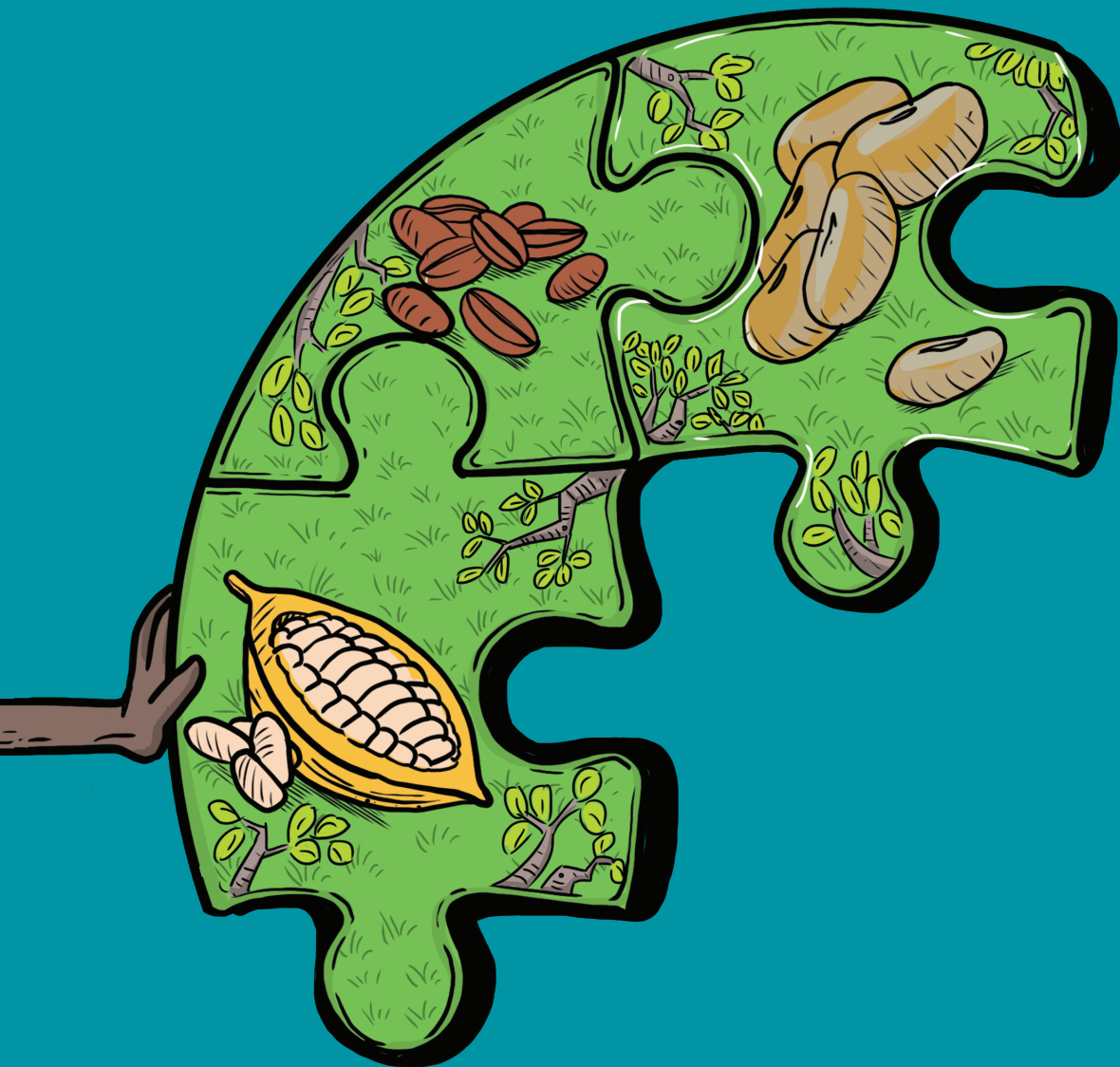




TOWARDS A NEW GREEN WORLD

AGRICULTURE AND FOREST COMMODITIES

Addressing raw-commodity dependence





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Addressing raw-commodity dependence

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Acknowledgement: We thank Dr Richard Wamalwa Wanzala, a Postdoctoral Research Fellow at the University of Johannesburg in South Africa, for his expertise and important perspectives that were shared as part of the peer review process which helped shape this paper.

The Centre for Science and Environment is grateful to the Swedish International Development Cooperation Agency (Sida) for their institutional support



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Material from this publication can be used, but with acknowledgement.

Maps in this report are indicative and not to scale.

Citation: Rudrath Avinashi 2025, *Towards a New Green World: Agriculture and forest commodities—Addressing raw-commodity dependence*, Centre for Science and Environment, New Delhi

Published by

Centre for Science and Environment

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Executive summary

According to the UN Trade and Development's (UNCTAD's) State of Commodity Dependence 2025 report, 95 out of 143 developing countries, and over 80 per cent of least developed countries (LDCs) are commodity-dependent. This dependency on the export of primary commodities can exacerbate the economic vulnerabilities of these countries in the event of steep price fluctuations due to supply-side and demand-side constraints emanating from the changing climate and protectionist trade measures among other aspects that influence global supply chains.

This paper analyses, through the lens of climate change, trade and development, the commodity-dependency and its implications on countries of the Global South that depend primarily on export of agriculture and forestry-based primary commodities.

Key findings

- Small Island Developing States (SIDS) such as Micronesia, Guinea-Bissau and Vanuatu amongst others exhibit some of the highest agriculture-based commodity-dependency, being in the range of 79–98 per cent of their total merchandise exports.
- Despite the increase in prices, countries such as Ivory Coast and Ghana who produce more than 50 per cent of the world's cocoa beans accounted for 6.2 per cent of the total export revenue of value-added cocoa products such as chocolates, cocoa powder etc. between 2021 and 2023. In contrast, the Netherlands and Germany, two of the largest importers of raw cocoa beans, generate more than one-third of the total export revenue of the value-added products by virtue of well-established manufacturing and processing industries.
- During 1993–2022, the top 10 countries with highest dependency on agriculture and forests-based commodities had 24 times more affected persons per 100,000 people and nine times higher GDP losses from extreme weather events as compared to the top 10 developed countries for whom agriculture is the dominant commodity group. Similarly, the commodity-dependent countries (CDCs) had nine times higher GDP losses than their developed counterparts.
- The average revenue generated from the exports of agriculture-based commodities was 81.5 per cent out of the total merchandise exports for CDCs

while it was 24.8 per cent for developed countries during 2021–23 underscoring the extent of vulnerability for CDCs. Further, the top three agriculture products generated 63.5 per cent of the total merchandise export revenue for CDCs while it was 12 per cent for developed countries, highlighting a significant dependency of the economies of CDCs on a few agriculture-based products.

- In the current era of rising protectionism, trade measures such as the European Union Deforestation Regulation further stifle a developing country's ability to compete in the global value chains of several commodities (such as cattle, cocoa, coffee, oil palm, natural rubber, soya and timber) owing to increased administration costs to comply with the due diligence. Additionally, the objective of the regulation to curb the demand of deforestation-induced supply chains of the relevant commodities hinges on a one-size-fits-all definition of the forests.
- There are examples of countries in the Global South who have diversified their economies by moving up the global value chains of the commodities and engaging successfully in the new green economy.
 - o Vietnam increased forestry exports by moving from raw timber to processed wood, supported by plantation forestry and Payment for Forest Environmental Services (PFES).
 - o Colombia added more value to coffee by adopting on-farm wet processing as the primary method for handling coffee, which was complemented through branding (Juan Valdez), certification and support for small farmers, raising export earnings even with price swings.
 - o China built up timber processing facilities, cutting back on raw-log exports and growing revenue from processed products six times since 1994.
 - o Uganda promoted local-cotton processing with tax breaks and cheaper electricity, keeping more value inside the country.

Last, key considerations in shaping a way forward for countries in the Global South are based on two main factors—climate change and commodity-dependent trade—that play a significant role in shaping the economies of countries.

The main considerations include the following:

1. Diversifying horizontally and vertically

Diversification protects economies from commodity dependence by expanding product bases. It can occur through horizontal or vertical means.

A. Horizontal diversification

Countries broaden their export portfolio by producing goods beyond their main commodities as in the case of Costa Rica shifting from coffee and bananas to manufactured medical instruments.

B. Vertical diversification

Producer countries move up the value chain by adding value to raw materials, ensuring deeper transformation that yields higher returns and reduces vulnerability to commodity market fluctuations.

2. Adopting climate-smart agriculture

Climate-smart agriculture enhances resilience and productivity by promoting sustainable farming practices, such as climate-resilient crops and intercropping systems that boost income and food security.

3. Catalysing technology transfer

Fair and structured technology transfer frameworks enable developing countries to enhance value addition, productivity and sustainability in agricultural and forest-based commodities.

4. Strengthening regional trade agreements

Regional cooperation through initiatives like AfCFTA and BIMSTEC can deepen value chains, foster technology exchange and expand market access for developing countries.

5. Understanding global market access

Value-added products face tougher international trade barriers; thus, diversification strategies must consider tariffs, market dynamics and compliance with quality standards.

6. International cooperation

Amid rising protectionism, developing countries require tailored financial and technical support to meet due diligence requirements under new trade-related climate measures.

Introduction

Commodity exports represent almost one-third of global trade even though their share of total trade has decreased marginally in the past decade, as per the United Nations Conference on Trade and Development (UNCTAD) report on The State of Commodity Dependence 2025. Further, the commodity exports can be grouped under three important groups, i.e. energy, mining and agriculture.

Energy-based commodity exports continue to dominate global commodity trade, with 44.5 per cent of the total commodity exports. There has, however, been an increase of 34 per cent during 2021–23 in the exports of agriculture-based commodities as compared to 2012–14, bringing their average export value to US \$2,291.9 billion, with food items contributing around 87 per cent of the total agriculture export value.¹

This paper examines how the dependency on the exports of agriculture as well as forestry-based primary commodities impacts the economic growth and development of countries, especially in the Global South. The impacts are analysed through the lens of climate change, trade and development.

The research builds upon the Prebisch-Singer hypothesis which argues that the terms of trade (that is ratio of export prices to import prices) of primary commodities tend to decline in relation to the manufactured goods over a period of time. Some of the main causes of the decline are attributed to technological advancements in the manufacturing sector that outpaces productivity gains in primary commodities and a higher increase in the demand for manufactured goods as income levels rise.

Furthermore, according to UNCTAD, a country's dependence on commodity's exports (especially when they are primary commodities) is closely linked to its welfare and development, and there is evidence to show that if this dependency is high, it can expose a country to various economic vulnerabilities.

Notably, diversification of a country's commodity exports through value addition can act as a safety net against steep price fluctuations as a wider variety of processed goods and finished products usually have more stable prices than export of primary commodities because they are exported to many different industries and actors.²

1 MAPPING COMMODITY DEPENDENCE AND VOLATILITY

Small Islands Developing States have some of the highest agriculture-based commodity dependency out of all in our analysis.

The prices of coffee and cocoa have surged the most in recent years but the main producer countries receive a pittance of the total export revenue.

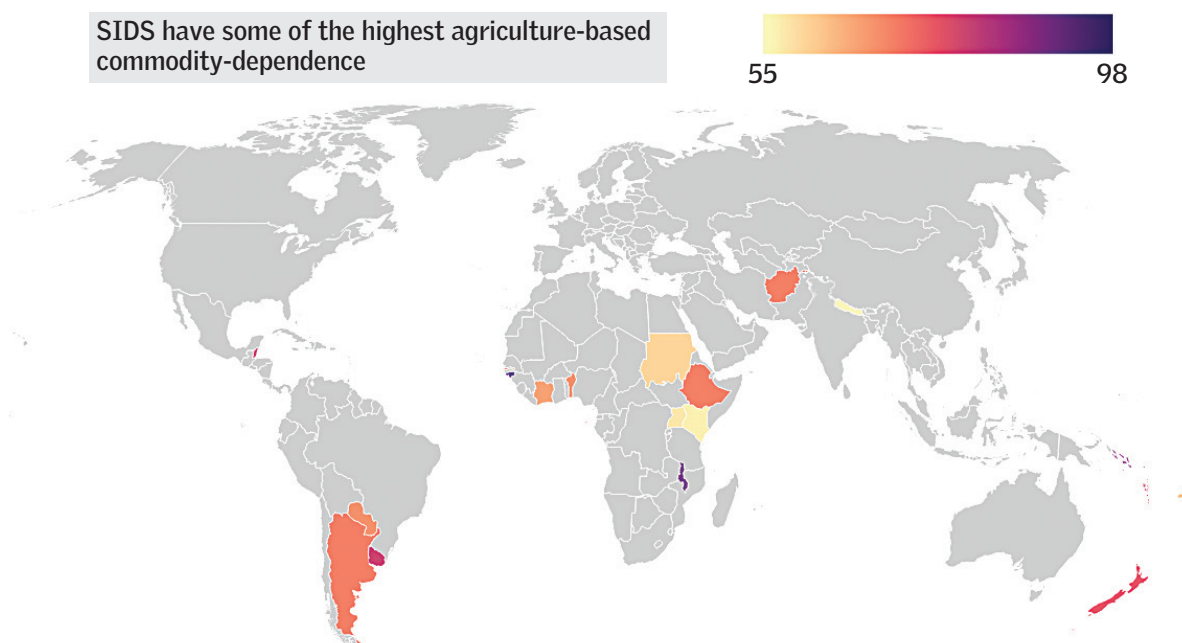
Commodity prices fluctuate more than the prices of manufactured goods or services but the volatility has intensified since the 1990s.

1.1 Which are the agriculture-based commodity-dependent countries (CDCs)?

According to UNCTAD, a country is dependent on the export of commodities (or is commodity-dependent) when its merchandise exports are heavily concentrated on primary commodities. In other words, countries are considered to be commodity-dependent if more than 60 per cent of their merchandise export value (i.e. value of goods that are produced in one country and sold to another, excluding services) comes from commodities (n=24).

Two-thirds of developing countries, comprising 95 economies (out of 143 developing economies) and more than 80 per cent of the least developed countries (LDCs), are commodity-dependent as per UNCTAD's The State of Commodity Dependence 2025 report. Such a state of their economies can leave them vulnerable to volatile price fluctuations, fiscal fragility and delayed structural transformation.

Map 1: Agriculture-based commodity-dependent countries in 2021–23 (in per cent)



Source: UNCTAD

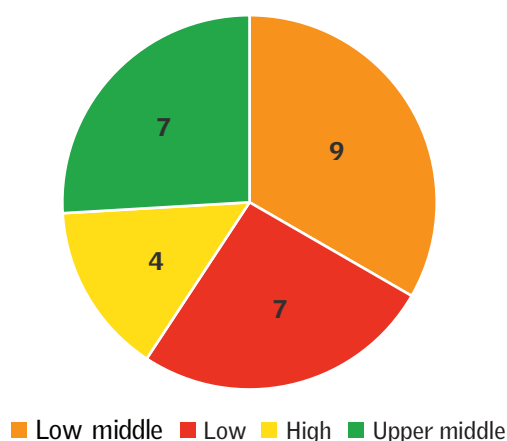
Note: We have taken all those countries whose agriculture-based commodity exports account for more than 55 per cent of their total merchandise exports (n=27). Additionally, agriculture as well as forestry-based products are classified under the broad umbrella of 'agriculture', which is one of the three main commodity groups.

Oceania, a geographical region in the Pacific Ocean, is home to some of the most agriculture-based commodity-dependent countries. Small Island Developing States in that region such as Micronesia, Solomon Islands, Vanuatu and Kiribati make up four of the top ten countries with their agriculture-based commodity dependency being 97.8 per cent, 86.9 per cent, 79.3 per cent and 77.3 per cent respectively.

Further, countries in the Latin American region, Uruguay, Argentina and Paraguay are three developing countries that are also highly commodity-dependent on agriculture, with the dependency being 79.7 per cent, 71.1 per cent and 68.6 per cent.

Graph 1: Income levels of agriculture-based commodity-dependent countries in 2023 (n=27)

Almost 60 per cent of agriculture-based CDCs have either low or lower-middle incomes

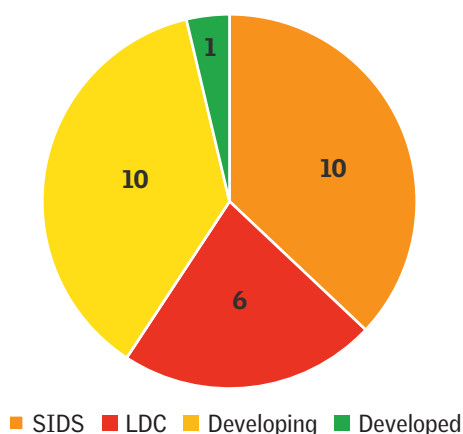


Source: CSE analysis, World Bank

Out of the four high-income countries in the list, one is New Zealand, a developed country, while the two, i.e. Seychelles and Nauru, are SIDS. Uruguay is the only developing country, but is classified as High Income by the World Bank. The World Bank's data for the calendar year 2023 classifies high-income countries as those whose gross national income (GNI) per capita is more than US \$14,005. Upper-middle-, low-middle- and low-income countries are classified on the basis of their GNI per capita being US \$4,516–14,005, 1,146–4,515 and less than or equal to \$1,145 respectively.

Graph 2: Different types of agriculture-based commodity-dependent countries in 2023

Almost 95 per cent of the agriculture-based CDC are from the Global South (SIDS, LDC, Developing) (n=27)



Source: CSE analysis, UNCTAD

Note: Country classifications are taken from UNCTAD.

New Zealand is the only developed country in the list here. However, four SIDS and one LDC have the highest commodity-dependency, led by Micronesia with its agriculture-specific commodity-dependency at 97.8 per cent, followed by Guinea-Bissau, Malawi, Solomon Islands and Uruguay with 91.6 per cent, 89.5 per cent, 86.9 per cent and 79.7 per cent commodity-dependency respectively.

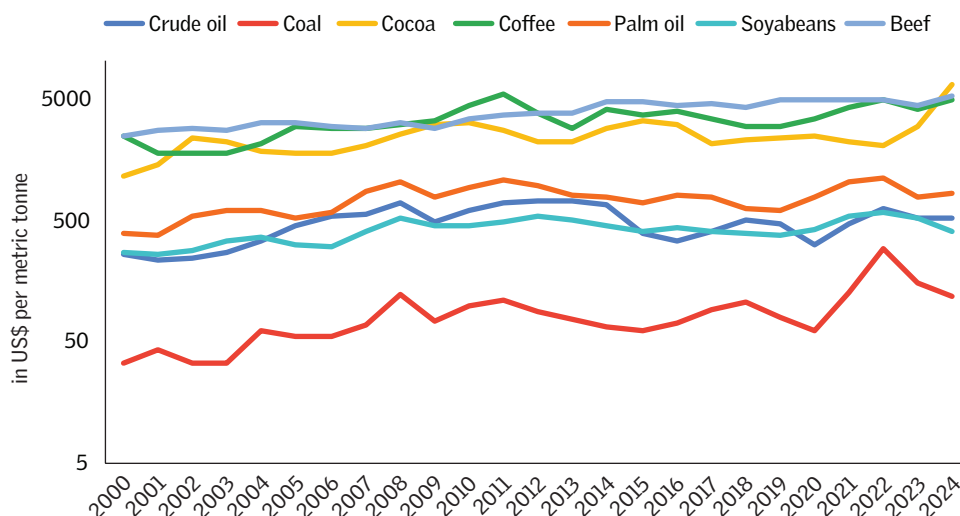
1.2 Understanding volatility of commodities through prices and its impact on countries

A 2024 study by researcher Ali Sen and others in the journal *Heliyon* aims to understand the linkages between commodity prices and economic growth, arguing that commodity prices, which tend to fluctuate rather than move in a straight trajectory, are often more volatile than the prices of manufactured goods or services. However, since the mid-1990s, volatility has intensified due to factors such as the rising demand from the global manufacturing sector, shifts in input costs, adverse weather events, and escalating geopolitical tensions.³

Commodity price cycles influence economic growth through multiple pathways, including price volatility, shifts in terms of trade, impacts on fiscal and monetary policies, and both direct and indirect effects on firms and households. In terms of volatility, the terms-of-trade theory suggests that commodity prices tend to decline over the long run, leading to revenue losses for commodity-dependent developing

Graph 3: Commodity prices over the last 25 years

The price of cocoa has increased the most in the last five years with a year-on-year increase of approximately 29 per cent since 2020



Note: Values are in US\$/metric tonnes. Additionally, the figures are the real-price values. This means that they are measured in current monetary terms (such as US\$) but adjusted for inflation.

Source: CSE analysis, World Bank

nations. This resource shortfall undermines their ability to finance development initiatives, ultimately constraining growth and progress in human development. Additionally, sharp price fluctuations create uncertainty, deterring investment and complicating development planning, which in turn jeopardizes the long-term sustainability of development efforts.⁴

In recent years, numerous studies have examined how fluctuations in commodity prices impact the economic growth of predominantly low-income nations. The vast majority conclude that such volatility has a negative effect on their growth. A few studies, however, suggest a positive link between commodity price swings and economic growth while others report no significant relationship between the two.⁵

Table 3 highlights a few global events that have had an impact on the market prices of both energy-based commodities such as crude oil as well as agriculture-based commodities such as coffee, timber and oil palm.

DO THE PRODUCER COUNTRIES BENEFIT FROM COCOA'S SHARP PRICE RISE?

The world's production of cocoa beans is concentrated in Western Africa with Ivory Coast and Ghana not just being the two largest producers but also accounting for 56 per cent revenue of the total exports of raw cocoa beans in 2021–23. It also means that the fluctuations in the global cocoa prices have been to a great degree determined by the supply-side disruptions in the region. For instance, there has been an average year on year (Y.O.Y) price increase of 51 per cent¹ in 2023–24 from 2022 levels due to the compounding effects of climate change and El Niño.² Nonetheless, the increase in the prices of raw cocoa do not necessarily entail a significant increase in the share of the producer countries' earnings because of the difference in the values captured by raw materials as compared with more processed and value-added products such as chocolates.

Table 1: Revenue generation from value-added cocoa products amongst countries

Despite producing half of the world's cocoa beans, Ivory Coast and Ghana earn negligible revenue from exports of chocolate and other processed products

Countries	Export revenue
Ivory Coast and Ghana	6.20 per cent
Netherlands and Germany	35.50 per cent

Source: CSE analysis, UN Comtrade

Note: Values are the annual averages during 2021–23

Value-added products such as cocoa powder, cocoa butter, cocoa paste and chocolates generated revenue worth US \$46.6 billion on an average annually in 2021–23. Some countries of the European Union such as the Netherlands and Germany accounted for more than one-third of the revenue despite exporting around 6 per cent of the raw cocoa beans³. Notably, the Netherlands is not just the biggest importer of cocoa beans but also, the largest processor of cocoa beans in the world.⁴

Table 2: Share of profit made by each actor in the cocoa supply chain

Manufacturers and retailers take 80–90 per cent of the total profit margin of a dark chocolate bar

Actors	Profit
Manufacturers and retailers	80–90 per cent
Traders and grinders	7–8 per cent
Smallholders	6–7 per cent

Source: International Institute for Sustainable Development

The cocoa–chocolate value chain is marked by significant inequality, with cocoa farmers earning the smallest share despite facing increasing production costs. In countries like Ghana and Ivory Coast, expenses for transport and farming inputs such as insecticides, pesticides and fertilizers have risen sharply. Additionally, labour shortages have further driven up costs for farmers. Meanwhile, the majority of the revenue in the value chain is captured by manufacturers and retailers.⁵

Source:

1. CSE analysis, UN Comtrade

2. Martin Paul Jr, Tabe-Ojong, Onasis Tharcisse Adetumi Guedegbe, Joseph Glauber. 2024. *Soaring cocoa prices: Diverse impacts and implications for key West African producers*. IFPRI. <https://www.ifpri.org/blog/soaring-cocoa-prices-diverse-impacts-and-implications-key-west-african-producers/>

3. CSE analysis, UN Comtrade

4. Govind Bhutada. 2020. *Cocoa's bittersweet supply chain in one visualization*. World Economic Forum. <https://www.weforum.org/stories/2020/11/cocoa-chocolate-supply-chain-business-bar-africa-exports/>

5. Steffany Bermudez, Vivek Voora, Cristina Larrea, Erika Luna. 2022. *Global Market Report: Cocoa prices and sustainability*. International Institute for Sustainable Development. <https://www.iisd.org/system/files/2022-11/2022-global-market-report-cocoa.pdf>

Table 3: Instances of events that have resulted in volatile price fluctuations of commodities

Global shocks including supply and demand constraints induce high volatility of prices across commodities.

COMMODITY	YEAR	EVENT	EFFECT ON PRICES
Crude oil	2009	The 2008 financial crisis fuelled by rising unemployment and lower spending leading to reduced demand for oil ⁶	A decrease of 32.1 per cent from 2008
	2020	Decrease in the demand due to Covid-19 pandemic as governments closed businesses and restricted travel ⁷	A decrease of 31.7 per cent from 2019
Coffee	2011	Tight supply and increased demand of Arabica ⁸	An increase of 24.5 per cent from 2010
	2024	Supply-side disruptions from adverse weather conditions ⁹	An increase of 22.6 per cent from 2023
Timber	2023	1. Long-term decline in paper production 2. A decline in imports and exports of other wood-based products across various parts of the world ¹⁰	A decrease of 12.4 per cent from 2021
Oil palm	2022	1. Covid-19 pandemic related labour restrictions 2. Ukraine restricts its exports of sunflower oil due to the Russia-Ukraine war Both events drove a surge in the demand of oil palm ¹¹	An increase of 41.4 per cent from 2020

Note: Prices are calculated as per the World Bank commodity markets data (2025).

As mentioned earlier, the volatility of commodity prices tends to exacerbate economic growth and development, especially in low-income countries. In the context of forest and agriculture-based commodity dependency, the economy of a country may well be structured around the revenues it earns through the exports of primary commodities such as beef, coffee and timber.

This further creates an added pressure on a country's natural resources, especially in the event of price shocks which will then impact a country's balance of payments as well as its ability to import goods and services.¹²

To elaborate, each of the 27 agriculture-based CDCs in our analysis rely on the exports of a few commodities that account for a large component of their merchandise exports. A steep fluctuation in the price of a relevant primary commodity will significantly impact the purchasing power of the commodity,¹³ thus influencing a CDC's ability to import other essential and relevant products, especially in the context of climate change and trade.

For instance, exports of meat of bovine animals contribute almost one-fourth (CSE analysis, UNCTADSTAT) of Uruguay's total merchandise exports, highlighting a significant dependency of the country on just a single commodity.

COFFEE'S PRICE IS SURGING GLOBALLY BUT WHO'S MAKING THE MONEY?

Since the Covid-19 pandemic in 2020, the price of coffee has seen an average Y.O.Y increase of 8.7 per cent.¹ It has been due to several factors such as supply-side disruptions that include shortage of labour and increased costs of shipping and transportation. Also, there has been a rise in the global demand of coffee, especially in emerging markets such as China and India. Furthermore, the increase in extreme weather events across main producer countries such as Brazil and Ethiopia have also contributed to the rise in prices.²

Table 4: Trade dynamics amongst major coffee-producing and -importing countries

Coffee-producing countries need to move downstream in the global value chains

Countries	Position in trade	Export revenue
Brazil, Vietnam and Colombia	Account for more than half of the total coffee production	~ 33 per cent
Germany and Switzerland	Two of the largest importers of coffee beans	~ 17 per cent

Source: CSE analysis, UN Comtrade

Note: Values are the annual averages between 2021-2023

Countries such as Germany and Switzerland account for 17 per cent of the total revenue from the exports of roasted coffee products due to their well-established roasting industries and certification schemes³ that allow them to move up the coffee value chain.

Additionally, producing coffee in a changing climate is becoming expensive as the input costs of products such as fertilizers and pesticides in addition to labour have increased sharply. Although production costs vary between coffee farms, regions and countries—due to differences in taxes, transportation, coffee varieties, techniques etc.—a general trend emerged in 2015–20 that showed that input costs rose by 8 per cent per year, while coffee prices increased by only 1 per cent annually.

Consequently, some farmers are only able to break even, while others are unable to cover their expenses as they often receive smallest margins in the value chains. In contrast, roasters such as Nestle and Starbucks to name a few tend to get the highest profit margins in the range of 44–65 per cent because of their monopoly over the value chain. It also translates in setting a favourable price of the coffee which the companies buy from the farmers as the latter have fewer options to choose whom they sell their coffee to.

Additionally, they are better placed to pass on the price increases upstream as well as to the end consumers, shielding themselves from volatility in coffee prices and deepening the existing inequality and power imbalance faced by farmers.⁴

Sources:

1. CSE analysis, UN Comtrade

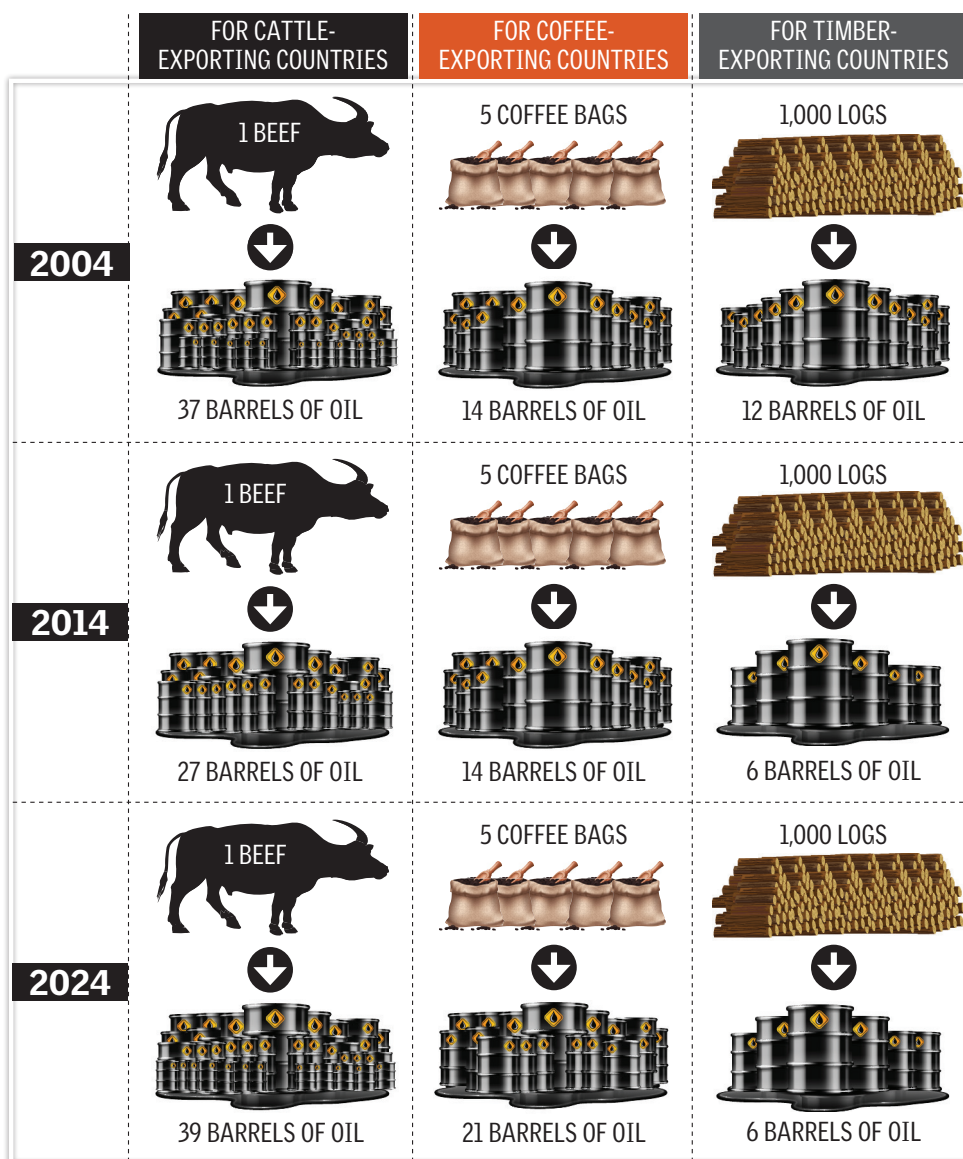
2. Kelemu Dessie Massrie. 2025. *Why is the price of coffee rising globally? Future prospects for Ethiopian coffee*. Frontiers. <https://doi.org/10.3389/fsufs.2025.1545168>

3. Bureau d'analyse sociétale d'intérêt collectif (BASIC). 2024. *The Grounds for Sharing: A study of value distribution in the coffee industry*. BASIC, Global Coffee Platform, IDH, Solidaridad.vhttps://www.globalcoffeeplatform.org/wp-content/uploads/2024/06/The-Grounds-for-Sharing_A-Study-of-Value-Distribution-in-the-Coffee-Industry.pdf

4. Steffany Bermúdez, Vivek Voora, Cristina Larrea. 2022. *Global Market Report: Coffee prices and sustainability*. International Institute for Sustainable Development.v<https://www.iisd.org/system/files/2022-09/2022-global-market-report-coffee.pdf>

Given the price fluctuations in the global trade of beef over a 25-year time period, it implies that exporting one beef (one beef here refers to a cow reared for the purpose of trade) in 2004 would have allowed Uruguay to import 37 barrels of oil. In 2014, the revenue generated from the exports of same amount of beef would have allowed the country to purchase 27 barrels of oil, a decrease by around 27

Figure 1: Comparative relationship between different commodities vis-à-vis purchasing power



Note: The idea of comparing commodities to understand the purchasing power is referred to from Agarwal and Narain. (1992). *Towards a Green World*. Centre for Science and Environment. New Delhi.

Source: CSE analysis, World Bank

per cent as compared to 2004. The rise in prices of beef and a decline in the price of crude oil globally in 2024 would mean that the export of one beef would fetch Uruguay 39 barrels of oil, an increase by 37 per cent compared to 2014.

We have taken the following (as an average value) to calculate the prices of commodities in the above-mentioned table:

- Weight of one beef cattle as 1,150 pounds or approximately 520 kg.¹⁴
- Weight of one industrial log as 750 kg/cubic metre¹⁵
- Weight of one coffee bag as 60 kg¹⁶
- 159 litres of oil is stored in one barrel of oil¹⁷ and the average density for crude oil is taken as approximately 0.85 kg/litre. This means that one barrel of oil is equal to 135 kg.

AGRICULTURE AND WTO: A HISTORY OF DISPUTES AND REFORMS

Agriculture was long treated as an exception to the liberal trading rules that governed industrial goods under the General Agreement on Tariffs and Trade (GATT), leading to chronic distortions and instability in world agricultural markets. For decades, developed countries maintained high protection through tariffs and subsidies and such policies were largely accounted within the GATT framework while developing country exporters suffered from depressed world prices and restricted market access. This "disarray" in global agriculture prompted the inclusion of agriculture as a central issue in the Uruguay Round (1986–1994), marking the first serious attempt to subject agricultural trade to multilateral discipline through the Agreement on Agriculture (AoA).¹

However, despite the Uruguay Round's Agreement on agriculture which brought farming more fully under the international trade disciplines, disagreements over subsidies, export competition, and market access have continued to generate a large share of WTO disputes. Even though the dispute mechanism has played a key role in clarifying the rules but trade rules alone cannot resolve all the underlying tensions such as structural imbalances in agriculture sector, differences in development levels, food security concerns, and political economy pressures. It further highlights that the reform of agricultural trade rules must go hand in hand with domestic policy reform and international cooperation.²

Sources:

1. R. Sharma. 2000. *Multilateral Trade Negotiations on Agriculture, Module 4- Agriculture in the GATT: A Historical Account*. Food and Agriculture Organisation. Rome. <https://www.fao.org/4/x7352e/X7352E04.htm>

2. Tim Josling. 2009. *Chapter 10 Agricultural Trade Disputes in the WTO. Frontiers of Economics and Globalization*. https://www.researchgate.net/publication/244246451_Chapter_10_Agricultural_Trade_Disputes_in_the_WTO

2

CLIMATE CHANGE, TRADE AND COMMODITY DEPENDENCE

Climate change disproportionately impacts agriculture-based CDCs, with up to 24 times more people affected and nine times higher GDP losses than developed countries.

CDC exports are heavily concentrated in a few agricultural commodities, with low diversification and minimal share of manufacturing in their GDP.

Unilateral trade measures like CBAM and EUDR further strain CDCs by undermining trade competitiveness and burdening smallholders.

Developing countries are likely to be disproportionately affected by climate change across different dimensions. According to the non-profit Germanwatch, seven out of the top ten most affected countries by extreme weather events between 1993 and 2022 were in the Global South.¹⁸ In the context of trade, one of the reasons for differential impact on CDCs lies in their higher reliance on the exports of commodities that are climate sensitive.

Factors such as changing rainfall patterns and an extreme rise in temperatures pose a risk to numerous agricultural commodities in the long run that are crucial for the livelihoods, exports and revenue generation of many developing countries.¹⁹ These economic vulnerabilities exacerbate their ability to borrow capital as well, which they already receive at a higher interest rate than developed countries to begin with.²⁰

2.1 Impacts of climate change on agriculture-based CDCs and developed countries

The Germanwatch Climate Risk Index (CRI) 2025 report highlights that the impacts of extreme weather events such as heatwaves, floods, droughts, wildfires, storms and tropical cyclones are being felt globally, with climate change intensifying these effects. Covering the time period of 1993–2022, the index indicates that countries in the Global South have been hit the hardest. Among the ten most affected countries as per CRI's ranking, five belong to the lower middle-income group of developing countries, including three classified as LDCs or SIDS.

In the context of trade, one of the reasons for differential impact lies in their higher reliance on the exports of commodities that are climate sensitive. Factors such as changing rainfall patterns and extreme rise in temperatures pose risks to numerous agricultural commodities in the long run that are crucial for the livelihoods, exports and revenue generation of many developing countries.²¹ These economic vulnerabilities also exacerbate their ability to borrow capital, which they already receive at higher interest rates than developed countries to begin with.

In this context, we can also draw a comparison between agriculture-based CDCs and developed countries for whom agriculture is the dominant export to understand the effect of climate impacts.

Table 5: Comparison between agriculture-based CDCs and developed countries between 1993 and 2022 vis-à-vis climate change

Climate change worsens the state of agriculture-based CDCs disproportionately

Values are annual averages

INDICATORS	TOP 10 CDCS	TOP 10 DEVELOPED COUNTRIES
Affected persons per 100,000	289.4	11.9
Losses (as per cent of GDP)	0.47	0.05

Note: Top 10 agriculture-based CDCs out of the 27 CDCs whose share of agricultural exports is more than 55 per cent or more; top 10 developed countries for whom agriculture is the largest commodity export.

Additionally, the methodology of selecting the 20 countries for the analysis is given in the annexure.

Source: CSE Analysis, Germanwatch

- Affected persons (per 100,000) were 24 times more for the top 10 agriculture-based CDCs as compared to the top 10 agriculture-based developed Non commodity-dependent countries (NCDC) countries.
- Losses (as per cent of GDP) were more than nine times more for the top 10 agriculture-based CDCs as compared to the top 10 agriculture-based developed NCDC countries.

New Zealand is the only developed country in the top ten CDCs due to its commodity dependency on agricultural exports of more than 55 per cent (75.7 per cent to be precise). However, its affected persons per 100,000 is 1.5, falling in a range closer to 0–20 where most developed countries are, and also bringing down the overall average for CDCs. Further, four out of the nine CDCs, including Micronesia, Malawi, Belize and Vanuatu, had at least 500 affected persons per 100,000 on average in 1993–2022. Vanuatu and Belize have also been the most impacted countries due to climate change with regard to their losses (as per cent of GDP), which were 2.8 per cent and 1.34 per cent respectively on average during the same time period.

These findings are corroborated by Dell et al. (2012) study titled ‘Temperature Shocks and Economic Growth: Evidence from the Last Half Century’ which argues that higher temperatures have a significant negative effect on economic growth in poorer countries. To elaborate, a 1°C increase in a given year reduced that year's economic growth by 1.3 percentage points in developing countries, but it had no significant impact on the economies of wealthier, developed countries.

2.2 How does trade stack up for agriculture-based CDCs and developed countries?

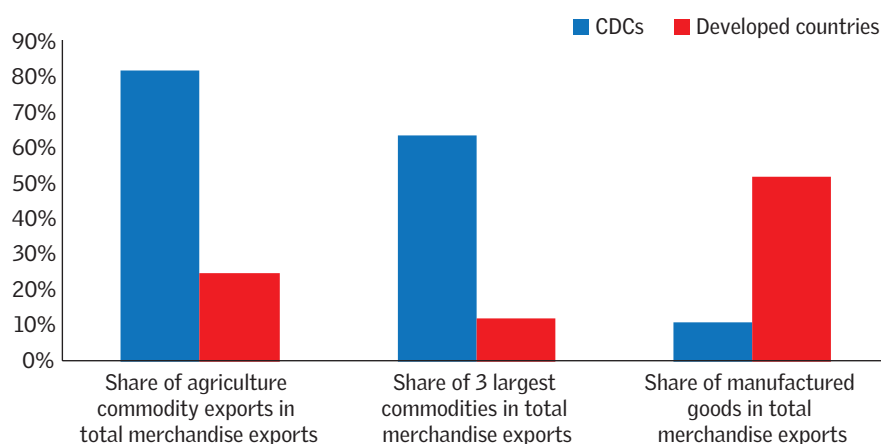
Deep diving into the commodity dependence of countries can enhance our understanding about how a country is placed with regard to the various kinds of

products or commodities they export to the world along with their concentration. In this context, we have drawn a comparison between the top ten CDCs and ten developed countries for whom agricultural exports account for the biggest share of total commodity exports.

Graph 4: Comparison between agriculture-dominant CDCs and developed countries in 2021–23 vis-à-vis trade

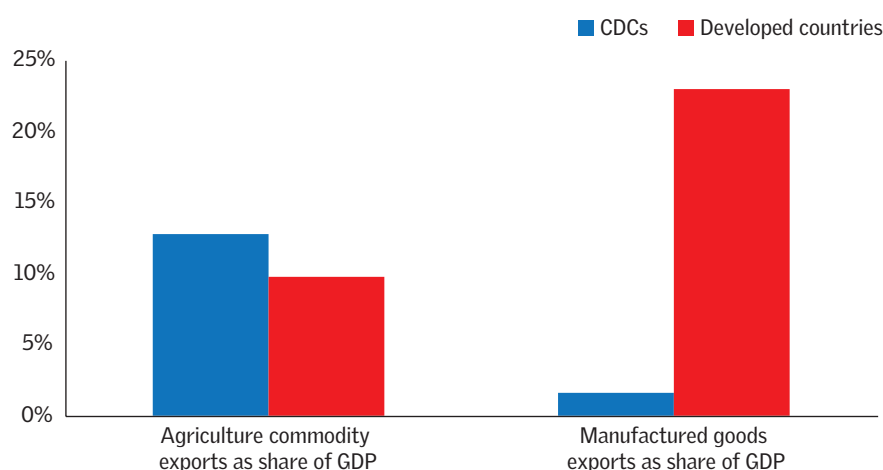
a) Trade dynamics are skewed towards developed countries

Values are annual averages



Source: CSE analysis, UNCTADSTAT

b) Manufactured good exports contributed to less than 2 per cent of the GDP of CDCs in 2021–23



Note: The figures for agriculture-based commodities and manufactured goods are determined as per the codes under UNCTAD's classification of commodities under agriculture and manufacturing.

Source: CSE analysis, UNCTADSTAT, World Bank

The methodology of selecting countries and the respective values for each country is elaborated in the annexure.

Contextualizing the stark differences in trade

From Graph 4a and 4b, we observe the following findings between 2021 and 2023:

- The average revenue share of agriculture-based commodity exports in total merchandise exports was 81.5 per cent in CDCs while was 24.8 per cent in the developed countries in 2021–23 (see *Annexure*).
- The average revenue share of the top three biggest agriculture-based commodity products in total merchandise exports is 63.5 per cent in CDCs while it is 12 per cent in developed countries. This highlights the stark concentration of just three products on which the CDC depends for most of its merchandise exports.
- The average revenue share of manufactured goods in total merchandise exports is 11 per cent in CDCs while it is 51 per cent in the developed countries (see *Annexure*).
- The average revenue from agriculture-commodity exports as a share of the GDP is 12.8 per cent for CDCs while it is 9.8 per cent for the developed countries.
- The average revenue from manufactured goods exports as a share of the GDP is 1.7 per cent for CDCs while it is 23 per cent for the developed countries.

The findings, especially with regard to the share of manufactured goods in countries' total merchandise exports and GDP points towards a structural barrier to economic development of the developing countries that is created due to tariff escalations.

According to UNCTAD's 'Global Trade Update (March 2025): The role of tariffs in international trade', it is a trade policy where higher import tariffs are placed on value-added goods, while raw materials face lower or even zero tariffs. This is often done to safeguard domestic industries that manufacture consumer goods.

For instance, the difference between tariffs on consumer goods, intermediate products and raw materials in the manufacturing sector is 2.6 percentage points for the developed countries. To elaborate, developed countries' average tariffs were 2.6 per cent on finished goods, 1.2 per cent on intermediate goods, and 0 per cent on primary goods in 2023.

Similarly, the difference was 6.3 and 8.2 percentage points for African and South Asian regions respectively. Such a significant gap, especially for agriculture-based developing countries, means that they are discouraged from adding value to their exports because doing so would result in higher tariffs. This further reduces their

Table 6: Top three exported products and their share in total exports of a few CDCs and developed countries

Oil seeds and oleaginous fruits (excluding flour) is one of the most exported products, especially in CDCs¹

COUNTRY	COUNTRY TYPE	TOP THREE EXPORTED PRODUCTS	SHARE OF THE PRODUCTS IN TOTAL MERCHANDISE EXPORTS
Malawi	CDC—LDC	1. Tobacco, unmanufactured; tobacco refuse 2. Oil seeds and oleaginous fruits (excluding flour) 3. Sugar, molasses and honey	63.3 per cent
Uruguay	CDC—Developing	1. Meat of bovine animals, fresh, chilled or frozen 2. Oil seeds and oleaginous fruits (excluding flour) 3. Wood in the rough or roughly squared	45.5 per cent
Vanuatu	CDC—SIDS	1. Fruit, preserved, and fruit preparations (no juice) 2. Crustaceans, molluscs and aquatic invertebrates 3. Oilseeds and oleaginous fruits (incl. flour, n.e.s.)	42.1 per cent
Ukraine	Developed	1. Maize (not including sweet corn), unmilled 2. Wheat (including spelt) and maslin, unmilled 3. Oilseeds and oleaginous fruits (excluding flour)	24.9 per cent
Denmark	Developed	1. Other meat and edible meat offal 2. Fish, fresh (live or dead), chilled or frozen 3. Edible products and preparations, n.e.s.	71 per cent
Spain	Developed	1. Fruits and nuts (excluding oil nuts), fresh or dried 2. Vegetables 3. Other meat and edible meat offal	6.8 per cent

¹ Although the sample size here is not representative of most of the countries.

Source: CSE analysis, UNCTADSTAT

trade competitiveness and makes it difficult for them to align in the global value chains apart from their role as exporters of raw materials.

The results in this subsection coupled with the issue of tariff escalation signal the need for the commodity-dependent developing countries (CDDCs) to transition towards export diversification by tapping into the regional markets instead of depending only on developed countries which impose high tariffs on value-added goods. It can enable the CDDCs to maximize the gains from their resources through domestic value additions and strengthen their global competitiveness.

Moving up the value chain to produce more sophisticated, higher value-added goods would allow these countries to reduce their dependence on raw commodity exports, thereby reducing exposure to price swings and external market shocks. Such an intervention can also drive higher revenues, generate employment opportunities, and support technological progress.²²

HISTORICAL LINKAGES BETWEEN TRADE AND ENVIRONMENT

Trade policies introduced with the objective of curbing the degradation of any specific aspect of the environment have often been used as a tool by developed countries since the 1980s to control and reshape environmental governance in developing countries. The inherent power dynamics between the two enables the former to formulate extraterritorial trade policies that impinge on the management of species and ecosystems and the goods that are derived from them.¹ In this context, extraterritorial refers to a country applying trade restrictions domestically and extending the same rules to a foreign territory to achieve their own environmental objectives. The WTO has been the relevant multilateral institution to address grievances and settle disputes between the countries through the fundamental principle of Most Favoured Nation (MFN), which implies treating all partner countries equally.

The Shrimp-Turtle case in 1997 is an example where developing countries such as India, Pakistan, Malaysia and Thailand lodged a complaint against USA for imposing a ban on the import of a few species of shrimp and its derived products. Harvesting of shrimp with a certain method and technique posed a threat to sea turtles that were categorized as endangered under the relevant legislation of USA.

The Appellate Body of the WTO Dispute Settlement Mechanism ruled the case in favour of the developing countries as it was found that USA allowed more time to transition to some of the developed countries and provided technical and financial support. However, USA's decision to protect sea turtles, not just domestically but also extending it internationally, was vindicated by the body under the General Agreement on Tariffs and Trade (GATT) Article XX that allows for exceptions to WTO's trade rules, especially due to environmental reasons.²

This interpretation of the article is debatable as it does not address the issue of extraterritoriality, and it may have a bearing on the trade dynamics between a producer and a consumer country. In this context, the EU Deforestation Regulation (EUDR), a policy that aims to halt EU's contribution to global deforestation and forest degradation by identifying and restricting the trade of certain agricultural commodities, has been subjected to scrutiny, especially by the countries in the Global South as it may impact global supply chains, disrupt trade and exclude smallholders.³

Sources:

1. Anil Agarwal and Sunita Narain. 1992. *Towards a Green World: Should Global Environmental Management Be Built on Legal Conventions or Human Rights?* Centre for Science and Environment. Delhi.

2. FAO. 2022. *The State of Agricultural Commodity Markets*. FAO. <https://openknowledge.fao.org/server/api/core/bitstreams/0c7cb6df-c416-4397-b999-bf7bca819b17/content/state-of-agricultural-commodity-markets/2022/trade-environment-policies.html#modal-ad>

3. Eliza Zhunusova., Vianny Ahimbisibwe., Le Thi Hoa Sen., Azin Sadeghi., Tarin Toledo-Aceves., Gillian Kabwe and Sven Günter. 2022. *Potential impacts of the proposed EU regulation on deforestation-free supply chains on smallholders, indigenous peoples, and local communities in producer countries outside the EU*. *Forest Policy and Economics*. Volume 143, ISSN 1389-9341. <https://doi.org/10.1016/j.forpol.2022.102817>.

Examples of what domestic value addition could look like are given in section 4 of this paper.

2.3 Unilateral trade measures further affect developing countries

The dimensions of climate change and trade enables us to understand how the economies of commodity-dependent countries, especially in the Global South, are disproportionately impacted. Additionally, their exports-oriented model of growth continues to remain heavily concentrated on a few products arising from the relevant commodities.

However, in the context of current geopolitics, rising protectionism (especially by the Global North) has become a significant lever of power that is exerted on the countries of the Global South. For example, protectionist measures such as tariffs imposed by the United States of America can further reduce the competitiveness of the export-dependent developing countries in global markets.²³ Similarly, the European Union's Carbon Border Adjustment Mechanism (CBAM) will not just hurt trade competitiveness but also essentially place the burden of decarbonization on the developing world.²⁴

In order to elaborate on such climate-change-related trade-restrictive measures on the developing world, we examine EUDR in the next section. The implications of such a policy may translate into an additional hurdle to their existing financial burden as it exposes their exports to an increased risk of non-compliance to a global environmental issue such as deforestation.

3

EUROPEAN UNION DEFORESTATION REGULATION

The EU Deforestation Regulation (EUDR) mandates cumbersome due diligence and stringent penalties on seven key commodities linked to deforestation.

Its one-size-fits-all forest definition and reliance on satellite imagery risks misclassifying agroforestry and unfairly penalizing producer countries.

High cost of compliance and complex traceability systems threaten to exclude smallholders from supply chains, worsening their vulnerability.

3.1 What is the policy about?

The European Union Deforestation Regulation (EUDR)-2023/1115²⁵ is a policy put forth by the EU and its 27 member states to reduce the EU's contribution to global deforestation and forest degradation, arising out of the expansion of agricultural land, linked specifically to seven commodities, i.e. cattle, cocoa, coffee, oil palm, rubber, soya and wood. The scope of this regulation includes these commodities and their derived products that are produced within the Union as well as those that are produced outside of it.

Through this regulation, the EU aims to avoid the listing of products in the European market that contribute to deforestation and forest degradation in the EU and globally.²⁶ Additionally, the regulation is aimed at reducing the carbon emissions caused by EU's consumption and production of the relevant commodities by at least 32 million metric tonnes a year.

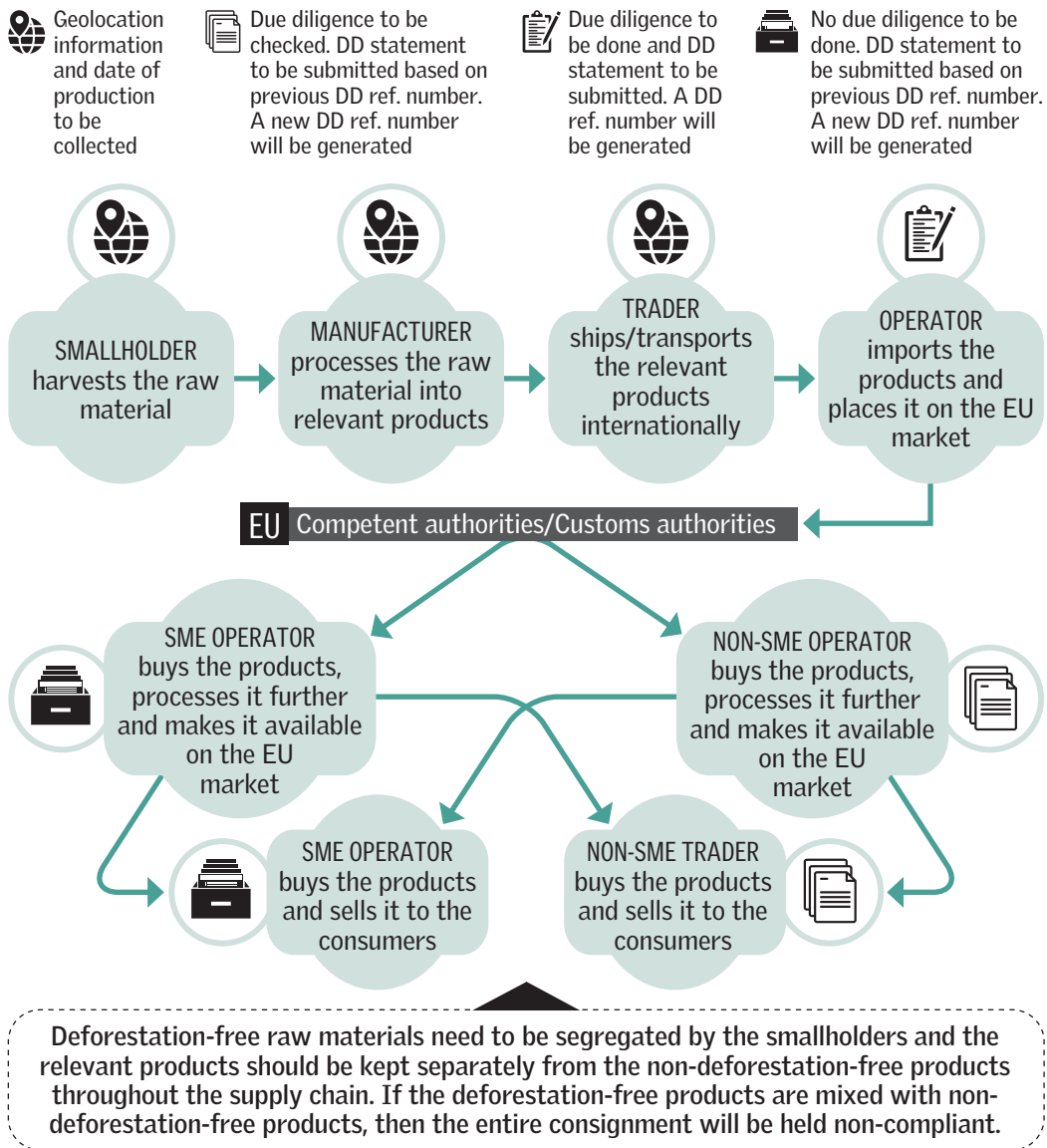
3.1.1 Due diligence

In order to implement the regulation effectively, the EU has proposed a series of rules and measures with regard to the trade of the aforementioned commodities that are encapsulated in the broader due diligence (DD) process. Additionally, risk assessment of the given products and commodities and the actions taken to mitigate those risks are also to be included in the DD. The DD will be documented in a statement under each operator and/or trader which will be submitted in an electronic information system. The data on the information system will be shared by the Commission with different stakeholders such as the competent authorities, customs authorities, operators and traders.

3.1.2 Relevant stakeholders

1. **Operators:** Operators can be natural (individual) or legal (entity) persons responsible for first making available a relevant commodity or product on the Union market. They are also accountable for submitting the due diligence to the competent authorities.
2. **Traders:** Traders can also be natural or legal persons in the supply chain other than the operators who can supply a relevant product for distribution, consumption or use on the Union market in the course of a commercial activity.
3. **Competent authorities:** Competent authorities are important actors who are designated by each member state to facilitate the enforcement of the EUDR.
4. **Customs authorities:** Customs authorities form part of the customs administration of the member states responsible for applying the customs legislation. In EUDR's context, they are required to exchange information and cooperate with the competent authorities to fulfil their obligations.

Figure 2: Flow chart of EUDR-subjected commodities that are sourced from outside of the EU



Source: CSE representation, EU Commission

3.1.3 Assessment of countries

This regulation has established a three-tier system that assesses all the countries into the following categories:

- **High-risk:** Implications are that each member state will ensure to carry out annual checks on 9 per cent of the operators.
- **Standard-risk:** Implications are that each member state will ensure to carry out annual checks on 3 per cent of the operators.

- Low-risk: Implications are that each member state will ensure to carry out annual checks on 1 per cent of the operators.

The three main criteria for assessment are:

1. Rate of deforestation and forest degradation;
2. Rate of expansion of agricultural land for relevant commodities; and
3. Production trends of relevant commodities and of relevant products.

3.1.4 Penalties

The penalties in the regulation are evaluated in terms of the degree of non-compliance and include various options such as:

1. Fines proportional to the environmental damage and the value of the relevant commodities or products in question; in the case of legal person, the maximum fine imposed could be at least 4 per cent of the operator's or the trader's total annual Union-wide turnover in the financial year preceding the fining decision.
2. Confiscation of the relevant products and revenues from the operator and/or trader.
3. In the event of serious or repeated infringements, an operator and/or trader would be temporarily stopped to place or make relevant commodities and products available on the markets or to export as well.

3.2 Imposing a one-size-fits-all approach to deforestation

The EU has used a combination of satellite imagery and existing global spatial layers on land cover, land use and tree height to map the world's forest through the EU observatory on deforestation and forest degradation.²⁷ Under EUDR, deforestation due to a commodity would be assessed by looking at the available geospatial layers of croplands and forests and evaluate the change in land use after December 31, 2020.²⁸

The definition of forest and its inability to reflect the complexities of local ecosystems has been and will be a main point of contention in understanding commodity-driven deforestation, in the non-EU producer countries. The EU has strictly used FAO's definition—according to this a 'forest' refers to land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 per cent, or trees able to reach those thresholds in situ, excluding land that is predominantly under agricultural or urban land use.²⁹

But most countries apply certain elements of their own to the internationally agreed terms, depending on their geography, ecology and national circumstances.

For instance, Ghana defines a forest as an area of minimum 1 hectare that has a canopy cover of at least 15 per cent, with trees being a minimum of 5 metres tall.³⁰ Indonesia defines a forest as ‘a land area of more than 0.25 hectares with trees higher than 5 metres at maturity and a canopy cover of more than 30 per cent, or trees able to reach these thresholds in situ’.³¹

These differences may not be reflected in the EU observatory’s satellite data during its mapping and monitoring exercise, especially if they choose to follow the specific thresholds of tree height and canopy cover under the FAO definition.

3.2.1 Implications for agroforestry

The regulation also undermines agroforestry, a concept of sustainable and diverse land use practices that has gained traction in the last decade and is estimated to be found on 43 per cent of all agricultural land globally.³² Now, if we assume that the existing geospatial data on croplands is not 100 per cent accurate or encompassing all croplands, it could also imply that the EU observatory has mapped a country’s plantations and area under agroforestry as forests as per FAO’s definition.

It would then amount to a misjudgment of an agriculture-based land use system that may be classified as ‘forests’ in 2020. This implies that the relevant commodities and products generated from those lands after 2020 will be ‘non-compliant’ under the regulation even if they have not contributed to deforestation. This would exacerbate the trade relations further, especially for CDCs whose economies, in this context, are shaped by agriculture-based commodity trade. Countries such as Indonesia, Australia, India, Colombia and Brazil have strongly criticized this approach of the EU at the WTO.

3.2.2 What about smallholders?

Apart from the amount of trade that could be exposed through penalties and confiscation of goods, the additional transaction costs of the due diligence for companies and smallholders would be very high as well depending mainly on the complexity of the supply chain for a particular commodity, administrative procedures and the methods and technology to gather geolocation data.

In the past, big corporations who similarly committed to ‘zero deforestation’ in their operations held interventions in order to make their supply chains sustainable. The challenges in compliance persist due to pressures of poverty and land tenure insecurity. The operators within the EUDR supply chains would then also move towards simplification and shortening of supply chains as implementing the traceability systems on ground is quite complex. This could imply that the

Table 7: How much do smallholders earn from a commodity's end product?

COMMODITY	SHARE OF FINAL RETAIL VALUE
Coffee	6.50 per cent ¹
Cocoa	6.60 per cent ²
Oil palm	6 per cent ³
Soya	10–15 per cent ⁴

Source:

1. Bart Slob. 2006. *A fair share for smallholders*. SOMO—Centre for research on Multinational Corporations. <https://openknowledge.fao.org/server/api/core/bitstreams/ca9ba304-1346-4022-aa2b-439de344b10b/content>
2. Govind Bhutada. 2020. *Cocoa's bittersweet supply chain in one visualization*. World Economic Forum. <https://www.weforum.org/stories/2020/11/cocoa-chocolate-supply-chain-business-bar-africa-exports/>
3. Solidaridad. (n.d.). *Palm Oil*. Solidaridad. <https://stories.solidaridadnetwork.org/the-small-farmer-atlas/small-farmer-atlas-1st-edition-solidaridad-network/commodities/palm-oil/>
4. Vivek Voora., Steffany Bermudez., Han Le., Cristina Larrea and Erika Luna. 2024. *Global Market Report: Soyabean prices and sustainability*. International Institute for Sustainable Development. <https://www.iisd.org/system/files/2024-02/2024-global-market-report-soybean.pdf>

smallholders are excluded from the supply chains and they will incur a potential loss of livelihoods, which would worsen their vulnerability.³³ Table 7 shows that smallholders across the relevant four commodities receive a very small share of the end product's value. Often, they receive the smallest profit margins of any stakeholder within the value chains of several cash crops.³⁴

3.2.3 A penalizing conditionality rather than structural support to transition

Since the EU's aim is just to reduce its consumption footprint rather than consumption itself, the EUDR becomes an instrument to facilitate a demand-side conditionality rather than a demand-side reduction. The regulation does not change the incentives of production for smallholders, traders and other stakeholders along the supply chain to move towards sustainable agricultural practices. Yet it places a financial burden on them to comply with the additional administrative and technical procedures.

The regulation makes the assumption that minimizing the consumption of relevant commodities and products that originate out of deforestation-associated supply chains and increasing the demand of the same in deforestation-free supply chains, would lead to a reduction in EU embodied deforestation and their consumption footprint. However, the regulation intends to be effective just by virtue of penalties and reduction in trade flows of seven deforestation associated commodities without aiding structural shifts through technical and financial assistance that are required to decouple increasing agricultural production and land use change.

4

CASE STUDIES OF GLOBAL SOUTH COUNTRIES MOVING UP THE VALUE CHAIN

Global South countries show diverse, context-specific pathways to move up the commodity value chains, driven by coherent policies and state support.

Vietnam, Colombia, China and Uganda illustrate how interventions like PFES, farmer federations, capital investment by the state and policy incentives boosted value addition and trade revenues.

Successful value-chain upgrading depends on human capital, infrastructure, market access, finance and technology alongside supportive governance.

The new green economy for commodity-dependent developing countries is not an end point but an ongoing journey toward sustainable development, one that cannot be achieved with a uniform, one-size-fits-all model. Thus, there cannot be just one version of a new green economy; instead, there will be numerous pathways to sustainability and economic growth, each shaped by different contexts and needs.

Additionally, the shift towards a green economy cannot be driven by market forces alone. Government action is essential to establish regulations and foster a supportive policy and investment framework that guides both public and private stakeholders while ensuring policy coherence.³⁵

In this context, we have provided a few case studies of countries that systematically intervened in their agriculture and forestry sector in order to move up the value chain of the relevant commodities.

4.1 Vietnam's value additions in the forestry sector

A 2019 study published in MDPI sought to evaluate the trade competitiveness of Vietnam's timber industry³⁶ and argued that the industry benefited from Vietnam's inexpensive labour and a cost advantage in the international market. In addition, advantages in natural resources, skilled labour workers, favorable geographical location, and high worldwide demand for Vietnam's inexpensive products increased the country's international competitiveness as well with respect to processed wood products.

Intervention

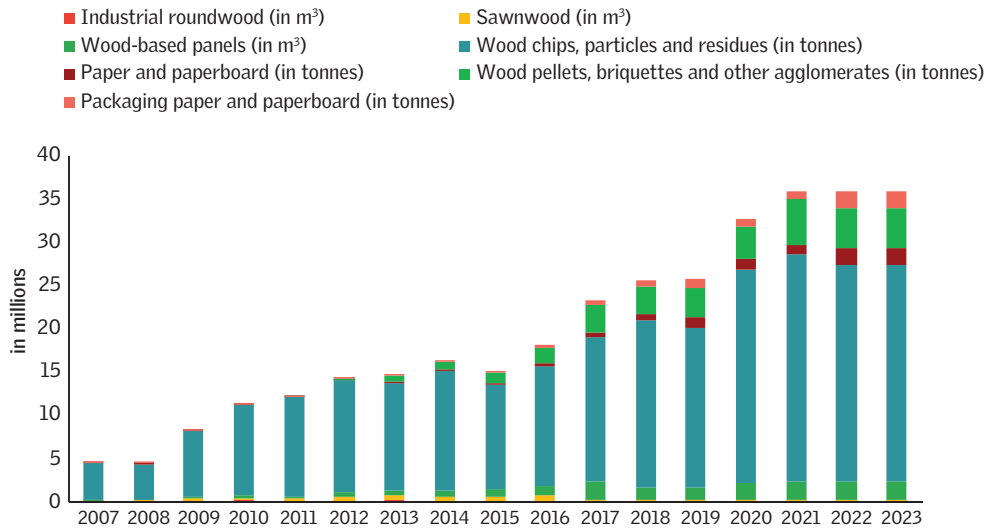
1. Prior to 2010, the country's heavy reliance on natural forests in order to extract timber proved to be a significant hurdle in the context of its efforts to manage and restore forests.³⁷ There was a gradual decline in deforestation of natural forests that was supported by the adoption of Payment for Forest Environmental Services (PFES) in 2010 along with the initiation of phase 1 of the National REDD+ strategy in 2012.

Since 2008, its PFES programme has generated nearly \$400 million.³⁸ In 2014, the government banned logging in natural forests, but it had already planned to open up areas for timber harvesting in plantation forests. This resulted in an increase of the supply of raw materials such as woodchips, particles and residues for forestry-based companies and in 2011, Vietnam became the world's largest woodchips supplier.³⁹

Graphs 5a and 5b reflect the boom in Vietnam's timber industry, especially in the last 15 years. In terms of trade volume, there has been an average YoY increase

Graph 5a: Analysis of Vietnam's various wood-based products in terms of trade volume

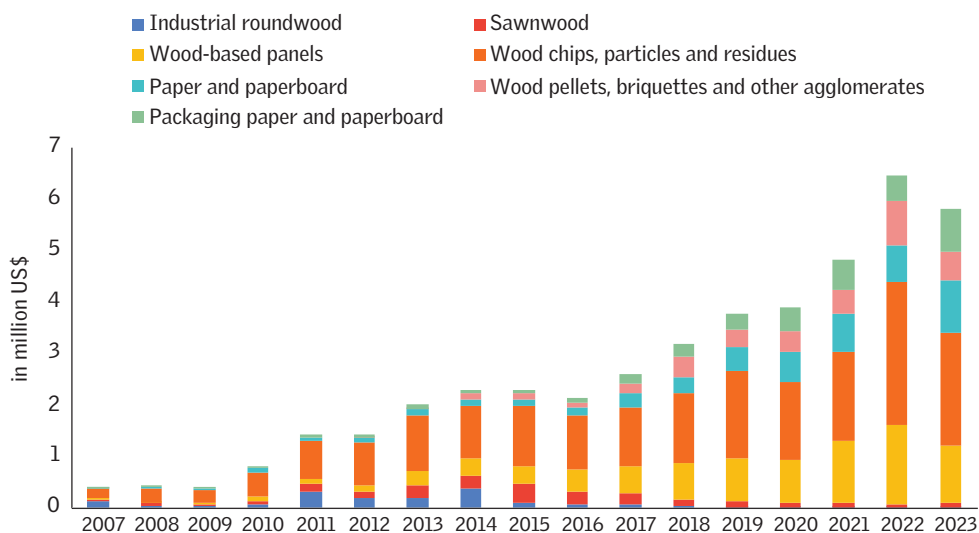
The volume of processed products such as wood pellets among others has increased substantially in Vietnam's export of timber



Source: FAOSTAT

Graph 5b: Analysis of Vietnam's various wood-based products in terms of revenue generation

The total revenue generated comes from a diversity of value added products



Source: Food and Agriculture Organization Statistics (FAOSTAT)

of 33 per cent, 43.3 per cent and 88.7 per cent for wood-based panels, paper and paperboard and wood pellets respectively. This has also resulted in a more diversified revenue from the industry, with an average increase of 32.8 per cent 91.8 per cent and 31.7 per cent from the above-mentioned products respectively.

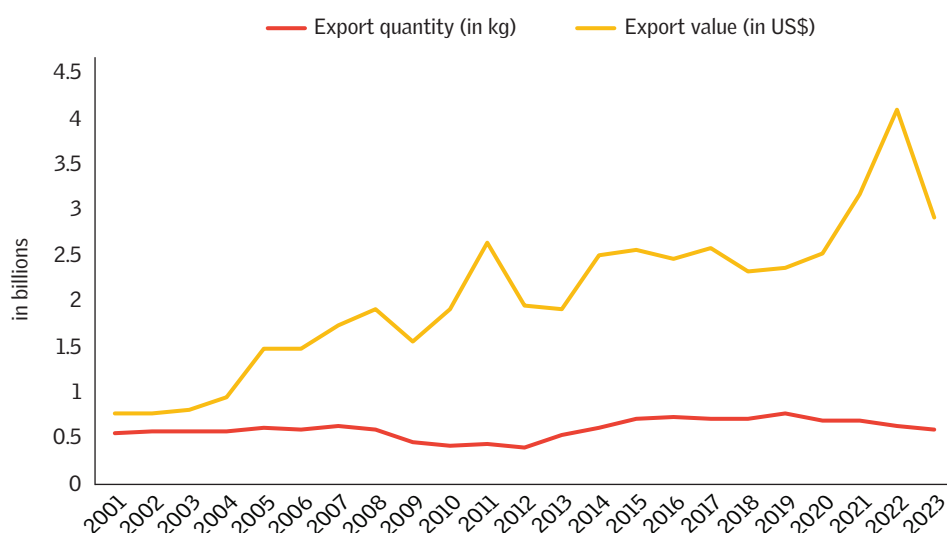
4.2 Colombia's increase in the value of coffee exports through a federation

As we have established earlier, commodities are bound to experience price fluctuations that can destabilize the economies of developing countries. However, the production of coffee has not done so in Colombia's economy. This is largely due to the widespread adoption of on-farm wet processing as the primary method for handling coffee in Colombia.⁴⁰ By carrying out the initial stage of wet processing on their farms, farmers are able to capture more value from their product, as they can sell parchment coffee, which is processed to a higher level rather than the unprocessed cherry coffee.

During 2021–23, the country accounted for 7.4 per cent of the global exports of coffee on an annual average while contributing 1.1 per cent (US \$3.7 billion) to its GDP in the same time period (CSE analysis, UNCTADSTAT). Such revenue generation was a result of moving upwards in the coffee value chain led by the

Graph 6: Export of Colombian coffee in terms of trade volume and revenue generation

The value of Colombia's coffee exports grew at an average rate of 8 per cent since 2001



Source: UN Comtrade

National Federation of Coffee Growers of Colombia (FNC),⁴¹ a non-profit established in 1927.

Intervention

1. The federation supports 360,000 coffee growers since the late 1990s by offering services such as guaranteed purchases at a publicly declared base price, technical support and certification initiatives amongst others to improve the quality of the coffee.⁴²
2. In 1959, they also developed a brand known as Juan Valdez, which has positioned itself at the forefront of the Colombian coffee industry. The brand has now become a multinational entity, with a presence of Colombian coffee products in 40 countries. Almost 18,000 coffee producers are shareholders in the firm which gives them the opportunity to receive more benefits and capture more value downstream.
3. Apart from the FNC, the government has also intervened through policies such as provision of subsidies for coffee shipments in 2006–08. In 2022, they also introduced a credit line system for small and medium coffee producers that provided an average of 300 credits per day in 2024.⁴³

4.3 China's timber industry booms through state investments

It is important to note that inexpensive yet skilled labour and investments in technology and building infrastructure have had a significant impact on the production and trade of diverse wood-based products as well as the timber industry's competitiveness.⁴⁴

Intervention

1. In 1998, China through its Natural Forest Protection Programme banned logging from parts of the country's natural forests. However, to meet the rising demands during that time, the country started to import industrial roundwood among other wood-based products and, in 2004, it became the largest importer of it.
2. Simultaneously, in 2000, the Chinese government initiated a timber plantation programme to reduce their dependence on imports. The government also rolled out interventions that incentivized foreign direct investments and investments from domestic companies as well to establish industries in the forestry sector through policy levers such as preferential taxation and land-tenure policies.⁴⁵
3. Additionally, in 2005, the government invested US \$5 billion in the forestry sector, around 2 per cent of the total government expenditure at that time, which provided the impetus for its development.

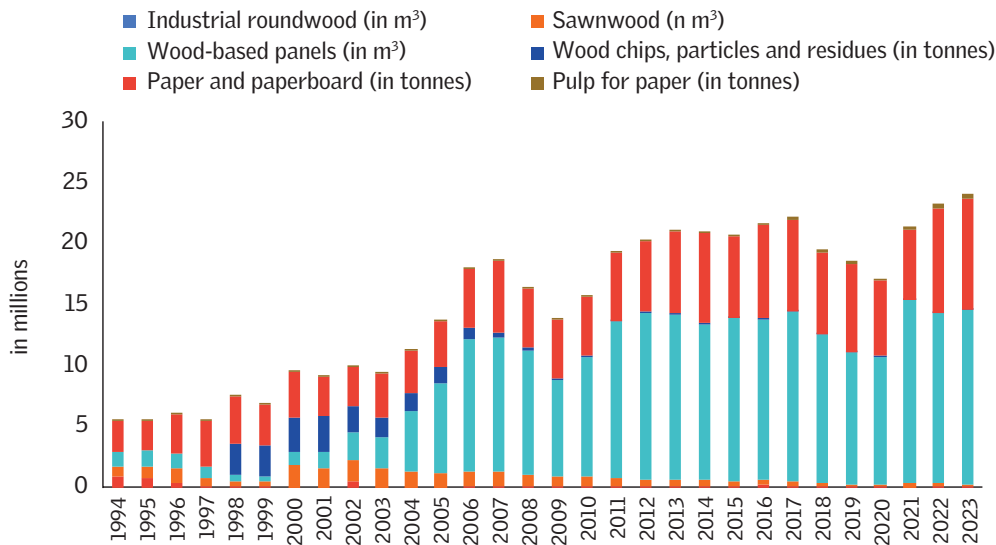
Since then, there has been a continuous increase in the expenditure for forestry, eclipsing the government’s spending in agriculture. However, such an increase has been reported due to the country’s accelerated economic growth.⁴⁶

In 2023 the total revenue from Chinese exports of different wood products increased by more than six times as compared to 1994 levels. Dissecting the trade volume and revenue generation from unprocessed and processed export products provides a better picture of the country’s efforts towards building the infrastructure for processed timber through domestic industrial expansion.

For instance, the six products analysed in Graph 7a show that the exports of industrial roundwood, an unprocessed product, reduced its share in the trade volume by 95 per cent while the trade volume for processed products such as pulp for paper, paper and paperboard, wood chips, particles and residues, wood-based panels and sawnwood increased by 417 per cent in 2023 when compared to 1994. Similarly, the trade revenue generated by industrial roundwood decreased by 92 per cent during the same period and the revenue for processed products increased by almost 600 per cent.

Graph 7a: Analysis of China’s various wood-based products in terms of trade volume

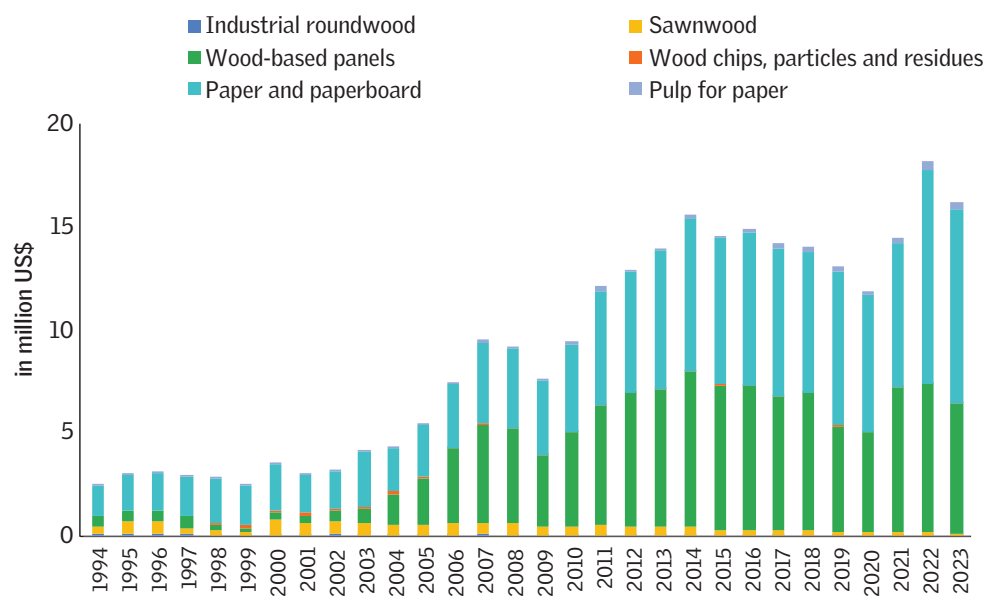
Export volume of processed Chinese timber products has increased by five times since 1994



Source: FAOSTAT

Graph 7b: Analysis of China's various wood-based products in terms of revenue generation

Export revenue from processed Chinese timber products has increased by seven times since 1994



Source: FAOSTAT

We also find that industrial roundwood accounted for 16 per cent of the total trade volume of these six products in 1994 and decreased to 0.2 per cent in 2023. Processed products accounted for almost 84 per cent of the trade volume in 1994 and it has increased to 99.8 per cent in 2023.

4.4 Uganda's policy incentives for cotton

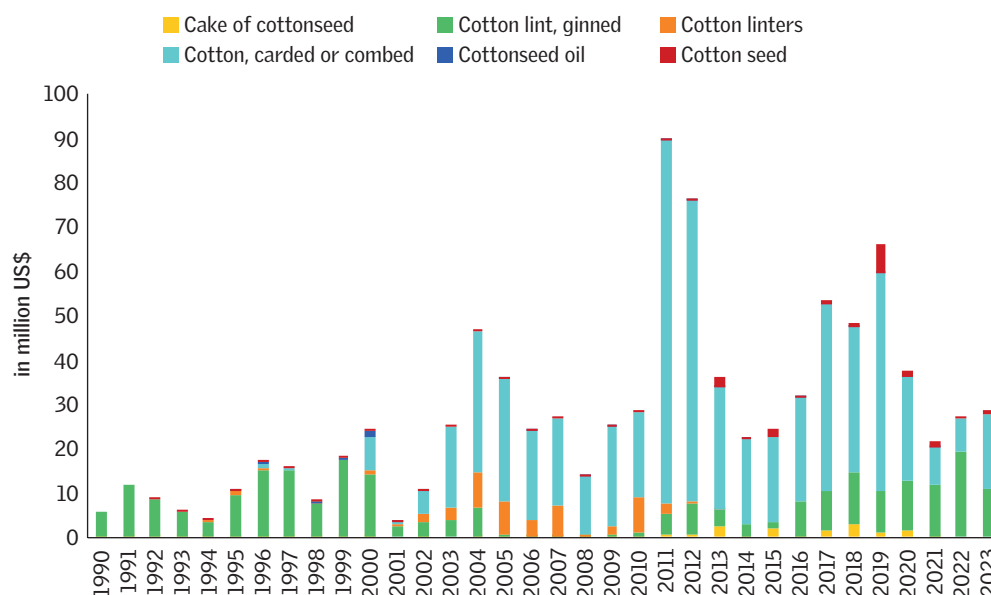
An important element of Uganda's strategy has been to ensure that enough cotton is kept within the country to sustain the local industry, with spinning mills serving as the backbone of Uganda's textile and clothing sector. The government also seeks to leverage market opportunities, including supplying uniforms for the public sector both domestically and via intra-African trade under the African Continental Free Trade Area.⁴⁷

Intervention

1. Since the 2000s, the Government of Uganda has introduced various policy measures to encourage investment in cotton value-added processing. These include fiscal incentives such as tax breaks and duty exemptions on capital inputs like equipment and fertilizers, along with an electricity subsidy introduced in 2015 to enhance the economic viability of processing.⁴⁸

Graph 8: Analysis of Uganda's various cotton products in terms of revenue generation

In 2022, processed products accounted for 83 per cent of the total revenue from Uganda's cotton exports



Source: FAOSTAT

Cottonseed, the primary commodity used in the cotton industry, has accounted for just 2.1 per cent of the total export value on average since 1990 while processed products have contributed 97.9 per cent. It is interesting to note that the exports of carded or combed cotton shot up since 2002, accounting for 78.4 per cent of the total exports or generating US \$21.5 million on an average annually since 1990 (although the data is available only after 1996) highlighting the government's efforts towards domestic value addition.

Case studies from various countries emphasize that boosting domestic value addition relies on several key factors: coherent policies, the development of human capital, attractive investment incentives, robust infrastructure, improved market access, and the availability of finance and technology.

5

THE WAY FORWARD FOR GLOBAL SOUTH COUNTRIES IN THE NEW GREEN ECONOMY

Developing countries must pursue horizontal and vertical diversification to reduce commodity dependence and capture greater value from their endowments in global trade.

Climate-smart agriculture is essential to build resilience, boost productivity and safeguard the livelihoods of farmers from adverse effects of climate change.

Advancing in the new green economy also requires technology transfer, stronger regional trade cooperation and fairer global market access, supported by international cooperation.

The economic vulnerabilities of developing countries, especially those who are dependent on export of agriculture and forestry-based commodities mainly stem from climate change and commodity-dependent trade.

The predicament of CDCs along with some of the main agriculture-based producer countries of certain commodities have been examined in this paper. Additionally, we have also drawn from the experience of some developing countries across different regions, moving higher in the global value chains.

Based on those dynamics and the various supply-side and demand-side challenges faced by the developing countries amidst changing climate and uncertain geopolitics, it is evident that a long-term coordinated strategy supported by dedicated national and regional institutions would be needed. In that regard, the following considerations are proposed.

5.1 A key consideration through the lens of development

5.1.1 Diversifying horizontally and vertically

The connection between commodity dependence and economic growth of a country emphasizes the argument that addressing commodity dependence is a development challenge. Thus it is essential to protect the economies from its negative effects, and an impactful way to do this is through product diversification.

The following are the two main ways through which a country can diversify.

A. Horizontal diversification

Horizontal diversification implies that a country can increase the exports of goods or products that are derived from other commodities and not the main ones on which its economy depends. For an agriculture- and forestry-dependent country, this could mean investing in cultivating different crops in a climate-smart manner while simultaneously establishing an industry for non-agricultural products such as manufactured goods.

The example of Costa Rica shines through in this context as in 2016 their exports of coffee and bananas came down to approximately 3 per cent and 12 per cent of the merchandise exports respectively as compared to 42 per cent and 26 per cent in 1965. Notably, medical instruments and appliances under the manufacturing sector contributed to 18 per cent of the merchandise exports.⁴⁹

B. Vertical diversification

Vertical diversification means that producer countries add value to raw commodities so that their economies can move from the basic level of the value chain to higher levels. If the process of commodity transformation goes deep enough, it creates a new product that faces fewer trade challenges than the primary. Another advantage of deep value addition is that the new product can sell at a higher price, allowing the producing country to keep a larger share of the value. This matters because much of the value in a chain is taken by downstream activities like retail, packaging and branding. However, if the value addition is not that deep, the new product may still suffer from the same issues as faced by the primary commodity. Therefore, for diversification to be effective, value addition must create a product that is clearly different from the original commodity.⁵⁰

This process can take decades and requires continuous effort in implementing reforms and policies as adding value to products often requires knowledge, technology and infrastructure, which may not be readily available with developing countries. They must, therefore, focus on increasing access to the above-mentioned resources and ensure that their policies on investment and trade competitiveness work together to spur the productive capacity and value addition.

5.2 A key consideration through the lens of climate change

5.2.1 Adopting climate-smart agriculture

In the context of climate change, climate-smart agriculture has become an important approach to help farmers protect their incomes and livelihoods while also improving food security. Climate-smart agriculture needs to be viewed from a developmental lens and in that context, adaptation and productivity become its most relevant aspects.⁵¹

With regard to adaptation, climate-smart agriculture focuses on making farming systems more resilient to climate risks. For example, growing climate-resilient crop varieties that can help safeguard farmers' livelihoods and strengthen food security. From the lens of productivity, climate-smart agriculture means sustainable intensification. This includes increasing yields through better land and water management such as precision farming, integrated nutrient management, intercropping and circular economy practices. For instance, studies in East Africa show that intercropping bananas with coffee provides shade that lowers Arabica coffee's sensitivity to higher temperatures and reduces coffee leaf rust, which has in turn raised farm income by more than 50 per cent.⁵²

5.3 Key considerations through the lens of trade

5.3.1 Catalysing technology transfer

Establishing a fair system for technology transfer and knowledge sharing for forests and agriculture-based commodities between developed and developing countries is crucial. It can enable the developing countries to access expertise, best practices and new technologies, helping them add more value to their products and diversify their economies. Additionally, it would encourage the use of more advanced and sustainable technologies, which supports global efforts to combat climate change.⁵³

For instance, enabling the technology transfer in main cocoa-producing countries would entail a comprehensive framework that includes elements such as assessment of specific technology needs in manufacturing (grinding cocoa beans, more advanced technologies for chocolate production), clear intellectual property rights (IPR) agreements and capacity building of the domestic workforce.

5.3.2 Strengthening regional trade agreements

By working together and building stronger regional value chains, developing countries can boost their own efforts to add value to their goods. This cooperation helps them share costs, easing financial pressure on any one nation. It also makes it easier for them to initiate technology transfer, improve access to new markets and give them more leverage in global trade.

There are a few examples of regional trade agreements, especially between Global South countries, such as the African Continental Free Trade Area Agreement, which has the potential of enhancing intraregional trade and economic integration through lowering tariff and non-tariff barriers and easing procedural issues in customs.⁵⁴

Similarly, agriculture is one of the most crucial drivers for economic development and livelihoods in countries such as India, Bhutan, Nepal, Sri Lanka, Thailand and Myanmar that form the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) region.⁵⁵ Despite the low-intra regional trade, there are opportunities for cooperation in enhancing agricultural productivity in the region and expanding trade through preferential market access and developing regional value chains where a BIMSTEC free trade agreement could act as a catalyst.⁵⁶

5.3.3 Understanding global market access

When a country tries to sell a new value-added product, it faces a tough international market.⁵⁷ Unlike primary commodities, new manufactured products often face stricter trade rules, including higher tariffs and non-tariff barriers, which can make it hard for developing countries to compete globally, especially in the context of rising protectionism.

For instance, as shown in Box 1, it is easier for the main producer countries of cocoa such as Ivory Coast and Ghana to export raw cocoa beans rather than selling cocoa powder or chocolate because there is already a market for the former while the latter requires more sophisticated processes. To succeed, a strategy of adding value must include a thorough understanding of the market, consumer preferences, branding and marketing, as well as an awareness of trade regulations and international quality standards.

5.3.4 International cooperation

In the context of protectionist policies that are guised as climate-change-related trade measures such as the EUDR, need-based support with regard to due diligence—be it technological, financial or administrative—becomes significant for developing countries in implementing the relevant policies imposed by developed countries.

The instruments through which funds flow would also need to be thought through and driven by the ease of access, transparency with regard to rules and information along with the reliability of funds over a specific time period that enables countries to prepare the required infrastructure for the desired outcome of a policy.

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Annexure

Country profiles based on their agriculture-based commodity dependency

Country	Type	Share of agriculture commodity exports in total merchandise exports (in per cent)	Share of three largest commodities in total merchandise exports (in per cent)	Share of manufactured goods in total merchandise export (in per cent)	Agriculture commodity exports as share of GDP (in per cent)	Manufactured goods exports as share of GDP (in per cent)
Micronesia (Federated States of)	Agriculture-based CDDC	96.61	93.4	5.79	25.60	1.53
Guinea-Bissau	Agriculture-based CDDC	91.61	90.0	2.09	12.40	0.28
Malawi	Agriculture-based CDDC	89.33	63.3	9.35	6.84	0.72
Solomon Islands	Agriculture-based CDDC	76.96	66.2	9.93	18.50	2.39
Uruguay	Agriculture-based CDDC	77.99	45.5	16.47	11.14	2.35
Belize	Agriculture-based CDDC	77.49	47.6	13.78	13.28	2.36
Vanuatu	Agriculture-based CDDC	74.98	42.1	12.04	3.94	0.63
Kiribati	Agriculture-based CDDC	82.52	82.4	11.36	3.44	0.47
New Zealand	Agriculture-based CDC	73.77	32.1	18.44	12.84	3.21
Seychelles	Agriculture-based CDDC	74.18	72.5	10.63	20.19	2.89
Iceland	CDC-developed	41.69	37.6	13.36	9.79	3.14
Ukraine	CDC-developed	38.80	24.9	36.18	10.47	9.76
Latvia	NCDC-developed	30.93	12.2	53.29	16.29	28.07
Belarus	NCDC-developed	26.80	11.0	62.04	14.67	33.96
Denmark	NCDC-developed	20.76	7.1	68.28	6.67	21.94
Greece	NCDC-developed	18.05	5.3	36.31	4.24	8.53
Lithuania	NCDC-developed	19.74	5.2	61.96	11.77	36.92
Croatia	NCDC-developed	18.53	5.2	61.21	5.93	19.59
Spain	NCDC-developed	16.07	6.8	65.20	4.39	17.80
Netherlands (Kingdom of the)	NCDC-developed	16.36	4.6	60.15	13.77	50.62

Source: UNCTADSTAT

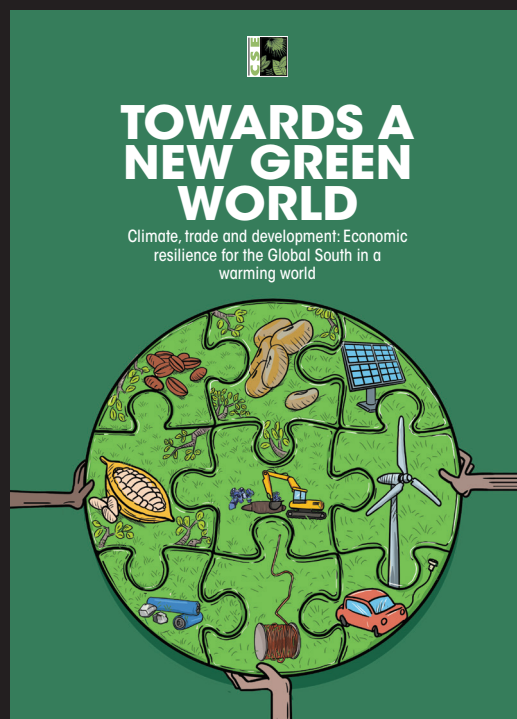
Methodology for selecting countries to draw a comparison along the dimensions of climate change and trade in Section 2

The countries were considered commodity-dependent on the basis of their agriculture-based commodity dependency, as per UNCTAD's The State of Commodity Dependence report 2025. For example, New Zealand despite being a developed country is considered as agriculture-based commodity-dependent in our analysis (75.7 per cent commodity-dependency on agriculture) but Iceland and Ukraine are not (44.7 per cent and 50.9 per cent respectively). Although Iceland and Ukraine are commodity-dependent if we look at their total commodity dependency.

With that lens, we have classified 27 countries as agriculture-based CDCs as per Figure 1. UNCTAD classifies a country to be commodity-dependent if primary commodities constitute 60 per cent or more of the total merchandise trade exports. However, we have considered 55 per cent as a threshold in order to account for the countries who are on margins of commodity-dependency.

Furthermore, we have taken the top 10 agriculture-based commodity-dependent countries and the top 10 developed countries whose agricultural exports account for the highest share in their total commodity dependency in order to draw a comparison between the developing and the developed vis-à-vis the dimensions of climate change and trade.

Agriculture products are defined as per the codes under the Standard International Trade Classification 3 (SITC 3) given in UNCTAD.



Countries in the Global South who depend on the exports of primary commodities are at a disadvantageous position in the global value chains. They receive the lowest margins of profit despite being the main producers for most of the commodities, as opposed to the developed countries who import the raw materials and occupy most of the downstream activities in the value chain. Furthermore, the economies of the developing countries are more vulnerable to the price volatility of commodities due to the high levels of commodity dependency they exhibit.

In this context, this paper examines the impact of commodity dependency on countries, especially those who depend on forest and agriculture-based commodities through the lens of climate change, trade and development.

This is the first paper in a series of three by CSE addressing the questions of climate, trade and development, and pathways for economic resilience for the Global South in the new green economy.



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