

International maritime trade flows, which had declined in 2020 by 3.8 per cent, bounced back in 2021 with 3.2 per cent growth, to a total of 11.0 billion tons – only slightly below pre-pandemic levels. The recovery was supported by an easing in the pandemic, with corresponding overall improving economic conditions and increased consumer spending. However, the revival in maritime trade was still constrained, not just by recurring COVID-19 disruptions but also by unprecedented port congestion and a global logistics logjam. Compounded by shortages of equipment and labour, these constraints also resulted in higher freight rates and less reliable services.

In 2022, the fragile recovery lost steam. There was fresh disruption from the war in Ukraine, which contributed to global increases in inflation and the cost of living. At the same time there were new waves of COVID-19 that further disrupted supply chains, particularly in China which had a zero-COVID policy. The world now faces the prospect of recession and stagflation. For 2022, UNCTAD expects maritime trade growth to slow to 1.4 per cent, or lower should the headwinds intensify. The war in Ukraine has also caused shifts in trade patterns and partners, generally extending the distances that goods have to travel – as registered in an increase in total ‘ton-miles’.

The pandemic and the war have hardened geopolitical risks and provided further reasons for retreat from globalization, and accelerated other trends in consumer behaviour with more extensive digitalization. The maritime seascape is also being transformed by demands for more resilience and sustainability and the need to decarbonize – requiring stakeholders to adjust rapidly to change while remaining relevant, profitable, and customer-centred.

Policy makers also need to keep their sights on longer-term goals. The immediate disruptions should be seen as opportunities for positive structural change – for maritime transport to embrace digitalization and decarbonization and the transition to alternative sources of energy. In an increasingly unpredictable environment, policy makers can design new forms of resilience and build more secure supply chains that avoid further fragmentation of the world trading system.

# 1

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## INTERNATIONAL MARITIME TRADE

## A. INTERNATIONAL MARITIME TRADE FLOWS

This chapter reviews international maritime trade flows, covering 2021 and extending until mid-2022. Section A looks at the performance across market segments while Section B considers the disrupted and unpredictable environment and other influences. Section C presents the outlook, and Section D sets out some considerations for the way forward.

### 1. In 2021, maritime trade surged in response to economic recovery

In 2020, because of the fallout from the COVID-19 pandemic, international maritime trade contracted by nearly four per cent, but in 2021 there was a rebound as the global economy started to recover and continued consumer spending, along with an easing in pandemic-related restrictions. Maritime trade grew by 3.2 per cent to a total of 11 billion tons – only slightly below the pre-pandemic level (tables 1.1 and 1.2, figure 1.1). Nevertheless, the recovery was uneven. Containerized cargo, gas, and dry bulk shipping expanded, while shipments of crude oil declined from 16.0 to 15.5 per cent of maritime trade.

Year	Tanker <sup>a</sup>	Main bulk <sup>b</sup>	Other dry cargo <sup>c</sup>	Total cargo
1970	1 440	448	717	2 605
1980	1 871	608	1 225	3 704
1990	1 755	988	1 265	4 008
2000	2 163	1 186	2 635	5 984
2005	2 422	1 579	3 108	7 109
2006	2 698	1 676	3 328	7 702
2007	2 747	1 811	3 478	8 036
2008	2 742	1 911	3 578	8 231
2009	2 641	1 998	3 218	7 857
2010	2 752	2 232	3 423	8 408
2011	2 785	2 364	3 626	8 775
2012	2 840	2 564	3 791	9 195
2013	2 828	2 734	3 951	9 513
2014	2 825	2 964	4 054	9 842
2015	2 932	2 930	4 161	10 023
2016	3 058	3 009	4 228	10 295
2017	3 146	3 151	4 419	10 716
2018	3 201	3 215	4 603	11 019
2019	3 163	3 218	4 690	11 071
2020	2 918	3 196	4 531	10 645
2021	2 952	3 272	4 761	10 985

*Source:* Compiled by the UNCTAD secretariat based on data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources. Dry cargo data for 2006 onwards has been revised and updated to reflect improved reporting, including more recent figures and a better breakdown by cargo type. Since 2006, the breakdown of dry cargo into “Main bulk” and “Dry cargo other than main bulk” is based on various issues of the Shipping Review & Outlook and Seaborne Trade Monitor, produced by Clarksons Research. Total maritime trade figures for 2021 are estimated based on preliminary data or on the last year for which data were available.

<sup>a</sup> Tanker includes crude oil, refined petroleum products, gas, and chemicals.

<sup>b</sup> Main bulk includes iron ore, grain, coal, bauxite/alumina and phosphate. Starting in 2006, “Main bulk” includes iron ore, grain, and coal only. Data relating to bauxite/alumina and phosphate are included under “Dry cargo other than main bulk”.

<sup>c</sup> Other dry cargo includes minor bulk commodities, containerized trade, and residual general cargo.

Table 1.2 International maritime trade, 2020–2021, by type of cargo, country group and region									
Country group	Year	Goods loaded				Goods discharged			
		Total	Crude oil	Other tanker trade <sup>a</sup>	Dry cargo	Total	Crude oil	Other tanker trade <sup>a</sup>	Dry cargo
<b>Millions of tons</b>									
World	2020	10 644.9	1 715.4	1 202.7	7 726.8	10 633.9	1 864.1	1 223.6	7 546.2
	2021	10 985.4	1 700.4	1 252.0	8 033.0	10 975.5	1 846.4	1 273.3	7 855.8
Developed economies	2020	4 820.7	438.7	489.2	3 892.8	4 110.1	878.2	395.9	2 836.0
	2021	4 936.1	428.7	502.8	4 004.5	4 277.9	878.8	429.9	2 969.2
Developing economies	2020	5 824.3	1 276.7	713.5	3 834.0	6 523.8	985.9	827.7	4 710.2
	2021	6 049.3	1 271.6	749.2	4 028.5	6 697.6	967.6	843.3	4 886.6
Africa	2020	736.2	235.1	84.2	417.0	509.9	30.7	107.2	372.0
	2021	762.4	226.4	99.8	436.2	553.2	24.9	118.5	409.8
America	2020	1 372.6	202.0	75.1	1 095.5	589.6	39.1	129.4	421.2
	2021	1 382.7	190.1	70.9	1 121.8	637.7	36.4	128.9	472.3
Asia	2020	3 701.0	838.1	547.2	2 315.7	5 410.5	915.4	586.8	3 908.4
	2021	3 889.3	853.5	574.0	2 461.8	5 492.4	905.6	591.0	3 995.8
Oceania	2020	14.5	1.5	7.1	5.8	13.8	0.7	4.4	8.7
	2021	14.8	1.6	4.5	8.7	14.3	0.7	4.9	8.7
Country group	Year	Goods loaded				Goods discharged			
		Total	Crude oil	Other tanker trade <sup>a</sup>	Dry cargo	Total	Crude oil	Other tanker trade <sup>a</sup>	Dry cargo
<b>Percentage share</b>									
World	2020	100.0	16.1	11.3	72.6	100.0	17.5	11.5	71.0
	2021	100.0	15.5	11.4	73.1	100.0	16.8	11.6	71.6
Developed economies	2020	45.3	25.6	40.7	50.4	38.7	47.1	32.4	37.6
	2021	44.9	25.2	40.2	49.9	39.0	47.6	33.8	37.8
Developing economies	2020	54.7	74.4	59.3	49.6	61.3	52.9	67.6	62.4
	2021	55.1	74.8	59.8	50.1	61.0	52.4	66.2	62.2
Africa	2020	12.6	18.4	11.8	10.9	7.8	3.1	12.9	7.9
	2021	12.6	17.8	13.3	10.8	8.3	2.6	14.0	8.4
America	2020	23.6	15.8	10.5	28.6	9.0	4.0	15.6	8.9
	2021	22.9	14.9	9.5	27.8	9.5	3.8	15.3	9.7
Asia	2020	63.5	65.6	76.7	60.4	82.9	92.8	70.9	83.0
	2021	64.3	67.1	76.6	61.1	82.0	93.6	70.1	81.8
Oceania	2020	0.2	0.1	1.0	0.2	0.2	0.1	0.5	0.2
	2021	0.2	0.1	0.6	0.2	0.2	0.1	0.6	0.2

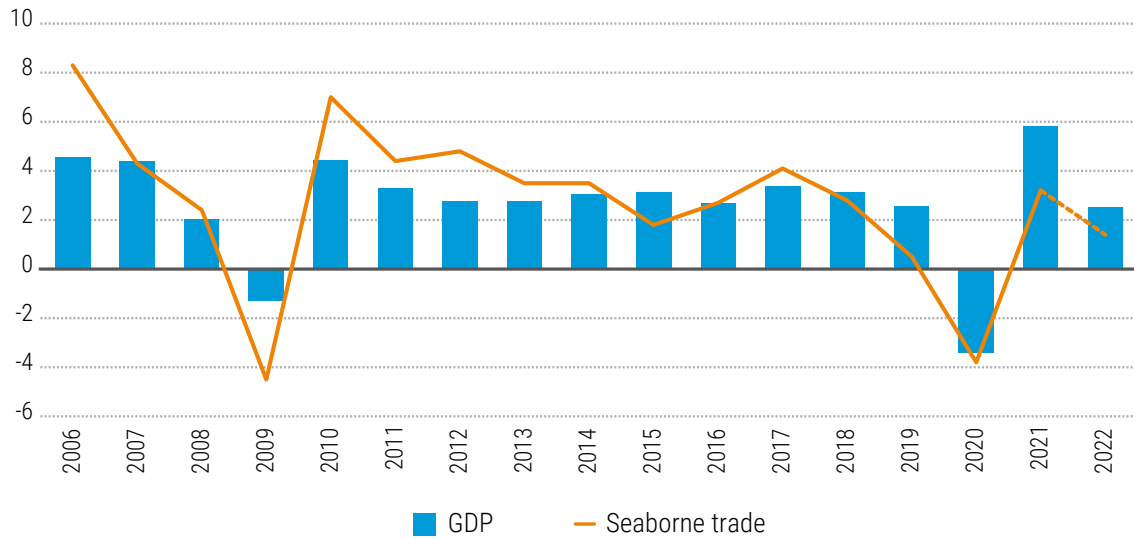
Source: Compiled by the UNCTAD secretariat based on data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources. Dry cargo data for 2006 onwards has been revised and updated to reflect improved reporting, including more recent figures and a better breakdown by cargo type. Total maritime trade figures for 2021 are estimated based on preliminary data or on the last year for which data were available.

<sup>a</sup> Other tanker includes refined petroleum products, gas, and chemicals.

Note: Since March 2021, the category “transition economies” is no longer used by UNCTAD. Economies formerly classified as “transition economies” and located in Europe, are reassigned to the “developed regions” grouping, and the economies formerly classified as “transition economies” and found in Asia, are reassigned to the “developing regions” grouping.

For more extended time series and data before 2021 see UNCTADstat Data Center at <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=32363>.

**Figure 1.1 International maritime trade and global output, selected years**  
(percentage annual change)



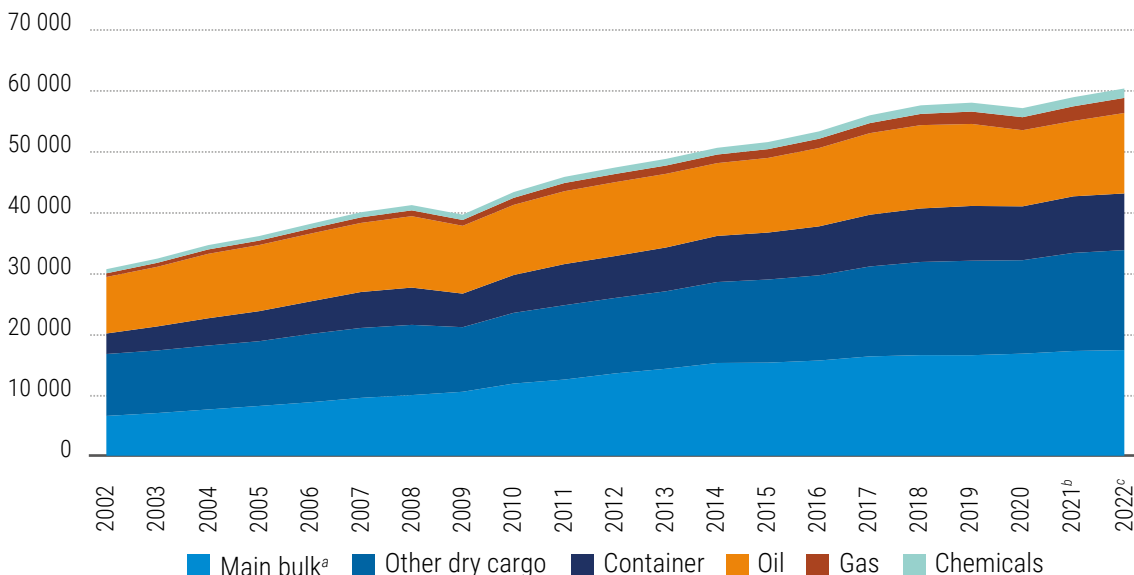
Source: UNCTAD secretariat, based on UNCTADstat data and *Review of Maritime Transport*, various issues. GDP figure for 2022 based on table 1.1, *World Output Growth, 1991–2023*, UNCTAD Trade and Development Report 2022.

Maritime trade has also been quite volatile. In comparison with the previous year, in January 2021 trade fell three per cent, before increasing by nine per cent in May, then by 0.4 per cent in December.<sup>1</sup>

There was also a revival in trade adjusted for distance travelled. In 2020, according to Clarksons Research, total ton-miles fell by 1.5 per cent but in 2021 increased by 3.1 per cent, to 58,988 billion (figure 1.2).

Growth would have been stronger without recurring waves of COVID-19 and a logistics crunch. Broken global supply chains, with imbalances in demand and supply, created global manufacturing bottlenecks resulting in many shortages, notably for semiconductors and computer chips, with serious ramifications

**Figure 1.2 International maritime trade, billions of cargo ton-miles, 2002–2022**



Source: UNCTAD secretariat, based on estimates from Clarksons Research (Clarksons Research, 2022b).

<sup>a</sup> Includes iron ore, grain, coal, bauxite/alumina, and phosphate.

<sup>b</sup> Estimated.

<sup>c</sup> Forecast.

Notes: Ton-miles are estimated by Clarksons Research based on its own data on seaborne trade and maritime distances.

Given methodological differences, containerized trade data in tons sourced from Clarksons Research as reflected in figure 1.2 and figure 1.5 of this report, are not comparable with MDS Transmodal data on containerized trade measured in twenty-foot equivalent unit (TEU) and presented in figures 1.6 and 1.7 and tables 1.5 and 1.6.

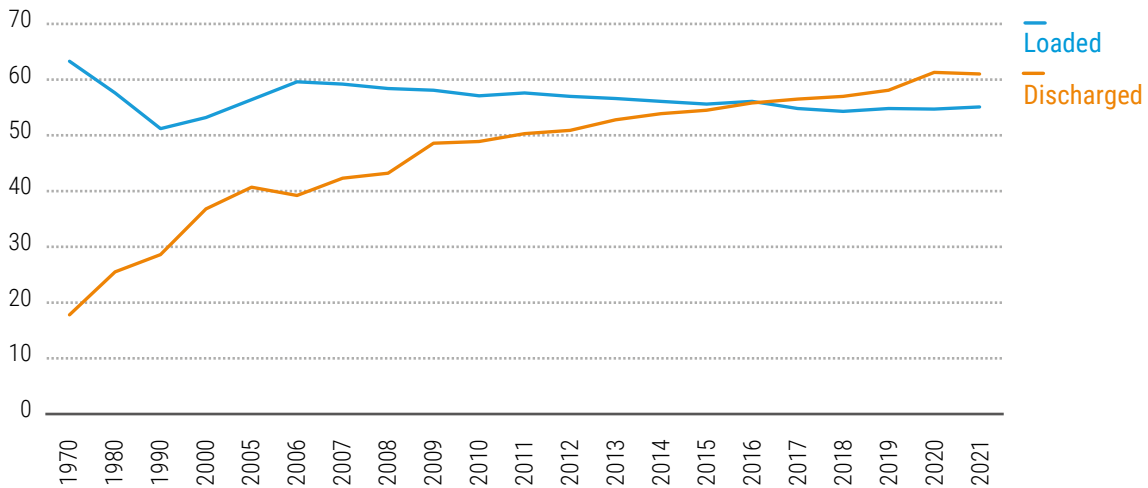
for electronics and car manufacturing.<sup>2</sup> The recovery was also stifled by port congestion and lack of both equipment and labour for both ports and for inland transport, all of which made services less reliable, and raised costs. By mid-2021, container freight rates were four times higher than pre-pandemic levels.<sup>3</sup>

In 2021, the world's leading maritime trade-handling centres were the developing countries, which accounted for 55 per cent of global goods loaded (exports) and 61 per cent of goods discharged (imports) (figure 1.3). Historically, the developing countries have mainly exported raw materials to developed regions. Over the years, however, the patterns have altered as developing countries have increased manufacturing and consumption; since 2017, imports have overtaken exports. The developed countries contributed the remaining 44.9 per cent of exports and just 39 per cent of imports.

Behind these headline figures there are substantial regional differences, with most of the change being driven by countries in Asia, particularly China which have become more closely integrated into global manufacturing networks.

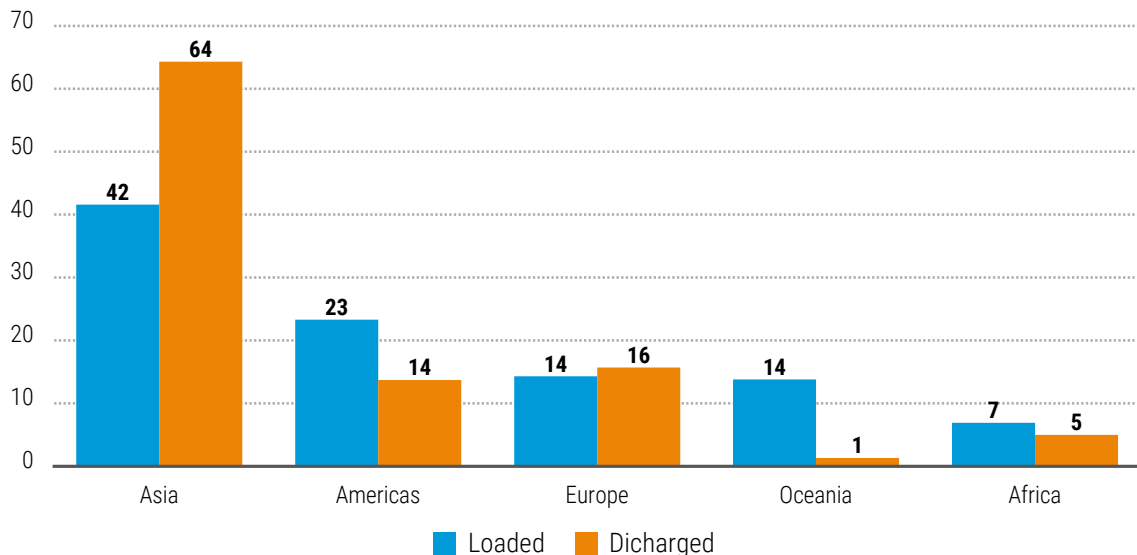
In 2021, Asia remained the world's leading loading and discharge cargo centre (figure 1.4), accounting for 42 per cent of exports and 64 per cent of imports. Then came the Americas, followed by Europe, Oceania and Africa.

**Figure 1.3 Participation of developing countries in international maritime trade, selected years (percentage share in total tonnage)**



Source: UNCTAD secretariat, based on the *Review of Maritime Transport*, various issues, and table 1.2 of this report.

**Figure 1.4 International maritime trade, by region, 2021 (percentage share in world tonnage)**



Source: UNCTAD secretariat, based on table 1.2 of this report.

## 2. Recovery was fuelled by bullish growth in world GDP and trade in goods

Maritime trade recovered in 2021 with the gradual reopening of economies and greater availability of vaccines. After contracting by 3.4 per cent in 2020, world GDP increased by 5.8 per cent in 2021, the fastest growth in more than five decades (table 1.3). The rebound was underpinned by government support measures, estimated at \$16 trillion globally,<sup>4</sup> and the release of pent-up consumer demand.

Nevertheless, due partly to variations in vaccination roll-out and the extent of government support, there were notable differences between countries. In the developed countries, economic output expanded by 5.2 per cent: in the European Union GDP increased by 5.4 per cent and in the United States by 5.7 per cent. In developing countries, growth was 6.8 per cent, driven largely by output in Asia: South Asia grew by 6.8 per cent and East Asia by 6.5 per cent. China's growth was 8.1 per cent while India's was 8.2 per cent, despite a second wave of infection in the second quarter of 2021. In Japan the recovery was slower, with GDP expanding in 2021 by only 1.7 per cent. In Western Asia GDP increased by 6.2 per cent. In Latin America and the Caribbean output rose by 6.6 per cent and in Africa by 5.1 per cent, and also recovered in the least developed countries, albeit growing slower than before the pandemic.

In tandem with growth in the world economy and sustained consumer spending, there was a recovery in world merchandise trade – as measured by the average growth for imports and exports. The upturn started in the third quarter of 2020 and gained further steam in 2021. In 2021, world merchandise trade, which had slumped by 5.2 per cent in 2020, grew by 9.7 per cent – faster than before the pandemic (table 1.4). For exports, the recovery was driven by countries in Asia where they increased by nearly 13.3 per cent.

Table 1.3 World economic growth, 2019–2022 (annual percentage change)				
Region or economy	2019	2020	2021	2022 <sup>a</sup>
<b>World</b>	<b>2.6</b>	<b>-3.4</b>	<b>5.8</b>	<b>2.6</b>
<b>Developed economies</b>	<b>1.8</b>	<b>-4.5</b>	<b>5.2</b>	<b>1.7</b>
<i>of which:</i>				
United States	2.3	-3.4	5.7	1.9
European Union (27)	1.8	-5.9	5.4	2.0
United Kingdom	1.7	-9.3	7.4	2.6
Japan	-0.2	-4.5	1.7	1.0
<b>Developing economies</b>	<b>3.7</b>	<b>-1.7</b>	<b>6.8</b>	<b>3.7</b>
<i>of which:</i>				
Africa	2.8	-2.6	5.1	2.7
East Asia	4.1	0.4	6.5	3.2
<i>of which:</i>				
China	6.0	2.3	8.1	3.9
South Asia	3.1	-4.5	6.8	4.9
<i>of which:</i>				
India	4.5	-6.6	8.2	5.7
Western Asia (excluding Cyprus)	1.5	-3.5	6.2	4.1
<b>Latin America and the Caribbean</b>	<b>-0.0</b>	<b>-7.2</b>	<b>6.6</b>	<b>2.6</b>
<i>of which:</i>				
Brazil	1.2	-3.9	4.6	1.8
Caribbean	1.8	-9.6	5.2	4.0
<b>Economies in Transition</b>	<b>2.6</b>	<b>-2.6</b>	<b>4.9</b>	<b>-6.1</b>
<i>of which:</i>				
Russian Federation	2.2	-2.7	4.7	-7.4
<b>Least developed countries (LDCs)</b>	<b>4.2</b>	<b>-0.3</b>	<b>3.0</b>	<b>3.1</b>

Source: UNCTAD secretariat, based on table 1.1, World Output Growth, 1991–2023, UNCTAD Trade and Development Report 2022.

<sup>a</sup> Forecast.

Note: Calculations for country aggregates are based on GDP at constant 2015 dollars.

**Table 1.4 Growth in the volume of merchandise trade, 2019–2022**  
(annual percentage change)

Group/country	Volume exports				Volume imports			
	2019	2020	2021	2022 <sup>b</sup>	2019	2020	2021	2022 <sup>b</sup>
<b>World<sup>a</sup></b>	<b>0.5</b>	<b>-5.2</b>	<b>9.7</b>	<b>3.5</b>	<b>0.5</b>	<b>-5.2</b>	<b>9.7</b>	<b>3.5</b>
North America	0.4	-8.9	6.5	3.4	-0.6	-5.9	12.6	8.5
Latin America and the Caribbean	-1.3	-4.9	5.6	1.6	-1.8	-10.7	25.4	5.9
Europe	0.6	-7.8	7.9	1.8	0.3	-7.3	8.3	5.4
Commonwealth of Independent States	-0.1	-1.7	0.5	-5.8	8.3	-5.5	9.1	-24.7
Africa	-0.4	-8.1	5.2	6.0	3.1	-14.7	7.7	7.2
Middle East	-1.3	-8.9	1.4	14.6	11.2	-10.1	8.4	11.1
Asia	0.9	0.5	13.3	2.9	-0.4	-1.0	11.1	0.9

Source: UNCTAD secretariat, based on data sourced from WTO Trade Statistics and Outlook. Trade growth to slow sharply in 2023 as global economy faces strong headwinds. Press Release. Press/90. 5 October.

<sup>a</sup> Refers to average of export and imports.

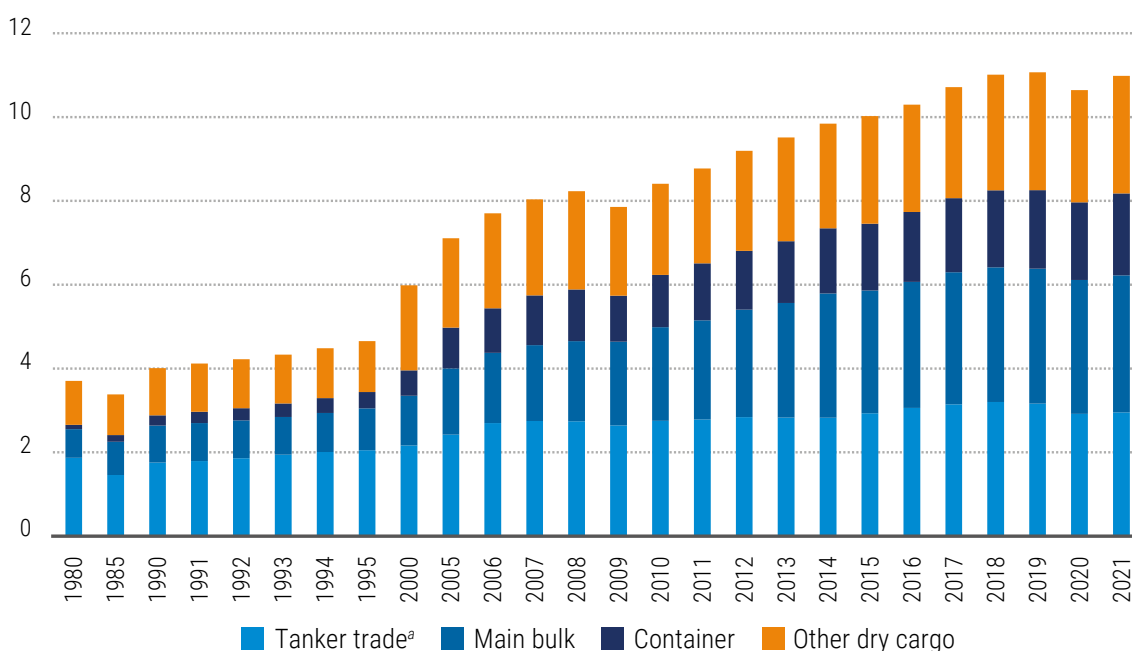
<sup>b</sup> Forecast.

On the import side, North America, Latin America and the Caribbean, and Asia all recorded double-digit growth rates.<sup>5</sup>

### 3. A multi-paced recovery – with a boom for containerized trade and improvements for dry bulk, but a stall for oil

In 2021, there was steady growth for containerized trade, gas shipments, and for dry bulk commodities – iron ore and grains (table 1.1, table 1.2 and figure 1.5). But crude oil shipments declined – constrained by high oil inventories, oil production cuts, and lower demand for transport fuel as a result of the pandemic, and slowing demand in China.

**Figure 1.5 International maritime trade by cargo type, selected years**  
(billions of tons loaded)



Source: UNCTAD *Review of Maritime Transport*, various issues. For 2006–2021, the breakdown by cargo type is based on Clarksons Research, *Shipping Review and Outlook*, Spring 2022 and *Seaborne Trade Monitor*, various issues.

Note: 1980–2005 figures for “Main bulk” include iron ore, grain, coal, bauxite/alumina, and phosphate. Starting in 2006, “Main bulk” includes iron ore, grain, and coal only. Data relating to bauxite/alumina and phosphate are included under “Other dry cargo”.

<sup>a</sup> Tanker trade includes crude oil, refined petroleum products, gas, and chemicals.

## Containerized trade boosted by restocking and consumer demand

Containerized trade performed well in 2021, boosted by the pandemic-led demand for consumer goods, particularly from East Asia. Volume, which had declined by 1.3 per cent in 2020, rebounded in 2021, reaching 165 million 20-foot equivalent units (TEU) (figure 1.6). This was propelled by improved global economic conditions, combined with released pent-up demand, restocking, and continued spending on consumer goods, increasingly through e-commerce.

In 2021, the top five container exporters, accounting for almost half the traffic, were China, the United States, Viet Nam, the Republic of Korea and Japan. China alone accounted for about 30 per cent.<sup>6</sup> In the United States, the boom on the Transpacific route reflected the impact of stimulus spending.

Around 40 per cent of total containerized trade was on the main East-West routes – between Asia, Europe and the United States (figure 1.7). Non-mainlane East-West routes such as South Asia-Mediterranean accounted for 12.9 per cent, while South-South trades, such as Sub-Saharan Africa to Latin America and the Caribbean, accounted for 12.5 per cent, and North-South, such as Africa to Europe, for 7.8 per cent.

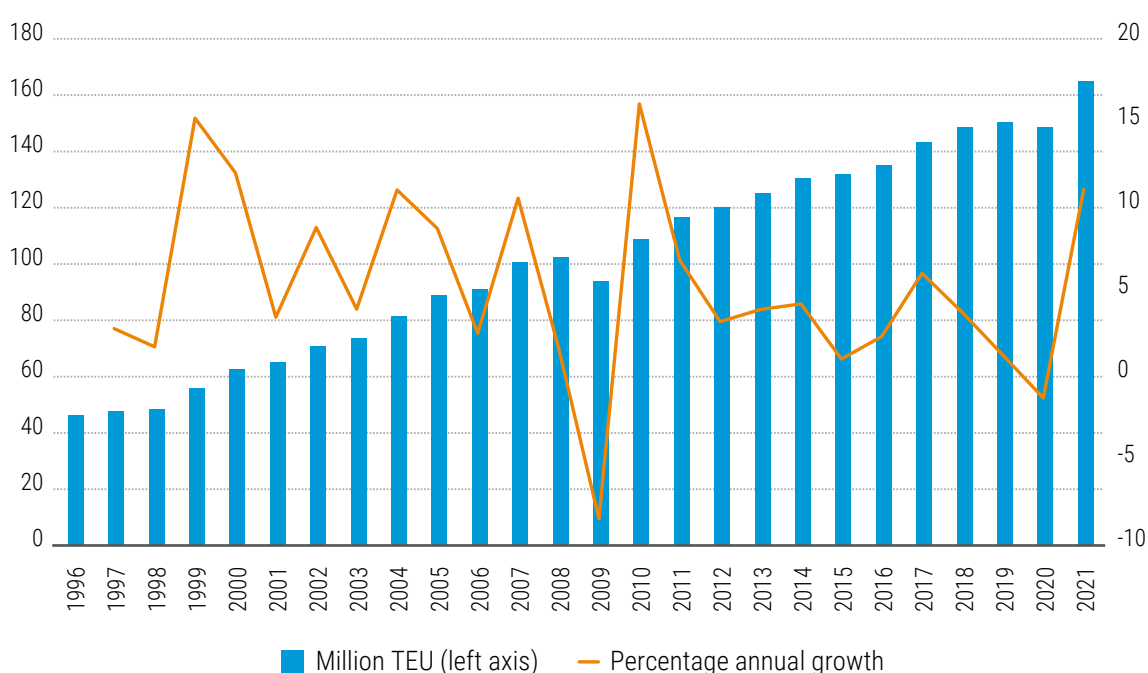
In Asia, which is at the heart of global manufacturing, parts and components of goods cross borders several times and contribute 27 per cent of world containerized trade flows – equivalent to the combined share of non-mainlane East-West, South-South and North-South flows. Other routes accounted for the remaining shares. Non-mainlane East-West routes such as South Asia-Mediterranean accounted for 12.9 per cent, while South-South trades, such as Sub-Saharan Africa to Latin America and the Caribbean, accounted for 12.5 per cent, and North-South, such as Africa to Europe, for 7.8 per cent.

In 2021, all these routes recovered, with more robust performance across the main East-West and non-mainlane East-West and South-South routes (table 1.5). Trade on non-mainlane East-West routes increased by 10.5 per cent, a positive outcome despite a second wave of COVID-19 in South Asia during the second quarter of 2021.

Intra-Asian flows dominated this trade as the region is at the heart of global manufacturing where goods parts and components cross borders several times.

Performance across container shipping lanes also varied depending on the direction of trade –headhaul or backhaul (table 1.6). Volumes on the Transpacific route increased by 15 per cent, reflecting 20 per cent growth on the peak East Asia to North America leg. Meanwhile, trade on the backhaul journey fell

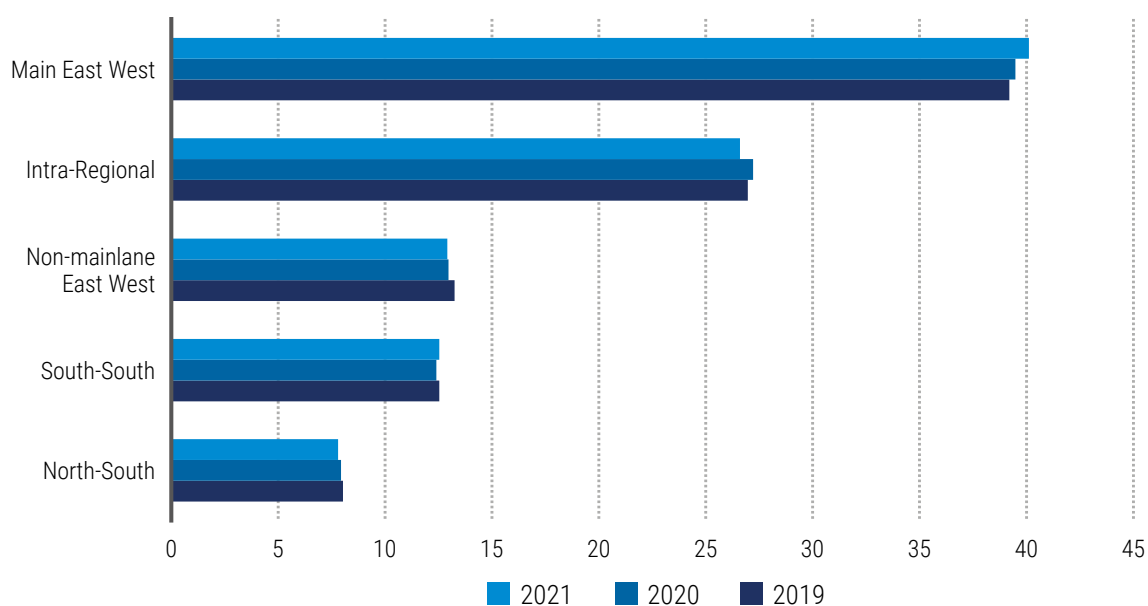
**Figure 1.6** Global containerized trade, 1996–2021  
(million 20-foot equivalent units and percentage annual change)



Source: UNCTAD secretariat, based on data from MDS Transmodal (MDST), World Cargo Database, September 2022. <https://www.mdst.co.uk>.



**Figure 1.7 Global containerized trade by route, 2019–2021**  
(market shares in percentages)



Source: UNCTAD secretariat, based on data from MDS Transmodal (MDST), World Cargo Database, September 2022. <https://www.mdst.co.uk>.

Note:

Non-mainlane East West: Trade involving Western Asia and the Indian Sub-continent, Europe, North America, and East Asia.

North-South: Trade involving Oceania, Sub-Saharan Africa, Latin America, Europe, and North America.

South-South: Trade involving Oceania, Western Asia, East Asia, Sub-Saharan Africa, and Latin America.

**Table 1.5 Containerized trade on main East-West and other containerized trader routes, 2016–2021**  
(thousand 20-foot equivalent units and percentage annual change)

	2016	2017	2018	2019	2020	2021
	<b>TEU</b>					
<b>Main East-West routes</b>	<b>54 167</b>	<b>57 173</b>	<b>59 844</b>	<b>59 058</b>	<b>58 717</b>	<b>66 273</b>
<b>Other routes</b>	<b>80 825</b>	<b>86 032</b>	<b>88 778</b>	<b>91 497</b>	<b>89 902</b>	<b>98 860</b>
<i>of which</i>						
Non-mainlane East West	17 992	19 043	19 035	19 945	19 282	21 303
North-South	11 105	11 726	12 062	12 102	11 769	12 932
South-South	15 531	16 917	18 173	18 889	18 428	20 715
Intra-Regional	36 197	38 347	39 509	40 561	40 423	43 910
<b>World total</b>	<b>134 992</b>	<b>143 205</b>	<b>148 622</b>	<b>150 555</b>	<b>148 619</b>	<b>165 133</b>
	<b>Percentage change</b>					
<b>Main East-West routes</b>	<b>3.9</b>	<b>5.5</b>	<b>4.7</b>	<b>-1.3</b>	<b>-0.6</b>	<b>12.9</b>
<b>Other routes</b>	<b>1.40</b>	<b>6.5</b>	<b>3.2</b>	<b>3.0</b>	<b>-1.6</b>	
<i>(Non-main lane)</i>	1.4	6.4	3.2	3.1	-1.7	10.0
<i>Of which</i>						
Non-mainlane East West	2.6	5.8	0.0	4.8	-3.3	10.5
North-South	-0.4	5.6	2.9	0.3	-2.7	9.9
South-South	-1.7	8.9	7.4	3.9	-2.4	12.4
Intra-Regional	2.7	5.9	3.0	2.7	-0.3	8.6

Source: UNCTAD secretariat, based on data from MDS Transmodal (MDST), World Cargo Database, September 2022. <https://www.mdst.co.uk>.

Note:

Non-mainlane East West: Trade involving Western Asia and the Indian Sub-continent, Europe, North America, and East Asia.

North-South: Trade involving Oceania, Sub-Saharan Africa, Latin America, Europe, and North America.

South-South: Trade involving Oceania, Western Asia, East Asia, Sub-Saharan Africa, and Latin America.

**Table 1.6 Containerized trade on major East-West trade routes, 2014–2022**  
(million 20-foot equivalent units and percentage annual change)

	Trans-Pacific			Asia–Europe			Transatlantic		
	Eastbound	Westbound	Total	Eastbound	Westbound	Total	Eastbound	Westbound	Total
	East Asia–North America	North America–East Asia		Northern Europe and Mediterranean to East Asia	East Asia to Northern Europe and Mediterranean		North America to Northern Europe and Mediterranean	Northern Europe and Mediterranean to North America	
2008	13.8	5.5	<b>19.2</b>	5.0	14.1	<b>19.1</b>	2.8	3.1	<b>5.8</b>
2009	11.5	5.5	<b>17.0</b>	5.0	11.7	<b>16.7</b>	2.2	2.5	<b>4.7</b>
2010	13.3	6.3	<b>19.6</b>	5.5	13.9	<b>19.4</b>	2.5	2.9	<b>5.4</b>
2011	13.5	6.8	<b>20.3</b>	6.1	14.6	<b>20.7</b>	2.7	3.1	<b>5.7</b>
2012	14.4	6.6	<b>21.0</b>	6.0	14.1	<b>20.1</b>	2.6	3.3	<b>5.9</b>
2013	15.0	7.0	<b>22.0</b>	6.1	14.4	<b>20.5</b>	2.7	3.4	<b>6.1</b>
2014	16.1	7.0	<b>23.2</b>	6.3	15.4	<b>21.8</b>	2.8	3.7	<b>6.4</b>
2015	17.4	6.9	<b>24.2</b>	6.4	15.0	<b>21.3</b>	2.7	3.9	<b>6.6</b>
2016	18.1	7.3	<b>25.4</b>	6.8	15.3	<b>22.1</b>	2.7	3.9	<b>6.6</b>
2017	19.3	7.3	<b>26.6</b>	7.1	16.4	<b>23.5</b>	2.9	4.2	<b>7.1</b>
2018	20.7	7.4	<b>28.0</b>	7.0	17.3	<b>24.3</b>	3.0	4.5	<b>7.5</b>
2019	19.9	6.8	<b>26.7</b>	7.2	17.5	<b>24.8</b>	2.9	4.6	<b>7.6</b>
2020	20.6	6.9	<b>27.5</b>	7.2	16.8	<b>24.0</b>	2.7	4.5	<b>7.2</b>
2021	24.8	6.8	<b>31.6</b>	7.2	19.3	<b>26.5</b>	2.9	5.3	<b>8.2</b>
2022	26.1	6.6	<b>32.7</b>	6.6	19.6	<b>26.3</b>	3.0	5.8	<b>8.9</b>
Percentage annual change									
2008–2009	-16.5%	1.1%	<b>-11.5%</b>	0.4%	-17.0%	<b>-12.5%</b>	-21.4%	-18.2%	<b>-19.7%</b>
2009–2010	15.9%	13.8%	<b>15.2%</b>	10.5%	18.6%	<b>16.2%</b>	15.5%	14.6%	<b>15.0%</b>
2010–2011	1.0%	8.7%	<b>3.5%</b>	10.8%	5.0%	<b>6.7%</b>	6.3%	6.4%	<b>6.4%</b>
2011–2012	6.8%	-3.0%	<b>3.5%</b>	-1.8%	-3.4%	<b>-2.9%</b>	-2.8%	6.5%	<b>2.1%</b>
2012–2013	4.5%	5.2%	<b>4.7%</b>	2.1%	2.2%	<b>2.2%</b>	2.6%	4.3%	<b>3.5%</b>
2013–2014	7.4%	0.9%	<b>5.3%</b>	3.2%	7.3%	<b>6.1%</b>	2.8%	8.3%	<b>5.9%</b>
2014–2015	7.5%	-2.2%	<b>4.6%</b>	0.9%	-3.2%	<b>-2.0%</b>	-2.8%	5.3%	<b>1.8%</b>
2015–2016	4.3%	6.6%	<b>5.0%</b>	6.4%	2.4%	<b>3.6%</b>	0.3%	1.6%	<b>1.1%</b>
2016–2017	6.6%	-0.4%	<b>4.6%</b>	4.3%	6.9%	<b>6.1%</b>	7.0%	7.6%	<b>7.3%</b>
2017–2018	7.1%	1.0%	<b>5.4%</b>	-0.9%	5.6%	<b>3.7%</b>	4.5%	5.7%	<b>5.2%</b>
2018–2019	-3.6%	-7.4%	<b>-4.6%</b>	2.8%	1.4%	<b>1.8%</b>	-2.5%	3.4%	<b>1.1%</b>
2019–2020	3.2%	1.3%	<b>2.8%</b>	-0.2%	-4.1%	<b>-3.0%</b>	-7.1%	-3.0%	<b>-4.6%</b>
2020–2021	20.4%	-1.6%	<b>14.9%</b>	-0.4%	14.7%	<b>10.2%</b>	6.5%	18.7%	<b>14.1%</b>
2021–2022	5.4%	-3.0%	<b>3.6%</b>	-7.6%	1.8%	<b>-0.8%</b>	4.3%	9.5%	<b>7.7%</b>

Source: UNCTAD secretariat, based on MDS Transmodal (MDST), World Cargo Database, September 2022. <https://www.mdst.co.uk>.

<sup>a</sup> Forecast.

by 1.6 per cent. Trade on the Asia-Europe route increased by ten per cent, supported by growing volumes from East-Asia to Europe (14.7 per cent). Trade on the Transatlantic route increased by 14 per cent, driven by 18.7 per cent growth in volumes shipped from Europe to North America where consumer demand was booming.

However, the surge in containerized trade stumbled against a number of obstacles – unprecedented supply-side capacity constraints, logistical bottlenecks, port congestion and lockdowns. Container shipping and trade entered a perfect storm – tight shipping availability combined with shortages in inland transport and logistics capacity, including equipment, port labour, drivers, storage and warehousing.

Global logistics seized up as container ships were held up in congested ports, mainly in the United States, Northern Europe and China – further highlighting the vulnerability of global supply chains. Between the first quarter of 2020 and last quarter of 2021, average container schedule delays doubled globally, and on the Far East and North America trade they increased from two days to 12.<sup>7</sup>

There were significant deteriorations in cargo dwell time and schedule reliability, as registered in key performance indicators for shippers and supply chain managers, and general trade competitiveness. Since the beginning of the pandemic increasingly unreliable schedules have resulted in a loss to shippers of \$5–10 billion.<sup>8</sup> Carriers, on the other hand, have been able to realize record profits.

### Dry bulk trade improved but remains exposed to headwinds and shifts in trading patterns

In 2021, dry bulk trade, including major and minor bulks, increased by an annual rate of 3.5 per cent (table 1.7). Total shipments reached about 5.5 billion tons, reflecting a firm economic and industrial recovery in China, improved global macroeconomic trends, released pent-up demand, and boosts from stimulus spending. Much of the growth was driven by strengthened demand for minor bulk commodities (five per cent) and to a lesser extent by demand for major bulks (2.5 per cent).

Trade in iron ore depends heavily on developments in China, and in 2021 grew only marginally, by one per cent, reflecting a softening in China's industrial production and some normalization of import demand. There were also problems in the real estate market which accounts for 15 to 30 per cent of China's GDP.<sup>9</sup> Nevertheless, in 2021, China still accounted for 73 per cent of world iron ore imports – a share above the pre-pandemic level.<sup>10</sup> Future iron ore trade will depend on government policies on steel production,<sup>11</sup> though there could be some support from inventory building.

In 2020, a pandemic-induced drop in power demand led to a 9.1 per cent slump in the coal

Table 1.7 Dry bulk trade 2019–2021 (million tons and percentage annual change)				
	2019	2020	2021	Percentage change 2020–2021
<b>Main bulk<sup>a</sup></b>	<b>3 229</b>	<b>3 198</b>	<b>3 277</b>	<b>2.5</b>
<i>of which:</i>				
Iron ore	1 454	1 502	1 517	1.0
Coal	1 296	1 178	1 232	4.6
Grain	479	518	528	1.9
<b>Minor bulk</b>	<b>2 139</b>	<b>2 083</b>	<b>2 187</b>	<b>5.0</b>
<i>of which:</i>				
Metals and Minerals	971	948	984	3.8
Agribulks and Softs	405	422	431	2.1
<b>Total dry bulk</b>	<b>5 368</b>	<b>5 281</b>	<b>5 464</b>	<b>3.5</b>

Source: UNCTAD secretariat, based on Clarksons Research, *Seaborne Trade Monitor*, Volume 9, No.8, August 2022.

<sup>a</sup> Includes iron ore, coal (steam and coking) and grains (wheat, coarse grain and soybean).

Table 1.8 Major dry bulk: exporters and importers, 2021 (world market shares, in percentages)			
Iron ore exporters		Iron ore importers	
Australia	58	China	73
Brazil	24	Japan	8
South Africa	4	Europe	6
Canada	3	Republic of Korea	5
India	2	Other	8
Sweden	2		
Other	7		
Coal exporters		Coal importers	
Indonesia	35	China	23
Australia	29	India	16
Russian Federation	13	Japan	14
United States	6	Republic of Korea	10
South Africa	5	European Union	7
Colombia	5	Taiwan Province of China	6
Canada	3	Malaysia	3
Other	4	Other	21
Grain exporters		Grain importers	
United States	25	East and South Asia	53
Brazil	21	Africa	12
Argentina	12	Western Asia	11
Ukraine	10	South and Central America	10
European Union and United Kingdom	8	European Union and United Kingdom	8
Australia	7	North America	1
Canada	6	Other	5
Russian Federation	6		
Other	5		

Sources: UNCTAD secretariat, based on data from Clarksons Research *Seaborne Trade Monitor*, Volume 9, No. 8, August 2022 and Clarksons Research, *Dry Bulk Trade Outlook*, Volume 28, No.7, July 2022.

trade, but in 2021 the trade rebounded by 4.6 per cent. Coal has also been affected by Australia-China trade tensions which have increased coal ton-miles as Australia redirects shipments to more distant markets such as India, and China imports more coal from other parts of the world, including the United States and Canada. In the short term, the coal trade should benefit from economic growth and tight gas supply, but in the longer term its prospects are dimmed by the energy transition and the decarbonization agenda.

In 2020, grain shipments increased by 8.1 per cent, boosted by the United States-China trade agreement. In 2021, they increased further, by 1.9 per cent. Major players in dry bulk commodities supply and demand are featured in table 1.8.

### ***Tanker trade is affected by lower demand and cuts in OPEC+ production, while importers drew on stocks***

In 2020, total tanker trade dropped by 7.7 per cent, though in 2021 increased by 1.2 per cent to around three billion tons (table 1.9). Other tanker trade, including refined petroleum products and gas, increased by 4.1 per cent, reflecting a 5.6 per cent growth in gas trade, but the trade in crude oil continued to contract, by around one per cent.

Shipments of crude oil in the first half of 2021 were depressed by high prices and inventories, and cuts in production by OPEC+, as well as by recurrent COVID-19-induced restrictions that reduced the demand for transport fuel. Imports were also limited by refinery maintenance, together with higher oil prices that promoted the use of stocks, as well as by quotas that undermined imports by independent refiners.<sup>12</sup>

On the other hand, there was a revival in 'other tanker' trade. This had declined by 7.7 per cent in 2020 but in 2021 grew by 4.1 per cent with a growth in demand for fuel. India upped product exports by 8.3 per cent while the United States eased pandemic lockdowns, increasing the demand for transport and resulting in a jump in imports of 16.7 per cent.<sup>13</sup>

2021 also saw increased exports of liquefied natural gas (LNG). Growth increased from 0.4 per cent in 2020 to 5.6 per cent in 2021. This was a result of strong import demand in Asia which grew by 7.6 per cent, led by China at 16.8 per cent. For LNG, the short-term outlook appears positive, given low gas inventories in Europe and continued firm demand in Asia, along with efforts to expand liquefaction capacity. LNG is also expected to benefit from efforts to achieve energy security and diversify sources of supply.

The outlook also looks positive for liquefied petroleum gas (LPG). In 2020, volumes had declined by 0.9 per cent, but in 2021 recovered firmly by 6.7 per cent – sustained by demand growth of 25.6 per cent from China and a 15.2 per cent growth in exports from the United States.<sup>14</sup>

Overall, the near-term prospects for the tanker market have improved. There are still ongoing oil supply issues, including troubles with output from Libya, and OPEC+ production targets. Meanwhile, the war in Ukraine and related economic restrictive measures could cause a shift in oil trade flows, while a revival of the nuclear deal with the Islamic Republic of Iran would imply additional crude exports.

<b>Table 1.9</b>		<b>Tanker trade, 2019–2021</b> (million tons and percentage annual change)		
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Percentage change 2020–2021</b>
Crude oil	1 860	1 715	1 700	-0.9
Other tanker trade	1 303	1 203	1 252	4.1
<i>of which</i>				
Gas	479	481	508	5.6
<b>Total tanker trade</b>	<b>3 163</b>	<b>2 918</b>	<b>2 952</b>	<b>1.2</b>

Sources: UNCTAD secretariat, derived from table 1.2 of this report. Gas figures are derived from Clarkson's Research, *Seaborne Trade Monitor*, Volume 9, No 8, August 2022.

Notes: Tanker trade includes refined petroleum products, gas, and chemicals.

## **4. In 2022, disruptions from COVID-19 and logistics blockages amid a new war**

In 2021, maritime trade recovery was disrupted by supply chain problems, then in 2022 the situation deteriorated further with the onset of a war in Ukraine, the impact of recurrent COVID-19 infections, especially in China, and strikes in the logistics sector in the Republic of Korea, Germany, and the United Kingdom. At the same time, the stimulus benefits were fading while inflationary pressures were growing and monetary policies tightening, with a rising debt burden in many developing countries. Consumers faced increases in prices for energy and other items and greater food insecurity. Add the need for climate action, and all these factors spell trouble for the fragile recovery and could culminate in new crises.

Projections for world economic growth have been revised downward. In 2022, global GDP growth could decelerate to 2.6 per cent – dropping across all regions (table 1.3). While commodity-exporting countries are set to benefit from higher prices others will be hurt by rising prices for grain imports. Growth is also projected to decelerate in the LDCs, where the debt burden further hampers progress towards the Sustainable Development Goals.<sup>15</sup>

### ***Supply chains and global recovery are threatened by COVID-19 infections and China's zero-Covid policy***

In the face of recurrent COVID-19 infections in the first half of 2022, the global logistics crunch was compounded by China's zero-Covid policy and lockdowns in two of China's largest manufacturing and commercial centres, Shenzhen and Shanghai. Ports in these cities remained open, but the lockdowns disrupted manufacturing, trucking, and logistics operations. Carriers had to reroute via alternate ports such as Ningbo.

Even as these ports reopened, container lines, trying to restore schedules, continued with blank sailings at Shanghai and Ningbo, while also skipping calls, and redeploying capacity to East-West routes.<sup>16</sup> To fill the gaps some regional carriers offered new intra-Asia services or enhanced existing loops to provide additional calls, while the exporter void from Asia was partially filled by other shippers.<sup>17</sup> Because of these disruptions, between February and April 2022 the proportion of United States imports that came from China fell, though this was offset by rising imports from Viet Nam, the Republic of Korea, Thailand, Taiwan, China, Japan, Indonesia, and Malaysia.<sup>18</sup>

Over the period 2016–2019, the proportion of world containership fleet capacity held up at ports averaged 32 per cent. But during the crises this figure rose, and in July 2022 peaked at 37.2 per cent. With continuing congestion and unreliable schedules, from late 2020 to early 2022, global demand exceeded fleet capacity by 10 per cent. And prices remain high: as measured by the Shanghai Container Freight Index (SCFI) they were more than five times their 2019 level (chapter 3).<sup>19</sup> By August 2022, the imbalance between global supply and demand had disappeared, leading to a sharp decline in freight rates – discussed in Chapter 3.<sup>20</sup>

### ***The war in Ukraine further disrupts maritime trade, heightens food and energy insecurity and shifts maritime trade patterns***

The war in Ukraine has dented business confidence and heightened uncertainty, as the impacts ripple across commodity and financial markets, and supply chains and globalized production. For consumers this has reduced food and energy security while increasing inflation and the cost of living.

In 2022, the Russian Federation and Ukraine are both expected to suffer declines in economic output, with further spillover effects in Europe and Central Asia. In the Russian Federation output is projected to drop by 7.4 per cent. In Ukraine the economy is projected to shrink by nearly half,<sup>21</sup> while rebuilding the country could cost from €200 to €500 billion.<sup>22</sup>

Ukraine and the Russian Federation are among the world's breadbaskets. They provide around 30 per cent of the world's wheat and barley, one-fifth of its maize, and over half of its sunflower oil.<sup>23</sup> The Russian Federation is also leading natural gas exporter, and the second-largest oil exporter. Together, Belarus and the Russian Federation export around a fifth of the world's fertilizers.<sup>24</sup> Disrupted exports of crude oil, natural gas, grains, fertilizers and metals are expected to slow global trade. Global maritime grain exports alone are projected to decline by 3.2 per cent in 2022.<sup>25</sup>

There has been an immediate impact on commodity prices. By 25 March 2022, Brent crude oil prices surged by more than 40 per cent, reaching \$114 per barrel, up from \$79 per barrel on 3 January 2022.<sup>26</sup> Gas prices surged to over \$50 per million British thermal units (MMBtu) in the first half of March. Although since April prices in Europe subsequently eased, they remained high hovering around the \$25–35 per MMBtu range.<sup>27</sup> Meanwhile, grain prices also jumped and pushed up inflation, while rising fertilizer prices drove up the costs of agricultural production. Vulnerable segments of the population in developing countries are particularly exposed to large swings in food and energy supply and prices.<sup>28</sup> Many of these countries are net food importers and people have to dedicate a large share of their incomes to food and energy.

Over the 2010–2020 period inflation had averaged 2.9 per cent, but in 2021 had risen to 5.2 per cent and with the war in Ukraine is projected to reach 6.7 per cent.<sup>29</sup> In March 2022, inflation in the United States reached its highest level in 40 years. By mid-2022, there were fears of potential stagflation and the world economy slipping into recession.

Most seaports in the Black Sea have been closed – stopping grain shipments, with potentially dire consequences for poor countries (box 1.1). In 2021, Ukrainian monthly grain exports fell by 87 per cent in the second quarter of 2022 as compared with the same period in 2021.<sup>30</sup> Cutting Black Sea grain and fertilizer trade is a food security threat.<sup>31</sup>

The pandemic had already been driving up food prices,<sup>32</sup> but as Russian and Ukrainian grain exports were hindered by port disruptions, prices soared.<sup>33</sup> Between January and March 2022, the global food price index increased by about 18 per cent.<sup>34</sup> The costs of transport have also been rising with the combined effect of the war in Ukraine and related economic restrictive measures, energy costs, and COVID-19 disruptions. UNCTAD simulations suggest that high container freight rates observed during the 2021–2022 period will be passed on to consumers and ultimately lead to an additional increase in consumer prices of 1.6 per cent globally.<sup>35</sup>

UNCTAD paints a grim picture. In 2018–2020, 32 per cent and 12 per cent of total African wheat imports were from the Russian Federation and Ukraine, respectively. The least developed countries imported 39 per cent of their wheat from the two countries.<sup>36</sup> Export restrictions that further constrain supply and inflate prices should be avoided. Many countries have responded with export bans, higher tariffs, and other barriers. By the end of June 2022, it has been reported that restrictive measures affected 17 per cent of global food trade, on a caloric basis.<sup>37</sup>

Ukraine has been seeking alternative routes for its grain exports. Most are normally shipped via ports on the Black and Azov Seas – such as Odessa, Yuzhny/Pivdennyi, Chornomorsk, Kherson, Mariupol and Berdyansk.<sup>38</sup> When these were closed, only the Ukrainian ports of Reni, Izmail, and Kiliia on the Danube river were able to start up again, though these cannot operate on the same scale.<sup>39</sup>

### Box 1.1 Impacts of the war in Ukraine on the Arab region

Around 50 per cent of Ukraine's wheat exports are destined for the Middle East and North Africa region (MENA). Egypt, Jordan, Lebanon, Libya, Morocco, Oman, Saudi Arabia, Tunisia, and Yemen rely on the Russian Federation and Ukraine for at least one-third of their wheat imports.<sup>40</sup>

Egypt, which is the top importer of wheat worldwide, normally imports 85 per cent of its wheat from the two countries in the Black Sea. Despite efforts to diversify imports, over 70 per cent still originate from the Black Sea and food costs are skyrocketing.<sup>41</sup>

Yemen has an ongoing civil war, and over half the population is facing alarming levels of food insecurity, but since nearly 45 per cent of imports originate in the Russian Federation and Ukraine so prices are rising further. Yemen's agricultural infrastructure is not properly equipped for grain production and high fuel prices are adding pressure on production costs for local farmers.

Lebanon sources 90 per cent of its wheat imports from these two countries. In 2021, with the depreciation of the Lebanon's currency, food prices increased by over 400 per cent.<sup>42</sup>

Some Arab countries may benefit from the oil price increase. Production is likely to increase, especially if economic restriction affecting the Russian Federation are maintained. Higher revenues could be reinvested in the oil and gas sector. However, this could derail efforts towards economic diversification away from oil and gas and disincentivize investment in renewable energy.

Iraq received oil purchase requests from European countries in March and increased its shares in the European market. The increase in oil prices has allowed the Iraqi government to repay foreign debts and resume several projects that were put on hold due to the decline in oil prices in 2020.

Energy importing countries, such as Egypt, Jordan, Lebanon, the Syrian Arab Republic, and Tunisia, are facing high prices that threaten energy security. Tunisia raised its fuel prices by 3 per cent in March 2022, and Lebanon by 13 per cent. Morocco increased prices by 15 per cent for diesel and 33 per cent for gasoline. Higher energy prices are causing disruption across the value chain and putting further pressure on the region's fragile economies.

Tunisia is a net importer of gas and oil; only 50 per cent of its gas comes from national production and purchases from Algeria at market prices. The government of Tunisia has been continuously forced to raise fuel prices on a monthly basis, causing other inflation issues.

Rising energy costs are affecting electricity supplies. Lebanon, Libya and Yemen have reported reduced access to electricity over the past three months and are expecting even less availability in the next six months. For Lebanon, higher energy prices will affect bread prices, electricity, and diesel for powering generators.

Source: UNESCWA, July 2022.



One positive development was in July 2022, when the United Nations, the Russian Federation, Ukraine and Türkiye agreed the Black Sea Grain Initiative. The initiative allows exports from Ukraine of grain, other foodstuffs, and fertilizers, including ammonia, to resume through a safe maritime humanitarian corridor from three key Ukrainian ports: Chornomorsk, Odesa, and Yuzhny/Pivdennyi. A Joint Coordination Centre (JCC) was established in Istanbul to monitor implementation of the deal. Shipments monitored by the Initiative began on 1 August. As of 12 October, 7.2 million tons of grains and other foodstuffs had left Ukraine.<sup>43</sup> Although this freed up some space in Ukraine's silos, these are still full, from previous harvests and more grain needs to be exported to allow for storage of the new harvest. The agreement was valid for 120 days, but renewable. The World Food Programme has also been able to restart purchasing Ukrainian wheat for its humanitarian operations in countries such as Ethiopia and Yemen. Equally important and urgent is the export of fertilizers, including ammonia.<sup>44</sup>

Exports from the Russian Federation are expected to continue, given the tight global markets and the reluctance to impede the flow of foodstuffs. But exports from the Black Sea are affected by vessel insurance premiums.<sup>45</sup> Furthermore, shifting trade patterns imply a more complex operating landscape.<sup>46</sup>

The war is shifting trading patterns and driving up ton-miles. India is expanding its wheat exports, especially to East Asia. Brazil has been increasing wheat shipments to Africa. China is also expected to import from Brazil and from the United States.<sup>47</sup> The European Union is also likely to import more corn from Brazil and the United States.<sup>48</sup> Nigeria is now sourcing potash from Canada.<sup>49</sup>

Limitations and restrictions affecting Russian gas and oil will increase the demand for coal. Moreover, increases in the demand for renewable electricity will boost the demand for minor bulk metals.

The war is also transforming the global oil and gas landscape. In May 2022, the European Union agreed to phase out oil seaborne imports from the Russian Federation by the end of 2022.<sup>50</sup> But diversifying away from Russian gas will not be easy, given the logistical hurdles, pipeline-capacity restrictions, and the need for contract negotiations and developing new import facilities. Continued reliance is evidenced by Europe's purchase of Russian gas since the start of the war. Nevertheless, Europe is exploring floating storage regasification unit options and reviewing proposed onshore LNG terminal plans, for example, in Germany, France, the Netherlands and Poland. Meanwhile, the United States and India have already increased their shipments of oil products to Europe.<sup>51</sup>

The war has had a limited impact on container shipping. Nevertheless, nine of the top 10 global container lines have suspended their operations in the region and other logistics businesses have exited the Russian market. In addition to undermining connectivity in the Black Sea ports, the war has amplified port congestion in Europe and caused longer customs controls. Cargo destined for the Russian Federation requires transshipment in Northern European ports, which were already congested. Moving ahead, the war's impact on container shipping is likely to deepen.

The war has affected inputs to global manufacturing. The Russian Federation accounts for 40 per cent of the world's palladium production.<sup>52</sup> Ukraine supplies 90 per cent of the United States requirements for neon, and 70 per cent of the global supply.<sup>53</sup> All these elements are used as inputs in the production of high-tech products such as semi-conductors and ion batteries.

In addition, the war in Ukraine and the related economic restrictions have affected the rail route between China and Europe. In 2021, as shippers were forced out of heavily congested ports and severely constrained air cargo they turned to the China-Europe rail network where demand jumped more than 30 per cent to nearly 1.5 million TEU.<sup>54</sup> Cargo from China, Japan and the Republic of Korea that uses the trans-Siberian route is impeded. Meanwhile, new routes are emerging such as the Middle corridor of the Trans-Caspian International Transport Route.<sup>55</sup>

## B. KEY TRENDS SHAPING MARITIME TRANSPORT

The maritime transport and trade sector has been shaken by a succession of disruptions and is having to adapt to other structural shifts, particularly in response to climate change. The sector needs to reset to a new normal that involves low greenhouse gas emissions (GHG) and clean energy, more resilient supply chains and logistics, digitalization and data-driven business models. It also has to respond to new demand and consumption patterns, and more fragmented, localized, or regionalized operating and trading environments.

### 1. The energy transition and decarbonization

Only about 6 per cent of the post-COVID stimulus funding was allocated to cutting GHG emissions. Now the war in Ukraine and its impacts could push decarbonization further down the priority list. Indeed, if natural gas is replaced by coal, or if biofuel usage declines, GHG emissions could increase.<sup>56</sup>

In 2021, the European Union imported from the Russian Federation more than 40 per cent of its total gas consumption, 27 per cent of oil imports and 46 per cent of coal imports.<sup>57</sup> Many countries in Europe are seeking alternatives to the Russian Federation and are importing from more distant locations. To do so, however, they will need to address infrastructure bottlenecks in pipelines, storage terminals and tankers. Imports of natural gas could also partly be replaced by oil, coal and nuclear energy. In East and South Asia, Russian oil and gas could also partly displace coal.

The war in Ukraine has also shaken global markets for metals such as nickel that are used for the production of clean-energy products. In the short term this could make the clean-energy transition more difficult. However, in the longer term, investment in energy-efficiency measures, renewable-energy alternatives and low-carbon technologies should ease the transition to low-carbon and cleaner energy paths.<sup>58</sup>

Around 40 per cent of maritime cargo comprises fossil fuels, so the energy transition will alter the demand for shipping, as well as vessel types and sizes, and the fuels used by ports and ships. Sailing patterns and shipping networks will also need to be reorganized – as will the ports servicing such ships.

### 2. Supply chains are shaped by best-cost versus lowest-cost, and considerations of national security

In 2020 the pandemic induced an initial backlash against globalization. Subsequently global value chains (GVCs) adjusted to the disruption, as reflected in changes in market shares among GVC regions.<sup>59</sup> Nevertheless, the pandemic exposed the limitations of the just-in-time model whose weaknesses had also been tested by other disruptors such as, earthquakes, floods, blockages of canals, trade tensions and restrictive trade measures.

In 2022, the deteriorating geopolitical environment further exposed the risk associated with heavy reliance on one single or a few suppliers – whether for food, energy or parts and components for strategic manufacturing. Over 90 per cent of the world manufacturing capacity for semiconductors is concentrated in Taiwan China,<sup>60</sup> and the effects of the 2021–2022 semiconductor shortage rippled across a range of industries such as car manufacturing, electronics, and healthcare. Developing alternative sources for chip manufacturing is difficult, capital intensive and time-consuming. The crisis in Ukraine has also shaken the food, energy, automobiles and chip-making sectors.

These disruptions have reignited the debate over the future of globalization and the continued relevance of the lean supply chain model, when taking into account self-reliance and national security. Businesses looking for greater resilience and supply chain integrity and continuity are considering whether to bring production back home or closer to home – through reshoring, onshoring, nearshoring or same shoring and end-to-end supply chain management.<sup>61</sup>

A June 2022 survey found that most senior logistics and supply chain executives believed that a major transformation of supply chains was underway.<sup>62</sup> Less than 20 per cent agreed that globalization will lead to new supply chain configurations based on “ally-sourcing”. Nearly half thought that protectionism and reshoring would make supply chains more fragmented and localized.

Nevertheless, there is no evidence of outright re-shoring or of a mass exodus from manufacturing in distant locations. A 2021 survey by the American Chamber of Commerce in China found that only 14 per cent of respondents were interested in relocating, and only half of these had acted. Only 3 per cent of companies planned to move activity to the United States. Instead, they were likely to adopt a ‘China plus one’ strategy. Asian countries remained the most popular ‘plus one’ sources, with far fewer citing



destinations such as Mexico or Canada.<sup>63</sup> Another survey, at around the same time, found that 84 per cent of businesses had no plans to move their manufacturing operations out of China, and 74 per cent intended to continue sourcing from China.<sup>64</sup>

In many cases, reshoring may not be feasible, particularly if domestic suppliers lack the expertise and the capacity to rapidly scale up operations. In the United States in 2021, for example, despite attempts to diversify, imports of containerized goods from China hit a record high, with 42 per cent of all imports sourced from China – the same share as in 2008.<sup>65</sup> China maintained a 56 per cent share of household goods imports. In 2021, imports from China increased by 25 per cent while shipments from Viet Nam grew by 19 per cent. Volumes from other countries such as Cambodia also increased, but from much smaller bases.<sup>66</sup> Where China has lost market share the main beneficiaries have been Viet Nam and India.

Complete deglobalization is unlikely, though further disruptions and geopolitical concerns will probably accelerate efforts to promote resilience, security and predictability. Gradual shifts in sourcing are more likely; instead of seeking the lowest cost, companies are pursuing the ‘best cost’ – weighing manufacturing and transportation costs against factors like supply chain resilience and environmental sustainability.<sup>67</sup> While there is a long-term goal to move more production out of China and into countries like Brazil and Mexico, the 2021 reshoring index has shown a greater reliance on imports from other countries in Asia.<sup>68</sup>

Globalization is likely to take a step back as countries realign economic and geopolitical partnerships – building new supply chains while also enhancing efficiency.<sup>69</sup> The United States, the European Union and Japan are “friend-shoring” component manufacturing.<sup>70</sup> But for strategic goods such as semiconductors the goal seems to be full repatriation of production.<sup>71</sup> The European Parliament’s Committee on International Trade, for example, has called for the shortening of supply chains.<sup>72</sup>

There is the risk, however, that if companies do not manage to relocate production, protectionism could end up restricting trade or fragmenting the world trading system.<sup>73</sup> What is needed is a gradual and flexible approach that will harness collaboration and promote concerted multilateral efforts while using multiple levers including:

- **Diversification** – The goal should be to diversify suppliers and allow the markets to adjust, while balancing the objectives of efficiency and security.<sup>74</sup> Diversifying supply bases can be combined with an element of localizing or regionalizing. Many firms are now dual-sourcing or multi-sourcing and some industries in Europe and India, supported by government efforts to achieve strategic autonomy, are already reinventing their business models.<sup>75</sup>
- **Safety stocks** – Strategic inputs and commodities can be retained as buffers by increasing inventory holding.<sup>76</sup>
- **Vertical integration** – This can involve taking more processes in house. Volkswagen, for example, is creating some in-house battery-making capacity.<sup>77</sup> Or it can be achieved through strategic deals with suppliers. Tesla, for example, has recently struck deals with lithium miners and graphite suppliers and with the Brazilian company Vale for nickel. Other carmakers are hoping to reduce the predominance of China and the Republic of Korea in the business of battery-making and to bring production closer to home. In energy and renewables, the market is also expected to become more regional by sourcing more from allies.<sup>78</sup>
- **Longer-term relationships** – Companies are managing supplier relationships, investing in technology, and adjusting supply chain practices to remain flexible. They are building long-term, collaborative relationships with suppliers, manufacturers and other service providers who have the necessary technology, global reach and capacity.
- **Additional facilities and suppliers** – Companies can supplement rather than replace existing production. Often this means a China-plus-one strategy.<sup>79</sup> Nike, for example, has decreased lead times by transferring some production from Asia to Latin America. GoPro and Universal Electronics are shifting some production from China to Mexico.
- **Using digital technologies** – Supply chain management can be further optimized using frontier technologies to increase capacity and improve logistics.<sup>80</sup>

### 3. New consumption patterns as e-commerce takes hold

The pandemic accelerated shifts in consumer behaviour and preferences, with more online purchase of consumer goods, which are often transported by container. In 2019, global e-commerce was 15 per cent of total retail sales, but in 2021 had increased to 21 per cent. It could increase from a value of

\$3.3 trillion in 2022 to \$5.4 trillion in 2026.<sup>81</sup> Shippers, retailers and supply chain managers are already reassessing their logistics, with increasing automation and digitalization. Maritime transport operators have been investing in air freight, final-mile, and e-commerce logistics. A.P- Moller Maersk, for example, acquired various e-commerce logistics companies in 2021, including a start-up for B2C warehousing for the fashion industry.<sup>82</sup> Shipping and port operators can achieve service differentiation and greater competitiveness by leveraging this highly time-sensitive trade segment.

The E-commerce logistics market is also expanding. Estimated at \$243 billion in 2020, it is projected to grow at an annual growth rate of 18.9 per cent over 2020–2027, reaching \$819 billion by 2027.<sup>83</sup>

This has implications for warehousing inventory management including for safety stocks and buffers. In the first quarter of 2022, global vacancy rates in warehouses were at record lows– averaging 3.2 per cent in the United States and 3.3 per cent in Europe. In Seoul and Tokyo, vacancy rates were less than three per cent. In a time of scarce space capacity, one cost-effective solution is multi-storey warehousing.<sup>84</sup>

These trends entail a change in shipping patterns, port operations, and warehousing as well as for the entire logistics industry and supply chain participants. They also have implications for IT and digital solutions providers – for smart ports, for predictive analytics and port call optimization, and for achieving end-to-end visibility and data sharing.

### Box 1.2 Digitalization, e-commerce and logistics

E-commerce relies on extensive last-mile logistics and improved trade facilitation. UNCTAD eTrade Readiness Assessments – eT Ready – conducted in 24 LDCs and eight developing countries or regions, have found last-mile bottlenecks in all countries especially due to the lack of physical addressing systems. Overall UNCTAD noted few new initiatives in trade facilitation and logistics in the past year – probably because of COVID-19 restrictions.<sup>85</sup> Nevertheless, the pandemic has accelerated the integration of e-commerce in the business models of the different players in the postal, delivery and logistics sector. For example:

- **Bangladesh** – Ecom Express has invested in Paperfly, the country’s largest third-party e-commerce logistics firm, aiming to build a strategic backbone of e-commerce logistics and ensure home delivery.
- **Malawi** – The Malawi Posts Corporation is introducing PostGlobal, a system already used in 15 countries to track and trace parcels.
- **Uganda** – To improve last-mile delivery, post and courier services, there are now 572 registered pick-up centres. Between the last quarter of 2020 and the first quarter of 2021, mail processing and delivery increased by 18 per cent.
- **Senegal** – In 2020, Project JEJE was started to create a network of pick-up points for e-commerce shipments and ensure more reliable and safer delivery of packages.
- **Togo** – In 2020, the Société des Postes du Togo launched an online marketplace for “Made in Togo” artisanal products, [www.assiyeyeme.tg](http://www.assiyeyeme.tg), with last-mile delivery ensured by the SPT logistics network.
- **Zambia** – To improve e-commerce, the Post is introducing an Electronic Postal Management System – eZamPost– to allow access to the postal services as well as multi-channel payments.

UNCTAD’s Automated System for Customs Data (ASYCUDA) has helped countries automate customs and other regulatory procedures, and during the pandemic has enabled the use of e-trade permits, paperless processes and the exemption of taxes to facilitate import of medical supplies.<sup>86</sup> Using ASYCUDA’s guidelines for customs administrations, Angola, Eswatini, Lesotho, Rwanda, Uganda, Zambia and Zimbabwe have increased the use of paperless procedures from 30 per cent before the pandemic to an average of 82 per cent in 2022.

In recent years, public-private partnerships have been used to upgrade logistics services and infrastructure for domestic and cross-border e-commerce – an area that requires greater attention by both policy makers and industry players.

Source: UNCTAD secretariat, based on eTrade Readiness Assessments available at <https://unctad.org/topic/ecommerce-and-digital-economy/etrade-readiness-assessments-of-LDCs>.

## 4. Digitalization

Maritime transport and trade will need to adapt to greater use of technology. Digitally enabled shopping, for example, will boost trade, though other technologies such as automation may reduce the need for offshore production and diminish trade flows, or have mixed outcomes.

Maritime trade itself is also being reshaped by the digitalization of transport and logistics. In the past maritime transport has been slow to adopt digital solutions, but especially since the COVID-19 pandemic it has been playing catch up – as new technologies such as the Internet of Things (IoT), blockchain, big data, and AI start to improve efficiency, sustainability and resilience. TradeLens, for example, a data and document-sharing platform, is making more use of blockchain technology.<sup>87</sup> Ports are improving their operations, security, infrastructure, and management – using smart sensors and the IoT, along with terminal automation, port community systems, and traffic management systems. Between 2022 and 2027, the global smart ports market is projected to increase from \$1.9 billion to \$5.7 billion.<sup>88</sup> Throughout this process the sector will need to attend to the associated threats to security in the use of IT.

It is also important to address the digital divide between countries. Most developing countries entered the pandemic with relatively low digital capabilities, so found it difficult to mitigate the economic disruption. Many still have low levels of adoption and connectivity, and inadequate trade logistics. Often they lack entrepreneurs with digital skills or the confidence to use digital payments. Poor countries tend to have limited financing mechanisms to support start-ups and small and medium enterprises.

## 5. Shipping and ports are redefining their roles and adjusting to cope with change

In a fast-evolving operating landscape, maritime transport stakeholders need to strike new balances between competing objectives and priorities. Some carriers have, for example, been expanding their fleets while also offering air freight services and e-commerce, aiming to become logistics service integrators that have end-to-end control over supply chains. Others have altered their networks and opened up new routes – switching from the United States West Coast to the East Coast, or from China to East Asian countries, or incorporating rail transport from China to Europe.

This has resulted in some consolidation. To offer one-stop solutions, shipping carriers such as Maersk and port operators such as DP World are extending into the wider logistics through mergers and acquisitions spanning port terminals, warehouses, freight forwarding, air freight, e-commerce, other logistics services and IT businesses.

Governments too have been reacting to this rapidly changing environment. High freight rates and the profits realized by the liner shipping industry are creating pressures for greater regulatory oversight, as through the United States Federal Maritime Commission.<sup>89</sup>

Shippers have also been adapting to this disrupted environment – negotiating long-term contracts, for example, and securing sufficient space and capacity at good prices. At the same time, they have been considering alternative modes such as air freight which have become more competitive. Between 2019 and 2022, demand for air cargo increased by around 8 per cent and is expected to have increased by 13 per cent in 2022.<sup>90</sup> This trend should continue as disruptions linger and the e-commerce boom demands near-real-time deliveries.

## 6. Building resilience

To spread risks and reduce exposure of their primary business to disruptions, companies are now diversifying operations, while integrating risk management and preparedness into their operations. In these efforts, they need to look beyond immediate crises and short-term solutions to “resilience by design”.<sup>91</sup> This requires strategic thinking to find new opportunities and business models. Supply chains and their underlying transport and logistics networks should integrate long-term resilience criteria in their plans and structures.<sup>92</sup> For ports, for example, resilience-building should be seen as a strategy and an ongoing process that can gradually be implemented and fine-tuned to each port’s governance, managerial, commercial, and infrastructural context.

Success depends on effective collaboration among all players, at the national and international levels when tackling bottlenecks in ports and along the hinterlands, especially in landlocked, transit and coastal countries. This will require more support to developing countries, in particular the most vulnerable economies – through financial support, technical cooperation and capacity-building.<sup>93</sup>

## C. OUTLOOK

### 1. Gloomy prospects with increasing risks

The recovery in maritime transport and logistics is now at risk from the war in Ukraine, the continued grip of the pandemic, lingering supply-chain constraints, and China's cooling economy and zero-Covid policy, along with inflationary pressures and the cost-of-living squeeze. Ports remain congested but the logjam in logistics will dissolve with the rebalancing of demand and supply forces, as long as developing countries have sufficient vaccination and health measures to contain the pandemic. There are also increasing risks of industrial action in ports and hinterland transport. Faced with rising inflation and increased cost of living and the introduction of automation there is the potential for widespread unrest. Many of these risks interact in complex ways and across different timeframes and horizons.

Maritime trade is likely to lose steam. UNCTAD estimates that maritime trade growth to fall from 3.2 per cent in 2021 to 1.4 per cent in 2022 (table 1.10). Over the medium term, 2023–2027, seaborne trade is projected to grow 2.1 per cent per year, a rate below the historical average of 3.3 per cent.

For many years, containerized trade has been the fastest-growing maritime trade segment, but in 2022 is projected to expand at a tepid 1.2 per cent, and even this may be optimistic. Maritime trade is expected to be slowed by macroeconomic headwinds, and inflationary pressures that constrain consumer spending, and by pandemic-induced lockdowns and developments in China's economy. There could also be some normalizing of demand as consumer spending switches back more to services.

However, as a result of the war in Ukraine, trade is likely to increase in terms of ton-miles. The Russian Federation is seeking alternative markets, and European importers are considering alternative sources of supply. Thus, some substitution of supply is expected in the short-term, although some sectors have more scope for this than others.

### 2. Multiple scenarios for the path to normalization

In a fast-evolving environment, the above projections are subject to considerable uncertainty, well beyond the usual range. To describe the general direction of events, UNCTAD has developed four plausible scenarios. While many factors are at play, only two have been taken into account. First, the global economic output and the geopolitical context in which maritime transport and trade will unfold. Second, the COVID-19 pandemic and the ability of the global maritime supply chain and logistics sector to adjust (figure 1.8).

#### Scenario 1 – Recovery sustained

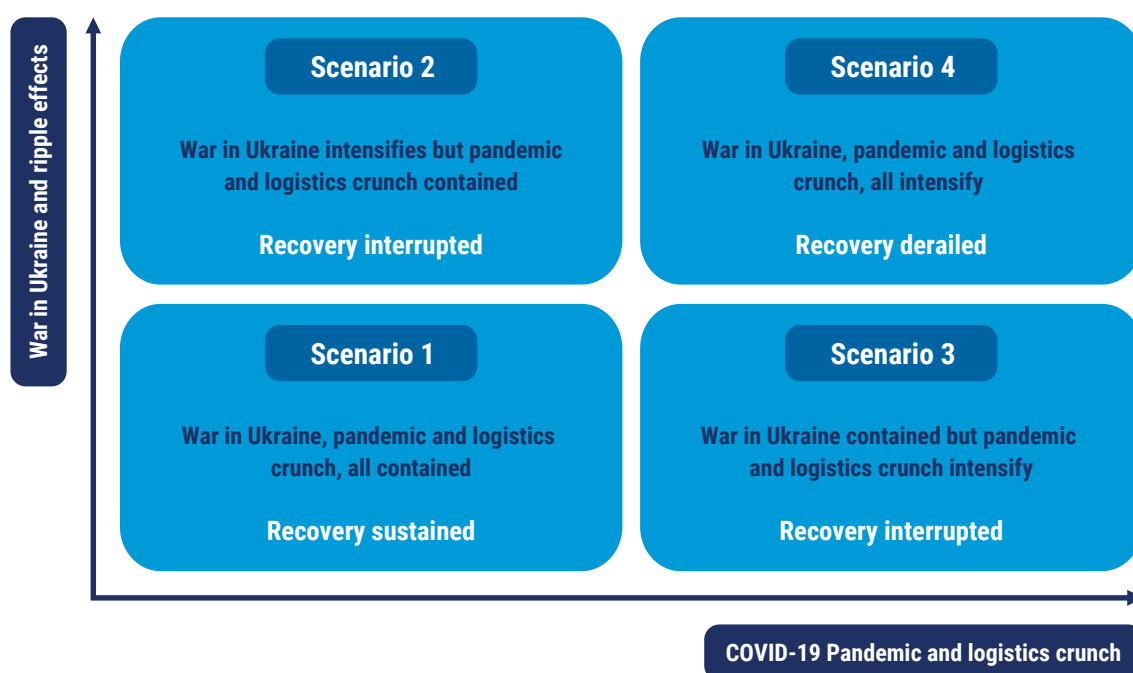
The disruption is contained with the war in Ukraine ending in the near future. No military escalation in other regions. Related economic restrictive measures are not escalated and may even be scaled back. GDP growth reverts to its pre-crisis trend. Inflation remains stable. COVID-19 is endemic and no new lethal variants emerge. Freight rates start to fall, though remain higher than pre-pandemic levels until new capacity arrives in 2023–2024. Maritime trade grows at the historical average.

Table 1.10 International maritime trade developments forecasts, 2022–2027 (annual percentage change)			
	Annual Growth	Years	Seaborne trade flows
UNCTAD	1.4	2022	Total seaborne trade
	1.4	2023	
	2.2	2024	
	2.3	2025	
	2.3	2026	
	2.2	2027	
UNCTAD	1.2	2022	Containerized trade
	1.9	2023	
	3.0	2024	
	3.1	2025	
	2.9	2026	
	3.8	2027	
Clarksons Research	0.9	2022	Total seaborne trade
	2.2	2023	
	-0.1	2022	Containerized trade
	2.4	2023	

Source: UNCTAD secretariat calculations and forecasts published by Clarksons Research.

Note: Projections are based on the estimated elasticities of maritime trade with respect to GDP, export volumes, investment share in GDP as well as monthly seaborne trade data published by Clarksons Research. They also build on the GDP forecast published in the International Monetary Fund, World Economic Output, October 2022.

Figure 1.8 Navigating the path to normalization: Selected scenarios



Source: UNCTAD secretariat.

### ***Scenario 2 – Recovery interrupted: The war in Ukraine intensifies, but the pandemic and logistics crunch are contained***

The disruption continues with a protracted war in Ukraine. Related economic restrictive measures intensify and affect trade between the West and China. The COVID-19 pandemic is contained and is recognized as endemic. Inflation increases and monetary policy tightens. A cost-of-living crisis unfolds. GDP growth moderates. Energy exports from the Russian Federation to Europe decline or are suspended. There is a search for alternative routes such as the Trans-Caspian International Transport Route Middle Corridor linking Asia to Europe, the Danube River and the Romanian ports. Maritime trade stagnates or declines. Ton-mile trade grows marginally.

### ***Scenario 3 – Recovery interrupted: The war in Ukraine is contained, but the pandemic and logistics crunch intensify***

The disruption continues, as new infections and variants of COVID-19 emerge, and lockdowns are implemented sporadically. The war in Ukraine ends sooner than later and related economic restrictive measures do not escalate further and may even be scaled back. Supply chain crunch and logistic logjams intensify. Freight rates and inflationary pressures increase. Use of alternative routes such as air freight and inland transport. Maritime trade marginally declines, reflecting moderated demand due to higher shipping and living costs.

### ***Scenario 4: Recovery derailed***

The disruption is exacerbated. COVID-19 continues with more lockdowns. A protracted war in Ukraine. Related restrictive economic measures intensify, affecting also trade between the West and China. GDP growth contracts and merchandise trade declines. Overcapacity in shipping and logistics. Freight rates fall with lower demand. World fragmentation and decelerating globalization. Maritime trade declines. Greater uncertainty about the timing and path to recovery. Pursuit of strategies that promote resilience and self-sufficiency take hold with an impact on global supply chains, especially in strategic sectors such as foods, energy, medicine, batteries, chips.

## D. POLICY PRIORITIES AND KEY ACTION AREAS

Beyond the immediate challenges of the war and the pandemic, policymakers will need to cover many fronts and keep sight of longer-term goals – promoting maritime trade while enabling sustainable and resilient transport systems.

1. **Control the COVID-19 pandemic** – Mitigate its impact by widening access to vaccines, testing, and therapies, especially in developing countries. Ensure that additional lockdowns and restrictions do not unduly penalize their economies.
2. **Strengthen macroeconomic frameworks** – Promote economic growth, with accommodative fiscal stances. Alleviate the impact of shocks on the most vulnerable segments of the population, tame inflation, reduce financial vulnerabilities, coordinate international debt relief, and help the most vulnerable by avoiding food insecurity and setbacks to poverty reduction.
3. **Keep trade flowing** – Avoid export and import restrictions. During crises, the need for imports may increase and exports could serve as stabilizers. Facilitate trade and streamline procedures and maintain access to finance and enforce contracts. Enable trade through multilateral and regional frameworks – noting the Regional Comprehensive Economic Partnership (RCEP).<sup>94</sup>
4. **Help the maritime industry transition** – Help companies embrace digitalization, and advance the decarbonization and energy transition agendas, while ensuring preparedness and resilience. Monitor trends in industry structures and services to ensure level playing fields. Ensure that the industry continues to generate value and expand its footprint without undermining smaller players, including shippers in developing countries.
5. **Cooperate multilaterally** – Promote coordinated and multilateral approaches and solutions. Prevent fragmentation in the face of geopolitical risks. Coordinate action on the climate emergency and enable the transition towards low-carbon growth. Multilateral cooperation is also essential for rapidly ending the war in Ukraine.
6. **Build resilience** – Take an integrated and proactive approach to ‘resilience by design’. Help developing countries, particularly most vulnerable economies to build stronger systems for transport and logistics. In particular, accelerate their update of digitalization to tap the potential of e-commerce and enable smart maritime logistics.
7. **Reconfigure supply chains** – Strike a balance between efficiency and cost on the one hand, and security, autonomy, self-reliance and resilience, on the other.



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## END NOTES

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