production of edible oil, 90 percent of which is produced from sunflower seed. Annual production of edible oil in 2021 met less than half of Tanzania's demand (300,000 out of 650,000 tonnes).[59] In 2021, the Minister of Agriculture shared the government's aim to increase production of seed crops for edible oil production, including a target to increase production to one million tonnes by 2025.[60,61] There is no mention of deforestation risks in reports or domestic news stories on scaling up sunflower production referenced in this dashboard.[62 ,63,64]

Vegetables include sweet potato, potato, green peas, and onion, of which sweet potato carries the highest forest risk. Sweet potato production is linked to over 70,000 ha of deforestation between 2005 and 2018, while potatoes are linked to less than 20,000 ha.[65]

Tanzania is one of Africa's top producers of sweet potato, second only to Malawi in 2020.[66] The exported deforestation risk for these commodities is negligible.[67]

Groundnuts are linked to nearly 8,000 ha/year of deforestation.[68] Groundnut production extends over one million ha.[69] Most production (80 percent) is for domestic consumption.[70] The government's aim to increase local production of edible oil includes a target to increase groundnut production from its current annual rate of 690,000 tonnes/year.[7172]

Rice expansion between 2005 and 2018 lost Tanzania nearly 7,000 ha/year of forest.[73] Production doubled from 2010 to 2020, exceeding three million tonnes. During the same period, the area under production remained almost the same, decreasing about 8 percent from 1.14Mha to 1.04Mha.[74] The National Rice Development Strategy (2019-2030) aims to further increase production (it currently meets only 55 percent of demand) and proposes further expansion using "untapped land and water resources."[75] The strategy does not identify deforestation as a risk.

Rice is grown in the north, close to Lake Victoria, in the lowlands along the Eastern Arc (15 percent of production is in the Morogoro district), and in the delta region (8 percent of production is in Pwani Region).[76] Expanding agriculture, including rice growth, has been found to hinder the success of mangrove restoration projects. This has caused significant deforestation in the Rufiji Delta, one of the two largest mangrove forests in East Africa.[77,78]

Most rice production is rainfed and sensitive to climate change, particularly drought and increases in temperature. Expected rise in temperatures could cause Tanzania's rice production to decrease between five and nine percent by 2090.[79] This could lead to crop expansion and further deforestation to maintain domestic production.

The Sustainable Rice Platform (SRP) aims to transform the rice sector through initiatives such as their sustainable production standards, which prohibit agro-conversion of forest or any other natural ecosystem.[80] The SRP reported 25,000 projects in Tanzania, though the volume of certified rice is not reported.[81]

- **Export-oriented cash crops, particularly tobacco, as well as cashew, sesame, cotton, coffee, and sunflower are also associated with deforestation. These exports carry a risk of illegal deforestation entering regulated markets.**

Overall, the production of export-oriented crops accounts for more than 14 percent of the total deforestation footprint of Tanzania's FRCs.[82] Cashew, sesame, cotton, tobacco, and coffee are the top exports carrying forest risk.[83,84]

Tobacco represented 78 percent of Tanzania's 2005-2020 production. Tobacco production was linked to 1,800 ha/year of deforestation between 2005 and 2018 (attributing tree cover loss to crop expansion).[85] However, associated forest clearing for fuel for the curing process[l] could drive those rates up to 27,000 ha/year (see below). One report estimates that one ha of woodland is required to cure one ha of planted tobacco.[86,m] A tobacco company described the process as follows:

[l] Fire curing is one of the four main methods used to cure or dry tobacco and it needs to be conducted right after the harvesting of the leaves from the field. The curing method used plays a major role in the final quality of the tobacco leaf.
[m] This estimate is not explained or sourced. Acre & Caballero "TANZANIA Agricultural Sector Risk Assessment. Agriculture Global Practice Technical Assistance Paper."

> The normal pattern with land clearance is that tobacco is planted and harvested, and to dry that tobacco another area of land is cleared. The following year the tobacco will be planted on that cleared land, and another crop such as maize is planted on the old land. Then more trees must be harvested to cure that harvest. The year after that the farmer will grow tobacco on the first field. However, the farmer will still need more wood to cure the tobacco, so each year they must remove some trees, even if it is not always a larger block. If they wish to expand their farm, they must clear land.'
>
> Interview with anonymous tobacco company, 2013.[87]

Most tobacco is grown in the Miombo forest of south and west Tanzania, with roughly half produced in Tabora Region.[88,89] A survey of tobacco farmers in Urambo district of Tabora region found that 95% of farmers obtained their fuelwood from forest reserves and other woodlands, while 5% harvested wood from planted forest.[90] The study reported an annual loss of 6,356 ha of tree cover in Urambo region, equivalent to 2% of forest cover.[91] This is greater than an earlier estimate of 4,134 ± 390 ha in 2017.[92] The higher estimate could indicate an annual clearance of 27,122 ha for the tobacco curing process in Tanzania in the 2018-2019 season.[93] If correct, this estimate would make tobacco the top high risk commodity in the country.

Tree planting programs have been active since the 1980s to reforest areas depleted by tobacco curing. Tobacco buyers supply seedlings to farmers, but failure rates are high and farmers have insufficient land for tree plantations.[94,95] Fuel-efficient tobacco barns are encouraged (for example, the Tanzania Tobacco Board required all barns to be made energy-efficient by 2018), but farmers cannot afford to invest in these changes.[96] Alternative energy, such as agricultural waste or elephant grass, could replace wood and reduce carbon emissions, but is not yet used.[97]

The area under tobacco production peaked in 2011 and 2012 at nearly 170,000 ha, in response to an increase in prices caused by a new tobacco purchaser entering the market.[98,99] Production increased from below 30,000 tonnes in 2000 to over 90,000 tonnes in 2020.[100]

Tobacco is primarily grown for the international market.[101] The top importers of tobacco from Tanzania in 2021 were the EU and European Free Trade Association (EFTA) with 42 percent, followed by Russia (10 percent), and Republic of Korea (8 percent). Most tobacco was exported in raw form (98.5 percent). The total value of globally reported imports from Tanzania in 2021 was US$164 million.[n,102]

Cashew production was responsible for 72,000 ha of deforestation between 2005 and 2018, and an average of 5,000ha/year.[103] Cashew exports averaged 125,000 tonnes/year, which is 90 percent of the country's production.[104,105,106] Tanzania was the world's fourth biggest exporter of cashews in 2020 (after Cote d'Ivoire, Vietnam, and Ghana) and the sixth largest producer.[107] Cashew is grown mostly in the southern coastal areas including the Mtwara, Ruvuma, Pwani, and Lindi regions.[108] The Cashewnut Board purchases the harvest from farmer cooperatives and markets the crop. In 2020, 57 percent of globally reported imports

[n] UN Comtrade globally reported imports (by net weight) from Tanzania for 2021.

of Tanzania's cashew products[o] (by net weight) went to India, and about 41 percent to Vietnam, where they were processed.[109,110] The total value of global imports in 2020 was US$388.9 million.[111]

Sesame production was linked to over 7,000 ha/year of deforestation between 2005 and 2018.[112,113] Tanzania is Africa's largest producer of sesame, and one of its largest exporters: 710,000 tonnes were produced in 2020, of which one-quarter (168,000 tonnes) was exported.[114,115] Sesame is mostly grown in the Lindi and Mtwara regions by smallholder farmers. The area under sesame production more than quadrupled from 2010 to 2020 from 0.16 to 0.96 Mha.[116] Rising global demand and increasing sale prices drove farmers to increase production.[117] A survey of sesame farmers found that over half (52 percent) cleared new land in the previous season, and most only use the land for two or three seasons before it becomes unproductive.[118] Doggart et al. (2020) identified that 20 percent of deforestation sites were used for sesame production.[119]

In 2021, the main markets for sesame products (sesame oil, sesame seed cake, and sesame seeds) were China (83 percent) and Japan (13 percent).[120] Only 2 percent of exports went to the Netherlands. As a Lesser Developed Country (LDC), Tanzania exports *export duty-free* and *quota-free* to the EU market.[121]

Cotton production was tied to 2,500 ha/year of deforestation (2005-2018).[122] One-fifth (22 percent) of forest risk cotton produced in Tanzania is exported.[123] In 2020, half a million ha were under cotton production, 20 percent more than 2010. Cotton production has varied widely, dropping in the late 1990s and peaking in 2008. The variation has been influenced by price, exchange rate, and the shift towards a competitive market away from the government-controlled Cotton Board.[124,125] Cotton is grown in the northwest near Lake Victoria, by small scale farmers with an average farm size of 1.5 ha.[126] It is rainfed and yields an average of 300 kg/acre.[127]

In 2021, global imports of Tanzania's cotton products[p] were worth US$182.3 million and, including imported net weight, the biggest markets were Pakistan (50.7 percent) followed by Kenya and China (22 percent and 13 percent, respectively).[128]

Coffee production was tied to an average of 900 ha/year of deforestation. This represents two percent of global forest-risk coffee between 2005 and 2018.[129] Tanzania's deforestation from coffee peaked in 2005 with a high of over 1,700 ha/year.[130] This high corresponds with an increase in the area of coffee production, which grew from 100,000 ha in the 1990s to nearly 250,000 ha in 2009.[131] However, the area under production declined by 7% from 2005 to 2020 and in 2020 dropped lower than it had been since 1975, influenced by factors including poor agricultural practices, lack of agricultural extension, aging trees, lack of access to credit, and exposure to volatile market prices.[132,133,134]

Tanzania produces both arabica (70 percent) and robusta tree varieties, with the former grown in Arusha, Kilimanjaro, Mbeya, and Ruvuma, while robusta is mainly from the Kagera

[o] Cashew products include cashew nuts shelled, in shell and not elsewhere specified. See Trade Profile section.
[p] Cotton products include cotton lint, cottonseed, cottonseed cake, cotton waste, cotton carded or combed, cotton linter and cottonseed oil. See Trade Profile section.

region.[135,136] Smallholders with an average of 0.5-1 ha of land are responsible for 90 percent of coffee production.[137] The Tanzania Coffee Board (TCB) is aiming to increase production to more than 300,000 tonnes a year by improving agricultural practices and distributing improved coffee seedlings.[138]

Almost all (91 percent) coffee linked with deforestation risk in Tanzania is exported.[139] The domestic market for coffee in Tanzania is not developed, though the TCB is promoting coffee as a drink in urban areas and local consumption was reported to have increased to seven percent of production in 2021.[140] Tanzania's globally reported coffee imports were worth US$179.3 million in 2021 and, by net weight, the top five markets were the EU and EFTA (52 percent), Japan (19 percent), Morocco (9 percent), Rwanda (4 percent), and the United States (3 percent).[141] Tanzanian peaberries[q] are particularly sought after in Japan and the US.[142]

Climate change is predicted to reduce the global area suitable for coffee by 50 percent, with substantial loss of production in Brazil and Vietnam, leading to an increase in demand for coffee from East Africa.[143] According to Bunn et al. (2015), East Africa will be least impacted, and new areas which are "currently not forested" will become more suitable. In this climate scenario, future coffee expansion in Tanzania could be relatively deforestation-free, in contrast with the new areas identified as potentially suitable in Asia which are currently partially forested.[144]

- There is a high risk of illegality in commodities sourced from Protected Areas. Twenty-six percent of all forest loss occurred in Protected Areas between 2002 and 2021, indicating their levels of protection are inadequate.

Agricultural commodities sourced from Protected Areas (PAs)[r] carry a high risk of illegal deforestation. In 2020, Tanzania had roughly half of all forested land categorized under the broad umbrella of PAs, (FAO reported 62 percent, while the government of Tanzania reported 41 percent).[145,146,147] Despite the protected status, forest loss in PAs still amounted to 1.2 Mha between 2001 and 2021, representing 26 percent of all forest loss.[148] This indicates that Tanzania's levels of protection are inadequate. The lack of financial resources for forest patrols is the suggested reason for increased forest conversion in PAs.[149] In forest reserves, some identified causes of poor protection leading to deforestation are inadequate resourcing, the small size and wide distribution of PAs, and their proximity to areas of high population density.[150] Agro-conversion of forest is illegal in PAs, while in unreserved forested land is not. However, because of inadequate protection, forest loss still occurs in forest reserves, mostly (75 percent) due to agro-conversion. [151] However, further research is required to identify which crops are grown on illegally deforested land. A random sample of deforestation plots in all types of forest identified that the most grown crops were maize (57%) and sesame (20%), with many plots containing more than one crop.[152]

Tanzania's 866 PAs include 678 forest reserves, managed through the National Forest Policy and Forest Act.[153154] There is extensive evidence of encroachment on forest reserves, mainly

[q] Peaberry is a type of coffee bean where only one of the two seeds or beans normally contained within a cherry (coffee fruit) develops.

[r] PAs include national parks, marine parks and reserves, species protected areas, game reserves, game controlled areas, the Ngorongoro Conservation Area and wildlife management areas (CIFOR, 2015).

for agriculture.[155,156] For example, mangrove areas categorized as forest reserves are being cleared for firewood and rice production despite government strategies like burning farmers' huts and rice farms to discourage deforestation. Joint Forest Management[s] is reported to be a more successful strategy for restricting the use of forest for extractive activities and sharing benefits between the state and communities. [157,158]

The Tanzania Forest Service (TFS) sets annual targets for revenue collection that increase year on year. Most revenue comes from charcoal and timber permit fees that are issued without harvesting or management plans, leading to the conclusion that "the system is neither ecologically nor financially sustainable."[159] Furthermore, an analysis of TFS revenue reveals that fines make up about one percent, implying that royalties are being paid after produce is harvested.[160] If it is a government reserve, 60 percent of TFS revenue returns to the Forest Service (but not specifically to the reserve where the produce was harvested) while 40 percent goes to the treasury. In the case of unreserved village forests[t], none of the revenue is reinvested back in the forest, exacerbating degradation and deforestation.[161]

PAs in Tanzania also include National Parks, managed by the National Parks Act and game reserves, managed through the Wildlife Act.[162] The country has 22 National Parks, managed for nature conservation by Tanzania National Parks (TANAPA), which include an estimated total area of 10.5 Mha [163]. National Parks are better resourced and are patrolled to protect against illegal logging and encroachments. However, the use of fire to suppress forest growth can lead to higher forest loss than in unprotected areas (conversion to grassland is more common than conversion to agriculture).[164] Forest law enforcement, wildlife conservation, and REDD+ are associated with a track record of forced evictions and associated human rights abuses in these parks.[165,166,167]

- Any forested area outside PAs and without a community management plan is at risk of deforestation and forest degradation. A large portion of the forest land in the country (~ 50 percent) falls under village or general land.

The Forest Act allows Community Based Forest Management (CBFM) in forests on village lands and requires a management plan.[168,169,170]

Tanzania is one of the few countries in the world to have increased the area of land owned by communities.[171] Communities own all 21.9Mha of village land or 45.7 percent of forest.[172] However, the CBFM sector policy tool has received minimal support, and as of 2020, less than 10 percent of village forest land had a community-based management plan.[173]

Deforestation is at its highest on general lands under public ownership (5.7 percent of forest) without a clear management plan.[174] The forest on village and general lands together account for roughly half of Tanzania's forest, and a lack of clearly planned, long-term management leads to severe deforestation and degradation. [175,176]

[s] Participatory forest management strategy in forest reserves (Akida & Blomley, 2006).

[t] With villagization in the 1970s, the Land Act of 1999 and the Village Land Act of 1999, state-owned forests were allocated to villages as village forest reserves. Forest-use rights and tree tenure rights were also granted to village institutions to incentivize sustainable management.

Although illegal harvesting activities happen under all management regimes, a comparative study that CBFM performed better than ordinary state management.[177] A study identified community-governed protected areas as the most effective form of protected area in terms of biomass density and forest structure, sometimes outperforming those managed by international organizations.[178]

- Domestic forest policy does not focus on agro-conversion, although the national REDD+ strategy highlights the need to address illegal logging. In fact, forest sector development plans have set ambitious targets for the expansion of tree plantations which has caused significant deforestation in the 2010s. The National Agriculture Policy incentivizes agricultural productivity, sometimes to the detriment of forests.

Smallholder plantation expansion is seen as the solution to forest degradation due to its potential to also alleviate domestic needs for charcoal and fuelwood in the face of years of reduced production from government plantations. The Private Forestry Programme and the Forestry Development Trust further incentivized this expansion by creating a program supporting smallholder plantations.[179,180,181] Smallholder plantations now account for 64 percent of the Southern Highlands' 210,000–250,000 ha of plantations.[182]

Only forest in protected areas is covered by government prohibitions on agro-conversion. Though inadequate, these protected forest has higher biomass density, tree height and canopy cover than unprotected forest.[183]For all the rest, there is no clear policy to reduce the conversion of forest to agricultural land.[184] In unreserved village land, the protection of forest on potential agricultural land is left to the local-level forest management plans. [185,186] Unreserved village forest is particularly at risk. [187] In fact, the National Agriculture Policy aims to increase crop production and claims that less than a quarter of suitable land is under cultivation.[188] The government's draft revised National Land Policy (2018) states that Tanzania has "plenty of unused or unoccupied village land" and calls for investment in commercial agriculture.[189] All villages are required to demarcate land for investment in their Village Land Use Plan. "Less valuable" land, such as woodland and bushland, can be identified as land for investment.[190] Only around 13 percent of villages have completed land use plans, but even these do not protect villagers from dispossession.[191] Village land can be reallocated as general land in the name of public interest, and there are documented cases of Village Land-Use plans being modified in violation of the Land Use planning act, without consultation or consent to allocate land to investors.[192] Overall, the goal of intensifying sustainable agricultural production is "divorced from realities" because of political power and patronage, government bureaucracy, and resource constraints.[193]

In conclusion, forest risk commodities produced in protected areas carry a high risk of Illegality, but illegality is a risk in all commodities and very difficult to identify in the supply chain due to poor traceability to source and lack of land boundary or management data. Rather than focus on removing illegal deforestation from the supply chain, deforestation free supply chains are recommended, if Tanzania's forests are to be protected.

REPORTS & ADDITIONAL RESOURCES

A list of relevant reports and additional online tools to complement this country report is available at: https://www.forest-trends.org/fptf-idat-home/

Key Reading

- Doggart, Nike, Theron Morgan-Brown, Emmanuel Lyimo, Boniface Mbilinyi, Charles K. Meshack, Susannah M. Sallu, and Dominick V. Spracklen. 2020. "Agriculture is the main driver of deforestation in Tanzania." Environmental Research Letters 15, no. 3: 034028. https://iopscience.iop.org/article/10.1088/1748-9326/ab6b35/meta
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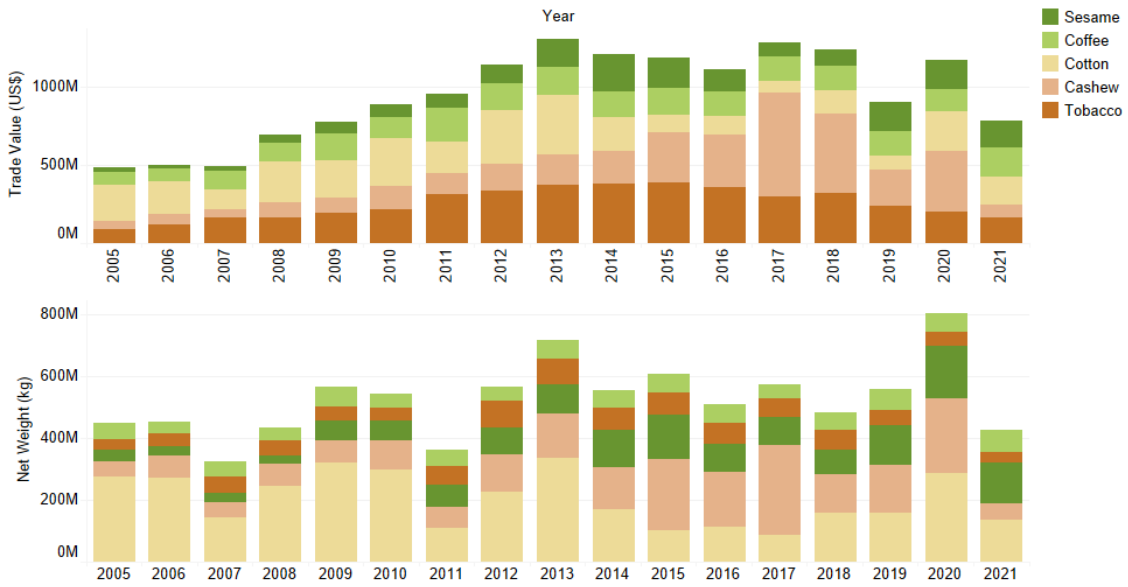
TRADE PROFILE

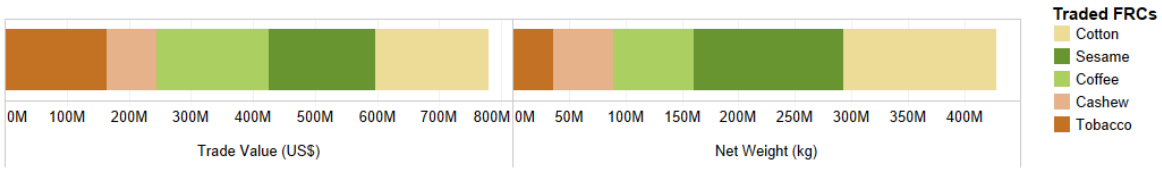
The figures below show the trade trends for the five main FRCs traded with international markets – cashew, tobacco, coffee, sesame, and cotton.

GLOBAL IMPORTS OF THE TOP FIVE FRC PRODUCTS FROM TANZANIA (2005-2021)[194]

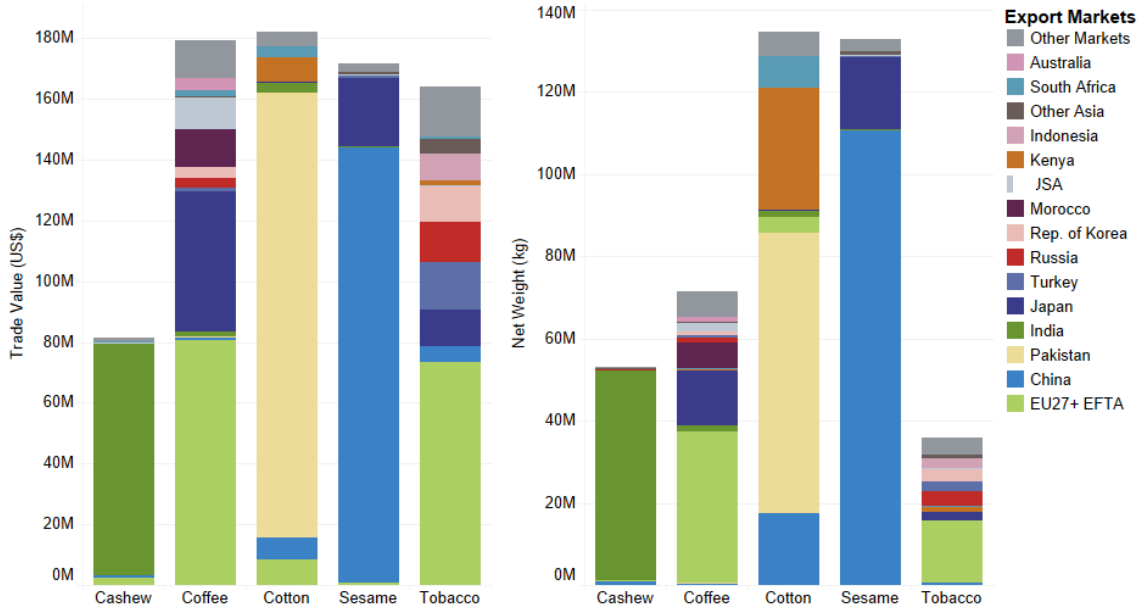


GLOBAL IMPORTS OF TOP FIVE FRC PRODUCTS FROM TANZANIA (2021)[195]

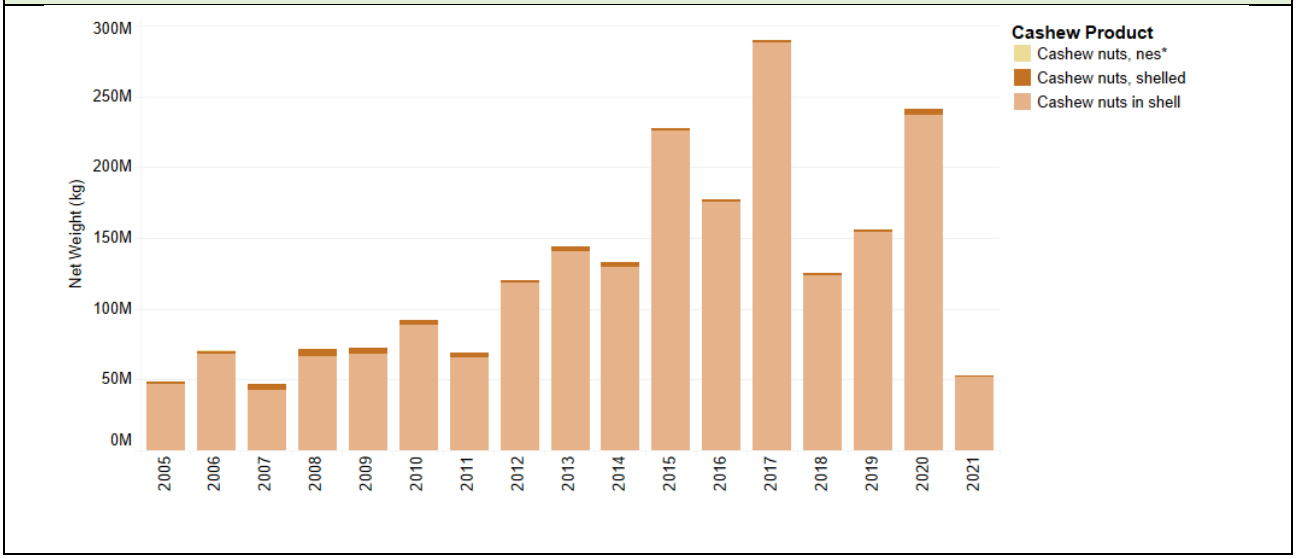
TRADED COMMODITIES BY TRADE VALUE (US$) AND NET WEIGHT (KG)



TRADED COMMODITIES, BY EXPORT MARKET

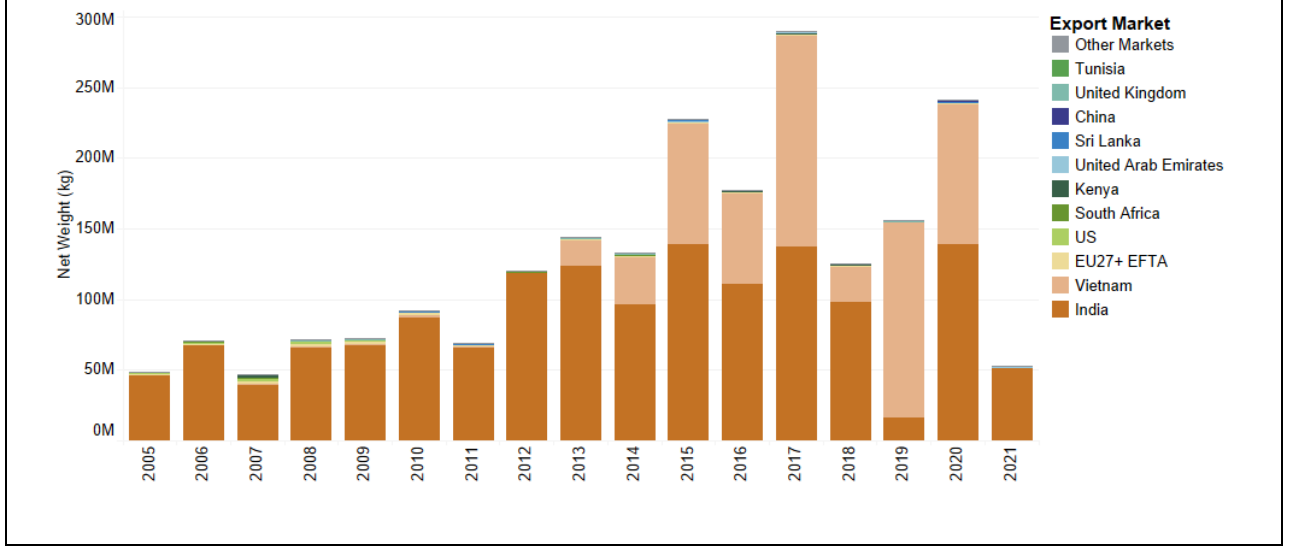


GLOBAL CASHEW PRODUCT IMPORTS FROM TANZANIA (2005-2021)[196]

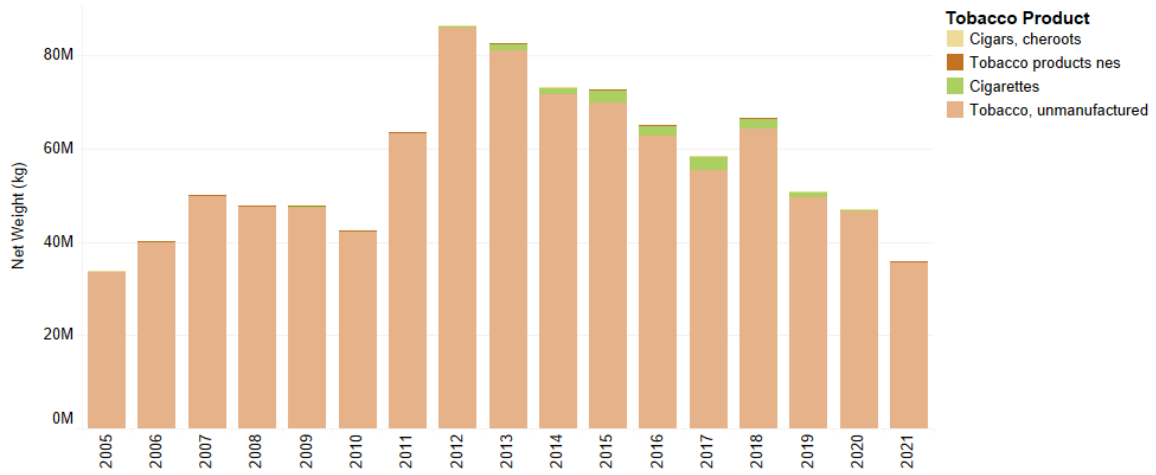


* Not elsewhere specified

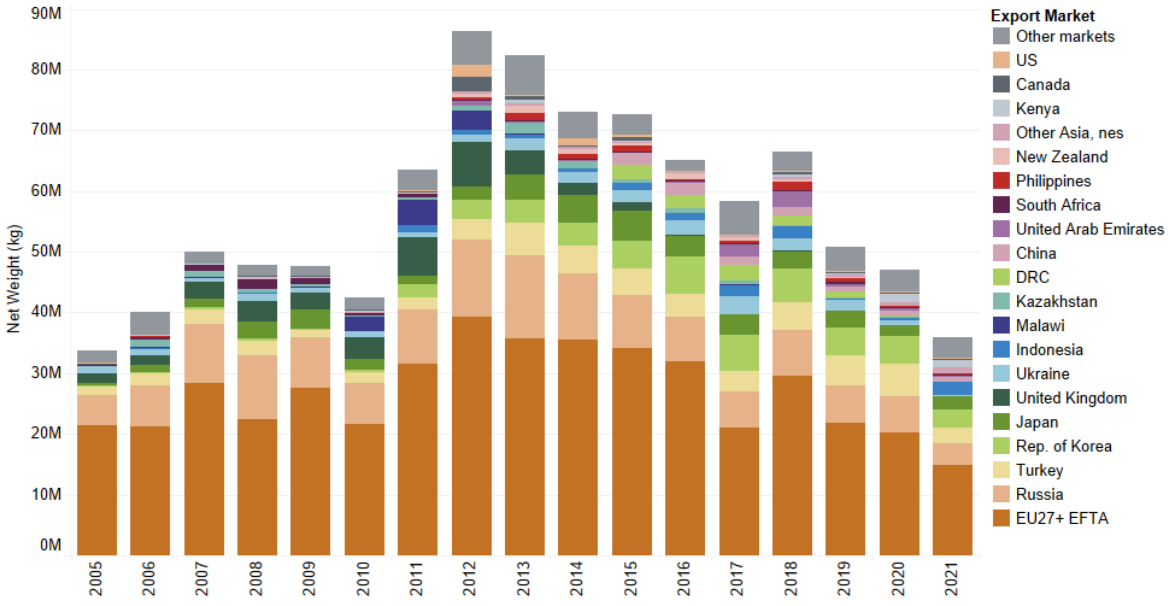
GLOBAL CASHEW PRODUCT IMPORTS FROM TANZANIA, BY MARKET (2005-2021)[197]



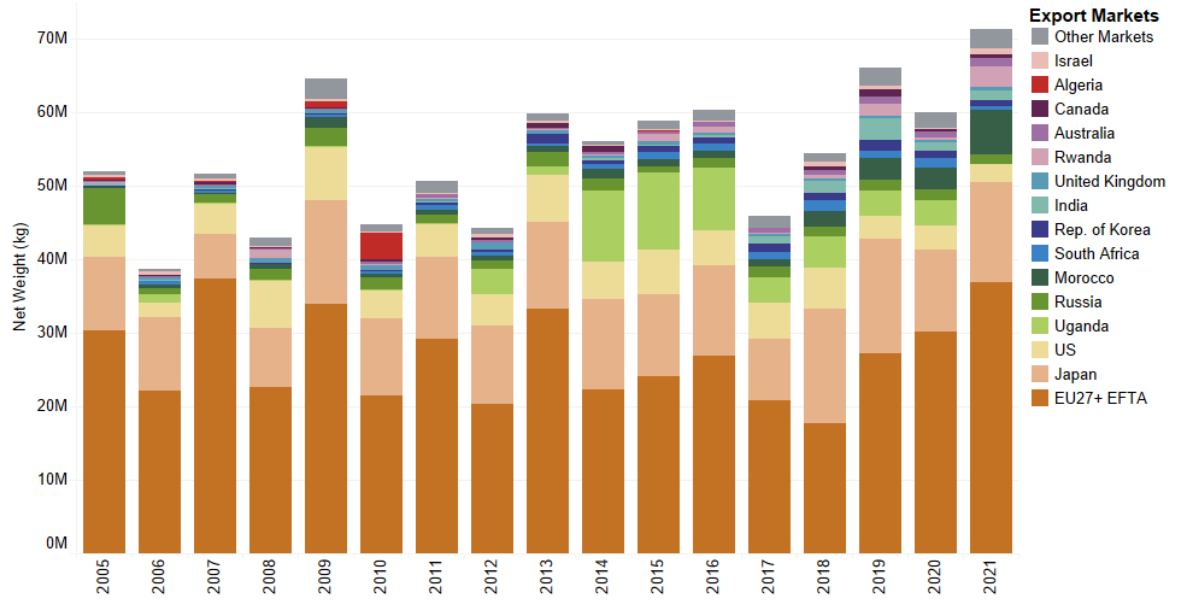
GLOBAL TOBACCO PRODUCT IMPORTS FROM TANZANIA (2005-2021)[198]



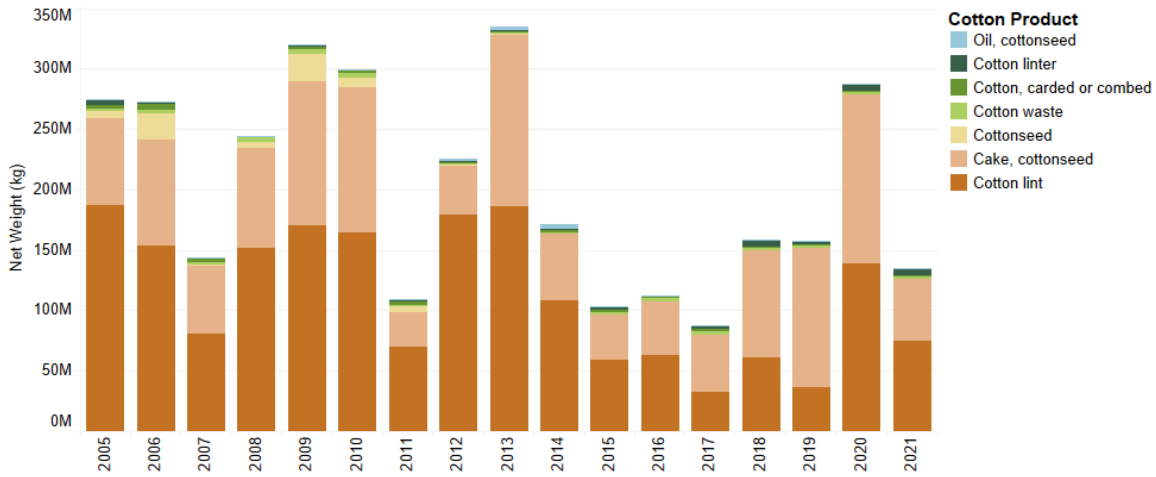
GLOBAL TOBACCO PRODUCT IMPORTS FROM TANZANIA, BY MARKET (2005-2021)[199]



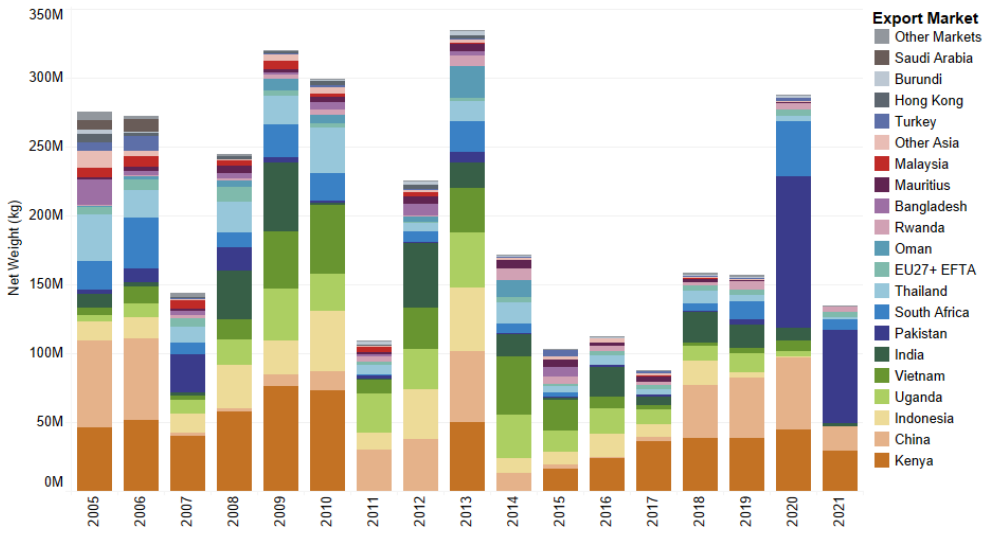
GLOBAL COFFEE IMPORTS FROM TANZANIA, BY MARKET (2005-2021)[200]



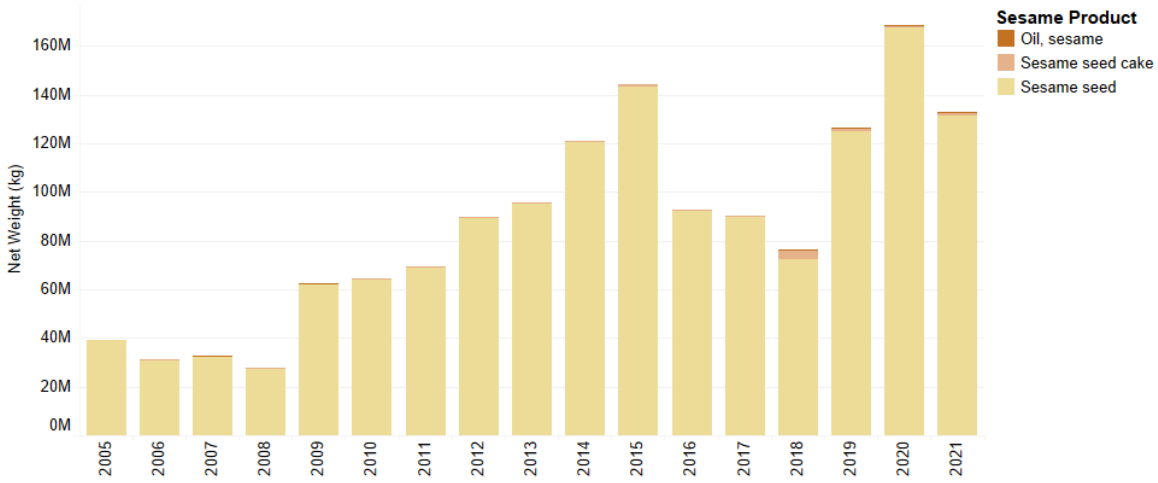
GLOBAL COTTON PRODUCT IMPORTS FROM TANZANIA (2005-2021)[201]



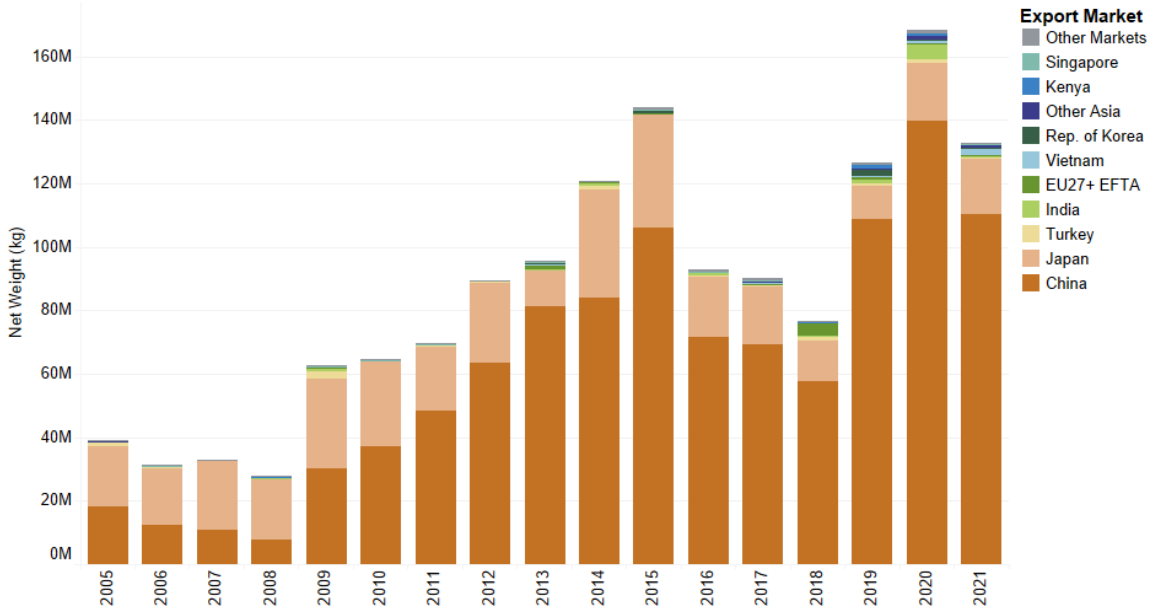
GLOBAL COTTON IMPORTS FROM TANZANIA, BY MARKET (2005-2021)[202]



GLOBAL SESAME PRODUCT IMPORTS FROM TANZANIA (2005-2021)[203]



GLOBAL SESAME IMPORTS FROM TANZANIA, BY MARKET (2005-2021)[204]



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