UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

REVIEW OF MARITIME TRANSPORT

2010

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NOTE

The *Review of Maritime Transport* is a recurrent publication prepared by the UNCTAD secretariat since 1968 with the aim of fostering the transparency of maritime markets and analysing relevant developments. Any factual or editorial corrections that may prove necessary, based on comments made by Governments, will be reflected in a corrigendum to be issued subsequently.

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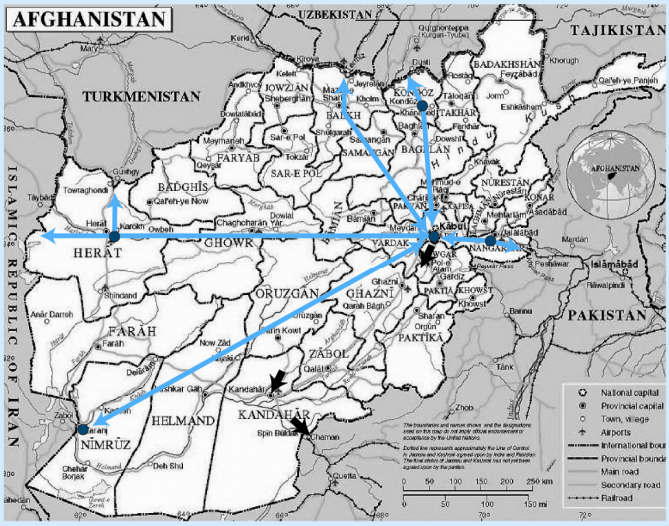
Corrigendum

On page 167, box 7.4, for the existing figure, *substitute*



ASYCUDA++ DPS (Declaration Processing System) is successfully implemented in
- Kabul Customs House
- Jalalabad Customs House
- Herat
- Kunduz
- Nimroz

and will be subsequently implemented in
Mazar-e-Sharif

ASYCUDA++ Transit System was successfully implemented in
- Torkham (border with Pakistan) - Jalalabad - Kabul
- Islam Qala (border with Iran) - Herat - Kabul
- Heiratan (border with Uzbekistan) – Mazar-e-Sharif - Kabul
- Torghundi (border with Turkmenistan) - Herat - Kabul
- Sher Khan Bandar (border with Tajikistan) - Kunduz - Kabul
- Zaranj/Nimroz (border with Iran) - Kabul

There are plans for its implemented in
- Kabul - Kandahar - Spin Boldak (border with Pakistan)

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ABBREVIATIONS AND EXPLANATORY NOTES

Abbreviations

AEO	Authorized Economic Operator
AfDB	African Development Bank
AFTA	ASEAN Free Trade Agreement
ALADI	Latin American Integration Association
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System for Custom
AU	African Union
BAF	bunker adjustment factor
bcm	billion cubic metres
BDI	Baltic Exchange Dry Index
BIMSTEC	Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation
BWM Convention	International Convention for the Control and Management of Ships' Ballast Water and Sediments
CAF	currency adjustment factor
cbm	cubic metres
CBP	United States Customs and Border Protection
CDM	Clean Development Mechanism
CGPCS	Contact Group on Piracy off the Coast of Somalia
CIS	Commonwealth of Independent States
CO_2	carbon dioxide
cSt	centiStokes
C-TPAT	Customs–Trade Partnership Against Terrorism
DHS	United States Department of Homeland Security
DIS	Danish International Register of Shipping
dwt	deadweight tons
EEDI	Energy Efficiency Design Index
EEOI	Energy Efficiency Operational Indicator
EIA	Energy Information Administration
EORI	Economic Operator Registration and Identification
ETS	emissions trading scheme
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FDI	foreign direct investment
FEU	40-foot equivalent unit
f.o.b.	free on board

GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GHG	greenhouse gas
GMS	Greater Mekong Subregion
GT	gross tons
HNS Convention	Hazardous and Noxious Substances Convention
ICC	International Chamber of Commerce
ICT	information and communications technologies
IEA	International Energy Agency
ILO	International Labour Organization
IMB	International Maritime Bureau
IMDG Code	International Maritime Dangerous Goods Code
IMF	International Monetary Fund
IMO	International Maritime Organization
ISO	International Organization for Standardization
IT	information technology
ISPS Code	International Ship and Port Facility Security Code
LDC	least developed country
ldt	light displacement ton
LLDC	landlocked developing country
LNG	liquefied natural gas
LPG	liquefied petroleum gas
LSCI	Liner Shipping Connectivity Index
MARPOL	International Convention for the Prevention of Pollution from Ships
MBM	market-based measure
mbpd	million barrels per day
MDG	Millennium Development Goal
MEPC	Marine Environment Protection Committee
MLC	Maritime Labour Convention
MRA	mutual recognition agreement
MSC	Maritime Safety Committee (IMO)
mtoe	million tons oil equivalent
n.a.	not available
NIS	Norwegian International Ship Register
OECD	Organization for Economic Cooperation and Development
OECS	Organization of Eastern Caribbean States
OPEC	Organization of the Petroleum Exporting Countries
pb	per barrel
ro-ro	roll on-roll off

RTA	regional trade agreement
RTG	rubber-tyred gantry
SAARC	South Asian Association for Regional Cooperation
SAFE Framework	Framework of Standards to Secure and Facilitate Global Trade
SAFTA	South Asian Free Trade Area
SAPTA	South Asian Preferential Trading Agreement
SDRs	Special Drawing Rights
SEEMP	Ship Energy Efficiency Management Plan
SIDS	small island developing State
SIECA	Secretaría de Integración Económica Centroamericana
SMEs	small and medium-sized enterprises
SOLAS Convention	International Convention for the Safety of Life at Sea
STEEM	Ship Traffic, Energy and Environment Model
TEU	20-foot equivalent unit
THC	terminal handling charges
TSR	Trans-Siberian Railroad
UASC	United Arab Shipping Company
ULCC	ultra-large crude carrier
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCITRAL	United Nations Commission on International Trade Law
UN-DESA	United Nations Department of Economic and Social Affairs
UNFCCC	United Nations Framework Convention on Climate Change
UNODC	United Nations Office on Drugs and Crime
VES	Vessel Efficiency System
VHSS	Hamburg Shipbrokers' Association
VLCC	very large crude carrier
VLOC	very large ore carrier
VLOO	very large ore oiler
WAEMU	West African Economic and Monetary Union
WCO	World Customs Organization
WS	Worldscale
WTO	World Trade Organization

Explanatory notes

- The Review of Maritime Transport 2010 covers data and events from January 2009 until June 2010. Where possible every effort has been made to reflect more recent developments.
- All references to dollars ($) are to United States dollars, unless otherwise stated.
- Unless otherwise stated, "ton" means metric ton (1,000 kg) and "mile" means nautical mile.
- Because of rounding, details and percentages presented in tables do not necessarily add up to the totals.
- Two dots (..) indicate that data are not available or are not separately reported.
- A hyphen (-) signifies that the amount is nil or less than half the unit used.
- In the tables and the text, the terms *countries* and *economies* refer to countries, territories or areas.
- Since 2007, the presentation of countries in the *Review of Maritime Transport* is different from that in previous editions. Since 2007, the new classification is that used by the Statistics Division, United Nations Department of Economic and Social Affairs, as well as by UNCTAD in the *Handbook of Statistics*. For the purpose of statistical analysis, countries and territories are grouped by economic criteria into three categories, which are further divided into geographical regions. The main categories are developed economies, developing economies, and transition economies. See annex I for a detailed breakdown of the new groupings. Any comparison with data in pre-2007 editions of the *Review of Maritime Transport* should therefore be handled with care.

Vessel groupings used in the *Review of Maritime Transport*

As in the previous year's Review, five vessel groupings have been used throughout most shipping tables in this year's edition. The cut-off point for all tables, based on data from Lloyd's Register – Fairplay, is 100 gross tons (GT), except those tables dealing with ownership, where the cut-off level is 1,000 GT. The groups aggregate 20 principal types of vessel category, as noted below.

Review group	Constituent ship types
Oil tankers	Oil tankers
Bulk carriers	Ore and bulk carriers, ore/bulk/oil carriers
General cargo	Refrigerated cargo, specialized cargo, roll on-roll off (ro-ro) cargo, general cargo (single- and multi-deck), general cargo/passenger
Container ships	Fully cellular
Other ships	Oil/chemical tankers, chemical tankers, other tankers, liquefied gas carriers, passenger ro-ro, passenger, tank barges, general cargo barges, fishing, offshore supply, and all other types
Total all ships	Includes all the above-mentioned vessel types

Approximate vessel size groups referred to in the *Review of Maritime Transport*, according to generally used shipping terminology

Crude oil tankers	
ULCC, double-hull	350,000 dwt plus
ULCC, single hull	320,000 dwt plus
VLCC, double-hull	200,000–349,999 dwt
VLCC, single hull	200,000–319,999 dwt
Suezmax crude tanker	125,000–199,999 dwt
Aframax crude tanker	80,000– 124,999 dwt; moulded breadth > 32.31m
Panamax crude tanker	50,000– 79,999 dwt; moulded breadth < 32.31m
Dry bulk and ore carriers	
Large capesize bulk carrier	150,000 dwt plus
Small capesize bulk carrier	80,000–149,999 dwt; moulded breadth > 32.31 m
Panamax bulk carrier	55,000–84,999 dwt; moulded breadth < 32.31 m
Handymax bulk carrier	35,000–54,999 dwt
Handysize bulk carrier	10,000–34,999 dwt
Ore/oil Carrier	
VLOO	200,000 dwt
Container ships	
Post-Panamax container ship	moulded breadth > 32.31 m
Panamax container ship	moulded breadth < 32.31 m

Source: Lloyd's Register – Fairplay.

EXECUTIVE SUMMARY

Developments in international seaborne trade

The year 2009 witnessed the worst global recession in over seven decades and the sharpest decline in the volume of global merchandise trade. In tandem with the collapse in economic growth and trade, international seaborne trade volumes contracted by 4.5 per cent in 2009. While no shipping segment was spared, minor dry bulks and containerized trades suffered the most severe contractions. This reflected the weak consumer confidence which depressed the retail sector, and the low level of capital investment, as well as a slowdown in the real estate and housing sectors, especially in advanced economies. In contrast, iron ore and coal trade volumes held strong on the back of China's robust import demand, driven, in particular, by China's large stimulus package.

By early 2010, a global recovery led by fast-growing developing economies was under way, although it was uneven and fragile. The sustainability of the recovery is challenged, among other things, by the fragile conditions in most advanced economies and the risk of a premature winding-up of the stimulus packages.

From the shipping perspective, uncertain demand outlook is only part of the picture. Prospects for shipping remain difficult and uncertain, due in particular to the significant size of the ship supply capacity and the impact of the demand/supply mismatch on shipping markets. An added challenge relates to the evolving global regulatory framework, driven by emerging global challenges including energy security, a potential seafaring crisis, and supply chain security, as well as environmental sustainability and, more specifically, the climate change challenge and the related mitigation and adaptation imperatives. Assuming the recovery takes holds and there are no new upheavals on the global scene, the shipping industry and seaborne trade are expected to recover in 2010, although with more of the ground lost in 2009 likely to be recovered in 2011 and beyond.

Record new deliveries lead to 7 per cent growth of fleet

By the beginning of 2010, the world merchant fleet had reached 1,276 million deadweight tons (dwt) – an increase of 84 million dwt over 2009. This growth resulted from a record in new deliveries of 117 million dwt, against demolitions and other withdrawals from the market of approximately 33 million dwt. New deliveries grew by 42 per cent over 2008 because of ships ordered prior to the downturn in demand. The resulting oversupply of tonnage then led to an over 300 per cent surge in demolitions of older tonnage.

Developments in China are particularly noteworthy with regard to the supply of and demand for shipping services. On the demand side, Chinese containerized exports make up a quarter of the world total. On the supply side, Chinese shipping companies are among the fastest-growing, and the country is home to the most important container and crane manufacturers. Between 2008 and 2009, China overtook Germany as the third-largest shipowning country, Japan as the second-biggest shipbuilding country, and India as the busiest ship-recycling country.

Productivity of the world fleet, and supply and demand in world shipping

Against a decline in world seaborne trade of 4 per cent in 2009 as compared to 2008 (see chapter 1), the world fleet continued to grow by 7 per cent during 2009 (see chapter 2). Accordingly, the overall fleet productivity in 2009 – measured in tons of cargo carried per deadweight ton – decreased further compared to the 2008 figures. The global average volume of cargo in tons per carrying capacity dwt decreased, and the average ship was fully loaded only 6.6 times in 2009 compared to 7.3 times in 2008. The productivity of oil tankers in terms of tons carried per dwt decreased by a further 5.6 per cent, from 6.7 in 2008 to 6.3 in 2009; for dry bulk it decreased by 5.5 per cent, from 5.3 to 5.0 tons; and the cargo volumes carried by the residual fleet decreased by a staggering 18.3 per cent, from 10.7 to 8.7 tons per dwt.

The resumption of manufacturing activity and global trade in containerized goods led to a recovery of demand for liner shipping services in early 2010. In 2009, however, the market was particularly bad for container shipping, as demand plummeted by 9 per cent while supply continued to see positive growth of 5.1 per cent – the difference between the two being a staggering 14.1 percentage points.

Freight rates

2009 was a bleak year for freight rates in the tanker, major dry bulk and liner sectors. The deepening of the global financial crisis severely affected demand for commodities and goods. By the end of 2009, rates in all sectors had recovered from their earlier lows, although they were still significantly beneath their 2008 levels. Freight rates for 2010 and beyond remain uncertain, as doubts surround the recovery from the global economic crisis. In the tanker and liner sectors, freight rates were boosted by absorbing supply rather than by an increase in demand. In the bulk sector, much of the recovery was attributed to imports by China, which took advantage of the low commodity prices and freight rates to increase stockpiles of raw materials. The oversupply of vessels, combined with weak operating results in 2009, could lead to consolidation by shipowners in 2011 through mergers and acquisitions.

Port and multimodal transport developments

World container port throughput declined by an estimated 10 per cent to 457.3 million TEUs in 2009. Chinese mainland ports accounted for approximately 23.3 per cent of the total world container port throughput. UNCTAD's Liner Shipping Connectivity Index reveals that between 2004 and 2010, the ranking of the least developed countries (LDCs) improved by just 1 point. The average ranking of LDCs in 2010 was 111, compared to an average ranking of 78 for other developing countries and 64 for developed countries.

The global trucking sector registered a compound annual growth rate in revenue of 7.8 per cent between 2004 and 2008. In the rail sector, freight and passenger services achieved a compound annual growth rate in revenue of 6.3 per cent during the period 2003–2007. Inland water transportation continues to be underutilized in many economies.

Legal issues and regulatory developments

During 2009 and the first half of 2010, discussions continued at the International Maritime Organization (IMO) regarding the scope and content of an international regime to control greenhouse gas emissions from international shipping. Moreover, a Protocol on the 1996 HNS Convention was adopted, in April 2010, with a view to facilitating the entry into force of the Convention. Standard-setting activities and other measures are continuing in the field of maritime and supply-chain security, in particular under the auspices of various international organizations such as the World Customs Organization, the International Maritime Organization and the International Organization for Standardization, but also at the national and regional level.

Review of regional developments in Asia and the Pacific

In contrast with the last review period of 2004 to 2006, when economic growth and trade in the region were booming, the current review period is characterized by a downturn in economic growth and trade. Reflecting the wide geographical spread of the global economic crisis of late 2008 and subsequent recession, GDP growth in the Asia-Pacific region decelerated to 4 per cent in 2009, its lowest level in 8 years. Consequently, growth in international merchandise trade in the region decelerated in 2008, and trade volumes contracted in 2009 with merchandise exports falling at the double-digit rate of about 12 per cent. Container trade volumes on the trans-Pacific and the Asia–Europe trades plummeted in 2009 due to a sharp decline in developed countries' import demand for consumer and manufactured goods – the main exports of the region – as did intra-Asian container volumes and the Asia-Pacific port container throughput. By mid-2010, economic indicators were showing a recovery in the region's economic growth and trade, with some economies already displaying signs of a return to pre-crisis growth and export levels. However, the potential for recovery should be viewed with caution. Recovery is subject to the assumption that the world remains on the same stabilization path, that the region continues to experience strong domestic demand, that debt positions do not deteriorate, that commodity prices remain relatively stable, and that Asian policymakers continue to enact fiscal stimulus packages. In other words, recovery remains fragile and is subject to downside risks.

With 12 landlocked countries being located in Asia, some of the challenges faced by these geographically disadvantaged countries are also considered. These countries currently face prohibitive transport costs and are in urgent need for progress to be made in trade facilitation.

1

DEVELOPMENTS IN INTERNATIONAL SEABORNE TRADE

CHAPTER 1

The contraction in the global economy and in merchandise trade during 2009 has changed the landscape of the shipping industry dramatically. A global recovery is currently under way, but it is uneven, slower compared to the recoveries that followed previous recent recessions, and challenged by numerous uncertainties and fragile global economic conditions. As demand for maritime transport services derives from global economic growth and the need to carry international trade, shipping and its recovery remain subject to developments in the wider economy.

This chapter covers developments from January 2009 to June 2010, and where possible up to September 2010. Section A reviews the overall performance of the global economy in 2009, and points to some general trends influencing the outlook for 2010. Section B considers developments in world seaborne trade volumes – including tanker, dry bulk and container – and highlights some emerging global challenges which are affecting maritime transport and are growing in importance, such as security, environmental protection and climate change, and energy sustainability and affordability. Section C looks more closely at developments affecting energy-related bulk cargoes, namely oil, gas and coal, which have important implications for tanker trade, bunker fuel prices, maritime transport costs and climate change.

A. WORLD ECONOMIC SITUATION AND PROSPECTS

1. World economic growth[1]

Following the global financial crisis of late 2008, the year 2009 recorded the first and deepest drop in global output since the 1930s, with world gross domestic product (GDP) contracting by 1.9 per cent (table 1.1).

The downturn was broad-based, with countries experiencing an exceptionally synchronized reversal in the trend of GDP growth (fig. 1.1 (a)). Developed economies and countries with economies in transition recorded the largest contractions, of 3.4 per cent and 6.3 per cent respectively. Developing economies have been affected too, with growth in these economies decelerating to 2.4 per cent – a much slower rate compared to 2007 and 2008. However, this figure conceals differences in the performance of individual countries. While GDP growth in China and India

Table 1.1. World economic growth, 2007–2010[a] *(annual percentage change)*

Region/country	1991–2003 Aveage	2007	2008	2009[b]	2010[c]
WORLD	2.8	3.9	1.7	-1.9	3.5
Developed economies	2.5	2.5	0.3	-3.4	2.2
of which:					
United States	3.3	2.1	0.4	-2.4	2.9
Japan	1.0	2.4	-1.2	-5.2	2.5
European Union (27)	2.3	2.8	0.7	-4.2	1.1
of which:					
Germany	1.7	2.5	1.3	-4.9	1.5
France	2.0	2.4	0.2	-2.6	1.2
Italy	1.6	1.4	-1.3	-5.1	0.8
United Kingdom	2.9	2.6	0.5	-4.9	1.1
Developing economies	4.6	7.8	5.4	2.4	6.9
of which:					
China	10.0	13.0	9.6	8.7	10.0
India	5.8	9.6	5.1	6.6	7.9
Brazil	2.5	6.1	5.1	-0.2	7.6
South Africa	2.4	5.5	3.7	-1.8	3.0
Least Developed Countries (LDCs)	4.2	8.4	5.4	4.7	5.7
Transition economies	..	8.5	5.4	-6.3	4.1
of which:					
Russian Federation	..	8.1	5.6	-7.9	4.3

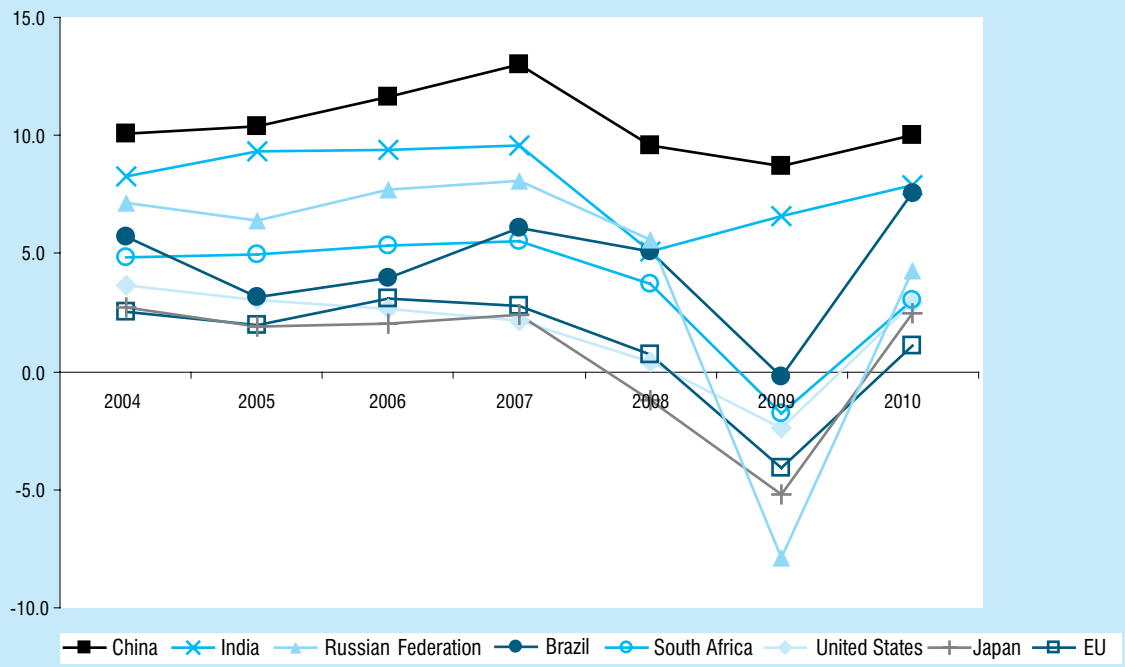
Source: UNCTAD. *Trade and Development Report 2010*. Table 1.1: World output growth, 1991–2010.

[a] Calculations for country aggregates are based on GDP at constant 2000 dollars.

[b] Preliminary estimates.

[c] Forecast.

Figure 1.1. (a) World GDP growth, 2004–2010, selected countries *(annual percentage change)*



Source: UNCTAD. *Trade and Development Report 2010.* Table 1.1. World output growth, 1991–2010.

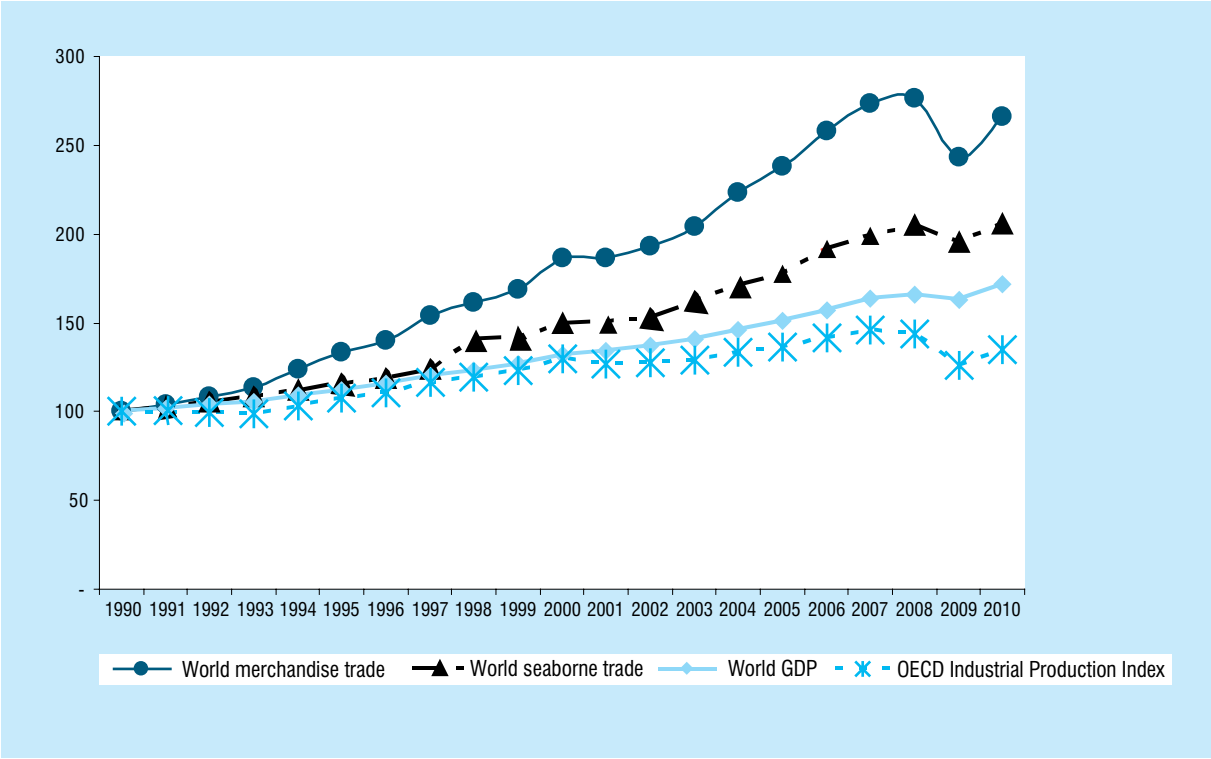
remained positive (8.7 per cent and 6.6 per cent respectively), other emerging developing economies, such as Brazil and South Africa, suffered GDP contractions. The least developed countries (LDCs) have fared better as their economies have continued to grow, albeit at a slower rate (4.7 per cent; down from 5.4 per cent in 2008), though still faster than the average growth over the period 1993–2001. For these countries, a decline in economic growth constitutes a considerable setback to the attainment of the Millennium Development Goals (MDGs), including the goal of poverty alleviation. By the end of 2009, developing countries had suffered an income loss of at least $750 billion,[2] and, by the end of 2010, the crisis will have increased the number of people in extreme poverty by 64 million.[3]

Global GDP is forecast to expand by 3.5 per cent in 2010, with the recovery by country varying in speed, and with the major drag on global growth coming from developed economies and related concerns about fiscal sustainability and large public debt (e.g. Greece and Ireland). In the United States, the larger scale of the fiscal stimulus is expected to help achieve a relatively better performance than in Europe and Japan. The outlook for developing countries is much brighter, with China, India and Brazil leading the way. GDP in the transition economies is expected to grow, too, although it is still expected to lag behind developing regions and pre-crisis levels.[4]

Industrial production – also a leading indicator of demand for maritime transport services – has recovered from the fall in 2009 which dampened demand for raw materials and energy, both mainstays of demand for shipping services. The correlation between industrial production, economic growth, global merchandise trade and seaborne trade volumes is shown in figure 1.1 (b). Signs of a slow recovery can be observed, with the four indicators moving upwards in 2010.

By the first quarter of 2010, the Organization for Economic Cooperation and Development (OECD) Industrial Production Index had grown marginally (to 97.3, from 92.5 in 2009),[5] reflecting, in particular, reduced consumer confidence and subdued employment in advanced economies. In contrast, industrial activity in emerging developing economies was expanding rapidly, at rates which – in some cases

Figure 1.1. (b) Indices for world GDP, the OECD Industrial Production Index, world merchandise trade and world seaborne trade, 1990–2010 *(1990=100)*



Source: UNCTAD secretariat, on the basis of *OECD Main Economic Indicators,* May 2010; the UNCTAD *Trade and Development Report 2010*; the UNCTAD *Review of Maritime Transport*, various issues; WTO's, *International Trade Statistics 2009*, Table A 1a, and the WTO press release issued in March 2010, entitled "World trade 2009, prospects for 2010". WTO merchandise trade data (volumes) are derived from customs values deflated by standard unit values and adjusted price index for electronic goods. The 2010 index for seaborne trade is calculated on the basis of the growth rate forecast by Clarkson Research Services.

– were surpassing the pre-crisis levels. Improved industrial confidence[6] and heavy public spending in support of demand resulted in China's industrial production growing at an average of 16 per cent during the second quarter of 2010. By comparison, China's industrial production grew at an annual rate of 11.1 per cent in 2009, and 13.0 per cent in 2008.[7] Activity in the Republic of Korea also expanded during the second quarter of 2010, with industrial production increasing at an average of 19.4 per cent, as compared with 3.3 per cent in 2008, and zero production growth in 2009.[8] During the second quarter of 2010, the industrial production index for Brazil averaged 115.3 (100.8 in the second quarter of 2009), while the index for India averaged 147.7 (132.3 in the second quarter of 2009).[9]

In sum, a global recovery is under way, but it is uneven, slower compared to the recoveries that followed previous recent recessions, and challenged by the fragile conditions prevailing in most advanced economies. With growth heavily driven by governmental fiscal and monetary intervention, the timing of the winding up of public stimulus packages is crucial to the sustainability of the global recovery. These developments have a direct bearing on global merchandise trade, including seaborne trade.

2. Merchandise trade[10]

The global financial crisis of late 2008 and the consequent economic downturn have been referred to as the "Great Trade Collapse".[11] The year 2009 recorded the sharpest trade decline in more than 70 years, with world merchandise export volumes estimated by UNCTAD to have plummeted by 13.7 per cent. In terms of value, world merchandise exports fell by 22.9 per cent. The total loss in world trade over 2008–2010, compared to what the situation would have been without the crisis (at the trend growth rates)

is estimated at $5.0 trillion, or about 12.7 per cent of world output in 2009 (at constant 2000 dollars).[12]

While a contraction in trade was expected, the magnitude of the drop was unprecedented even in comparison with the Great Depression.[13] The volume of merchandise exports dropped seven times more rapidly than global GDP, while existing estimates of trade/GDP elasticity ranged between approximately 2 (in the 1960s and 1970s) and 3.4 (in the 1990s).[14] The multiplier effect relates, among other things, to globalized production processes and increased trade in parts and components, the deepening and widening of global supply chains, the product composition of the fall in demand (e.g. consumer goods and durables), and the limited trade finance. The rapid decline in trade volumes could also be explained by the fact that trade in goods drops faster than trade in services, with the latter accounting for a larger share of GDP.[15] As to the role of shortages in trade finance in accelerating the drop, 10 to 15 per cent of the fall in trade volume was due to reduced trade finance.[16]

The trade volumes of major developed and developing economies fell in 2009 (table 1.2). All regions have suffered adverse trade shocks, either in terms of import demand volumes, exports, or terms of trade. The exception was the relatively steady growth in China's import volumes.

In 2009, merchandise trade (imports and exports) in developed countries – which are major importers of manufactures and consumer goods (carried in containers) – declined at a rate higher than the world average. Because of the high income elasticity of import demand for these goods, the deep recession in these countries reduced the demand for manufactures, consumer goods and durables, and depressed container trade volumes. This has spread quickly both to exporters of these goods and to providers of inputs and raw materials.

Developing and transition economies have also suffered a collapse in their merchandise trade. Developing countries have recorded a drop in export and import volumes of 11.7 per cent and 9.5 per cent respectively. East Asia, including China, has recorded a contraction in export volumes, although at a lower rate than the world average. The largest drop in total merchandise import volumes was recorded by oil and mineral exporters, including economies in transition (28.2 per cent) and Latin America and the Caribbean (17.1 per cent).

The crisis has emphasized the importance of South–South links (trade and investment).[17] For example, trade from China to Africa increased,[18] while at the fourth Forum on China–Africa Cooperation, held in November 2009, China doubled its initial commitment made at the 2006 summit and pledged $10 billion in new low-cost loans to Africa over a three-year period.[19] Greater inter-regional integration could also take place through outsourcing and commercial presence. For example, given that Chinese industry is likely to move up the value chain, opportunities may emerge for other developing regions such as Africa, with Chinese lower-value manufacturing companies being relocated in Africa along the lines of Chinese resource development and construction enterprises.[20]

Other countries are playing a larger role, too. For example, Brazil is importing gas from the Plurinational State of Bolivia; South Africa is the main source of remittances to Mozambique and a destination for Mozambican exports; the Russian Federation is an emerging destination for exports from Cambodia, Ethiopia and the United Republic of Tanzania; and India is expanding its links with many African countries, both through foreign direct investment (FDI) and trade.[21] South–South and North–South ties, as well as links between developing countries and economies in transition, are expanding through trade and investment channels. Examples of this are: (a) the customs union between Belarus, Kazakhstan and the Russian Federation; (b) the free trade agreement between the Association of Southeast Asian Nations (ASEAN) and China; (c) the free trade agreements between (i) ASEAN and Australia–New Zealand, and (ii) ASEAN and India; (d) the Comprehensive Economic Partnership Agreement concluded between India and the Republic of Korea; and (e) the free trade agreement between the European Union and the Republic of Korea; as well as other similar initiatives reported to be in the pipeline. These developments, and the role to be played by some countries and regions, have important implications for seaborne trade demand, flows, structure and patterns.

The prospects for 2010 are improving. Assuming no new upheavals in the global economy, and the confirmation of the nascent global recovery, the World Trade Organization (WTO) expects world export volumes to rebound and grow at 9.5 per cent in 2010. Developing countries and countries with economies in transition are expected to drive the recovery, with an annual growth rate of 11.0 per cent (7.0 per cent for developed economies). This reflects the increasing

Table 1.2. Growth in the volume[a] of merchandise trade, by geographical region, 2007–2009
(annual percentage change)

Exports			Countries/regions	Imports		
2007	2008	2009		2007	2008	2009
5.8	3.0	-13.7	**WORLD**	6.6	2.2	-13.1
3.9	2.8	-14.8	**Developed countries**	3.7	0.0	-14.2
			of which:			
6.8	4.9	-25.3	Japan	0.8	-0.9	-12.8
6.8	5.5	-14.9	United States	1.1	-3.7	-16.5
3.2	2.5	-13.7	European Union	4.8	1.1	-13.7
8.6	0.8	-15.5	**Transition economies**	26.1	16.0	-28.2
8.7	4.2	-11.7	**Developing countries**	10.6	5.3	-9.5
			of which:			
4.8	-2.8	-10.0	Africa	11.2	11.6	-2.4
2.4	-0.6	-9.7	Latin America and the Caribbean	11.6	8.6	-17.1
15.6	7.3	-10.2	**East Asia**	10.2	0.6	-4.6
21.8	10.5	-13.0	*of which:* China	14.1	2.4	-0.2
6.3	14.9	-18.9	**South Asia**	10.9	7.2	-6.9
15.2	10.7	-7.9	*of which*: India	16.9	10.4	-7.5
6.9	2.1	-9.7	**South–East Asia**	6.7	8.0	-15.9
2.0	7.4	-14.4	**West Asia**	16.7	8.4	-12.8

Source: UNCTAD (2010). Table 1.2. Export and import volumes of goods, selected regions and countries, 2006–2009. In: *Trade and Development Report 2010*.

[a] Data on trade volumes are derived from international merchandise trade values deflated by UNCTAD unit value indices.

role of developing regions – especially Asia and more specifically China – as engines of growth. China overtook Germany as the world's leading exporter in 2009, with a share of 10.0 per cent of world merchandise exports by value. China's strong import demand for raw materials has been boosted by a sizeable stimulus package, and will continue to be the driving force behind the global recovery.

The following section sets out some of the main developments that shaped international seaborne trade in 2009, and examines the effect of the global economic downturn and financial crisis on various seaborne trades (e.g. tanker, dry bulk and container). The large imbalance in the growth rates of ship supply and demand, the climate change challenge, piracy and maritime security, and energy and its implications for bunker fuel prices and for transport costs are highlighted as particularly important considerations for shipping.

B. WORLD SEABORNE TRADE

1. General trends in seaborne trade

Estimates based on preliminary data for 2009 indicate that world seaborne trade volumes fell by 4.5 per cent, suggesting, as noted by some observers, that 2008 marked the end of the "super cycle". In 2009, total goods loaded amounted to 7.8 billion tons, down from 8.2 billion tons recorded in 2008 (tables 1.3 and 1.4, and fig. 1.2).

Developing countries continued to account for the largest share of global seaborne trade (61.2 per cent of all goods loaded and 55.0 per cent of all goods unloaded), reflecting their growing resilience to economic setbacks and an increasingly leading role in driving global trade. Developed economies' shares of

global goods loaded and unloaded were 32.4 per cent and 44.3 per cent respectively. Transition economies accounted for 6.4 per cent of goods loaded, and 0.8 per cent of goods unloaded.

Taken on a regional basis, Asia continues to dominate, with a share of 41 per cent of total goods loaded, followed in decreasing order by the Americas, Europe, Oceania and Africa (fig. 1.3 (a)). Since 2008, Oceania has overtaken Africa as the fourth loading region, which reflects, in particular the rise in iron ore and coal shipments from Australia.

Over the past four decades, developing economies have consistently loaded (exported) more international cargo than they have unloaded (imported) (fig. 1.3 (b)). At the same time, the volume of cargo unloaded (imports) has been growing rapidly, catching up with the volume of goods loaded (exports). This development reflects – in particular – the evolution in the global production system which has seen production of manufactured products increasingly being outsourced to distant locations in developing countries, with a corresponding growth in intra-company trade – particularly trade in parts and components used as production inputs. Robust industrial growth in emerging developing countries and the associated demand for raw materials also have a role to play. Another factor is the income or wealth effect. Bigger incomes allow for the emergence of a middle class in developing countries, which drives changes in the scale and composition of consumer demand. This may involve increased demand for finished products and consumer goods, and more diversified and sophisticated food items.

As demand for maritime transport services derives from global economic growth and the need to carry international trade, shipping could not be sheltered from the contractions in the global GDP and merchandise trade. The following section reviews the main developments in seaborne trade in 2009, including by cargo type, and provides an outlook for 2010. It also considers a number of challenges that are facing the shipping industry and global seaborne trade.

2. Seaborne trade by cargo type[22]

Crude oil, petroleum products and gas

Since the recession took hold in the second half of 2008, energy demand has tapered off, starting in late 2008 and continuing during 2009. Consequently, world shipments of tanker trade volumes, including crude oil, petroleum products and liquefied natural gas (LNG) fell by 3.0 per cent in 2009. Total tanker cargoes loaded amounted to 2.65 billion tons, down from 2.73 billion tons loaded in 2008.

Crude oil shipments

In 2009, seaborne shipments of crude oil fell by an estimated 3.4 per cent to 1.72 billion tons. Major oil producers, including from the OPEC countries of Western Asia, were the largest loading areas for crude oil, together with the economies in transition, South and East Asia, Central Africa, South America's northern and eastern seaboards, North Africa, West Africa, and the Caribbean and Central America (see Section C for the major producers and consumers of oil and gas). The major unloading areas included North America, South and East Asia, Europe, Japan and South-East Asia. The strong growth in oil demand from China, India and Western Asia, and the resilient growth in Latin America, are being translated into proportionately growing shares of crude shipments being unloaded in those regions. With relatively high stocks of crude oil in developed economies and a depressed global demand for oil, major oil importers in advanced economies have recorded falls in their crude oil shipments and have reduced their import requirements.

After the exceptionally good times in the pre-2008 period, the tanker market faced difficult times in the first half of 2009. However, as the global outlook improved later in the year and optimism about future recovery took hold, conditions for the tanker trade improved. Cold weather in Northern Europe and China, coupled with an increasing propensity for low prices to prompt the use of tankers to store oil in anticipation of higher resale prices in the future, have helped support recovery in oil demand. As for supply, slippage and increased storage have helped to moderate the excess ship supply in 2009. Some 25 per cent of tanker capacity was not delivered to schedule in 2009 (to reduce supply), while as many as 34 very large crude carriers (VLCCs) were identified as having been used for storage.[23] Global storage of crude oil in VLCCs was estimated to have reached at least 80 million barrels in early 2009.[24]

Looking ahead, and the effect of the downturn notwithstanding, the crude oil trade is set to reverse the 2009 trend and resume growth in 2010, albeit at a slow pace and against a rapidly growing fleet. Although 2010 is expected to mark the end of the

Table 1.3. Development of international seaborne trade, selected years (*millions of tons loaded*)

Year	Oil	Main bulks[a]	Other dry cargo	Total (all cargoes)
1970	1 442	448	676	2 566
1980	1 871	796	1 037	3 704
1990	1 755	968	1 285	4 008
2000	2 163	1 288	2 533	5 984
2006	2 698	1 849	3 135	7 682
2007	2 747	1 972	3 265	7 983
2008	2 732	2 079	3 399	8 210
2009[b]	2 649	2 113	3 081	7 843

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries as published on the relevant government and port industry websites, and by specialist sources. The data for 2006 onwards have been revised and updated to reflect improved reporting, including more recent figures and better information regarding the breakdown by cargo type.

[a] Iron ore, grain, coal, bauxite/alumina and phosphate. The data for 2006 onwards are based on *Dry Bulk Trade Outlook* produced by Clarkson Research Services Limited.

[b] Preliminary.

remaining single-hull tankers, even a scrapping of this entire capacity will not address the concerns about oversupply, as single-hull tankers have, in any case, been progressively less active. Additionally, increasing oil prices mean that the use of tankers for storage will decline, adding more ship tonnage capacity to the existing fleet. With the dry bulk sector also having suffered from the crisis, it makes much less sense to convert tankers into bulkers; in this context, achieving a balance between demand and supply will remain a major challenge.

Shipments of petroleum products

The year 2009 was also considered a poor year for the product tanker segment, as demand for petroleum products, in terms of scale, structure and geographical distribution, is also influenced by the wider global economic context. Demand for gasoline and diesel for cars declined, while demand for distillates and other products used for industrial purposes remained subdued. The depressed demand has led to a build-up of oil inventories, with significant volumes stored on tankers around the world. This was reflected in world shipments of petroleum products, which fell by 2.4 per cent to reach 924.6 million tons in 2009. Developed regions accounted for 38.4 per cent of world petroleum products loaded, and 55.3 per cent of world petroleum products unloaded. Developing economies accounted for 57.1 per cent of world products loaded, and 44.4 per cent of world products unloaded. Economies in transition accounted for the balance.

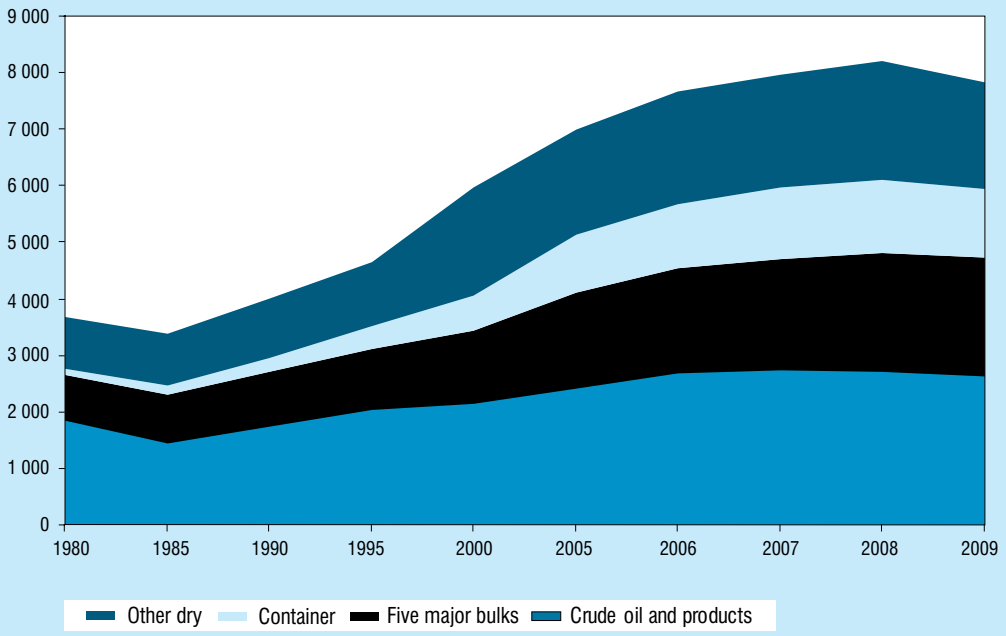
The outlook in 2010 for the petroleum products trade has improved with the improved global economic prospects and a projected growth in demand from non-OECD countries. Nevertheless, and as was the case for crude oil and the VLCC sector, this recovery is set against a significant product tanker capacity expansion.

Liquefied natural gas shipments

According to data from BP, the LNG trade grew by 7.2 per cent in 2009, taking the total volume of LNG shipped to 242.8 billion cubic metres (bcm). This contrasts with declining natural gas consumption and production levels, as well as diminishing shipments by pipeline. LNG imports into the United States increased by over 28 per cent in 2009, due to cold weather and to lower prices, which made gas compete with coal for power generation. Of particular note is the continuing growth in unconventional[25] gas production in the United States. This represents a major turnaround from previous production declines, and calls into question whether large-scale imports will be needed by the United States. Imports into Europe are expected to slowly recover in 2010, with the United Kingdom becoming a net importer in 2009, importing 10.2 bcm of LNG.

The large LNG importers in Asia – namely Japan, the Republic of Korea, and Taiwan Province of China – also recorded a fall. This trend is expected to be reversed due to the economic recovery and the rise in industrial demand. China remains a smaller energy market compared to these large Asian importers.

Figure 1.2. International seaborne trade, selected years, *(millions of tons loaded)*



Source: *Review of Maritime Transport*, various issues. Container trade data obtained from Clarkson Research Services, *Shipping Review and Outlook,* spring 2010.

However, given its projected growth path, China is expected to emerge as an important new import market, as illustrated by the recent Memorandum of Understanding signed between Qatar and China providing for additional long-term supplies of LNG to China.[26]

On the supply side, the main global exporters of LNG were located in developing regions, with Qatar being the largest, followed, in descending order, by Malaysia, Indonesia, Algeria and Nigeria. The depressed economic situation in 2009 resulted in setbacks to a number of LNG projects, with many being delayed due to difficulties in securing financing. Although financing problems existed even before the crisis, more challenging economic times have exacerbated the problem. Nevertheless, global LNG production is expected to expand in 2010, driven mainly by Qatar. The trade will be further dependent on new LNG liquefaction projects expected to start up in 2010–2016, and the proliferation of projects intended to use floating storage and gasification units. While the general outlook for LNG shipping may be positive, it is still necessary, in the short term, to restore balance in the market. Like other tanker segments, the LNG sector is suffering from overcapacity too, with many ships reported to be idle in 2010.

Dry cargo shipments: major and minor dry bulks and other dry cargo[27]

In 2009, dry cargo volumes, including dry bulks, container cargo and other dry cargoes, recorded their first drop since 1983 (by 5.2 per cent) and stood at about 5.2 billion tons. The share of dry cargo in the total volume of goods loaded has been growing over the years, and continues to account for the lion's share of the total (66.2 per cent).

Major dry bulks: iron ore, coal, grain, bauxite/alumina and phosphate rock

In 2009, trade in the five major bulks increased by 1.6 per cent to 2.1 billion tons. The main drag on growth in the major dry bulk volumes resulted from the severe contraction in the volumes of bauxite and alumina (23.2 per cent) and phosphate rock (38.7 per cent). This drop was more than offset by the growing volumes of two major dry bulks, namely iron ore and coal. In 2009, the world dry bulk trade continued to hold strong, due in particular to China's $586 billion stimulus package and massive infrastructure expenditure in support of domestic demand.

Table 1.4. World seaborne trade in 2006–2009, by type of cargo and country group

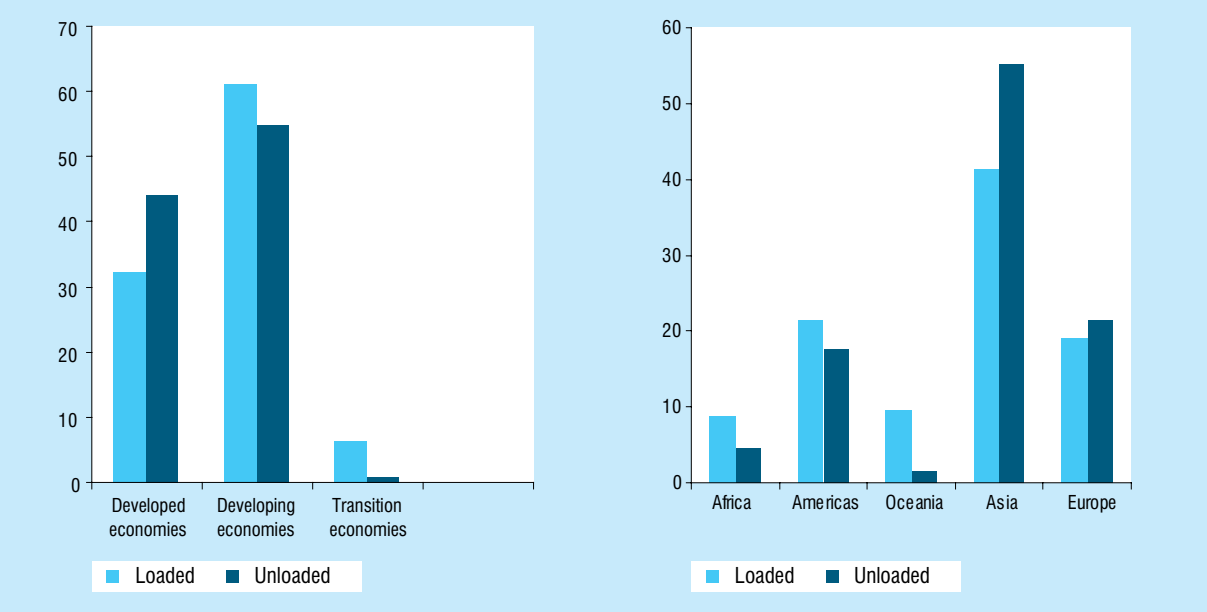
Country group	Year	Goods loaded				Goods unloaded			
		Total	Crude	Products	Dry cargo	Total	Crude	Products	Dry cargo
		Millions of tons							
World	2006	7 682.3	1 783.4	914.8	4 984.1	7 885.9	1 931.0	894.2	5 060.8
	2007	7 983.5	1 813.4	933.5	5 236.6	8 136.1	1 995.5	904.3	5 236.3
	2008	8 210.1	1 785.2	946.9	5 478.0	8 272.7	1 942.1	964.1	5 366.5
	2009	7 842.8	1 724.5	924.6	5 193.6	7 908.4	1 877.8	957.3	5 073.3
Developed economies	2006	2 460.5	132.9	336.4	1 991.3	4 164.7	1 282.0	535.5	2 347.2
	2007	2 608.9	135.1	363.0	2 110.8	3 990.5	1 246.0	524.0	2 220.5
	2008	2 708.5	129.0	394.3	2 185.1	4 007.9	1 251.1	523.8	2 233.0
	2009	2 540.1	118.6	355.0	2 066.5	3 499.8	1 149.8	529.4	1 820.6
Transition economies	2006	410.3	123.1	41.3	245.9	70.6	5.6	3.1	61.9
	2007	407.9	124.4	39.9	243.7	76.8	7.3	3.5	66.0
	2008	431.5	138.2	36.7	256.6	89.3	6.3	3.8	79.2
	2009	501.8	151.3	41.6	309.0	60.5	6.1	3.0	51.4
Developing economies	2006	4 811.5	1 527.5	537.1	2 747.0	3 650.6	643.4	355.5	2 651.6
	2007	4 966.6	1 553.9	530.7	2 882.0	4 068.9	742.2	376.8	2 949.8
	2008	5 070.2	1 517.9	515.9	3 036.4	4 175.5	684.7	436.5	3 054.3
	2009	4 800.8	1 454.6	528.0	2 818.2	4 348.1	721.9	424.8	3 201.3
Africa	2006	704.0	353.8	86.0	264.2	357.4	41.0	39.9	276.5
	2007	708.9	362.5	81.8	264.6	375.9	45.5	45.0	285.3
	2008	741.9	379.2	83.5	279.3	366.1	44.8	44.2	277.0
	2009	682.1	335.0	82.8	264.4	365.6	43.7	42.7	279.2
Americas	2006	1 030.7	251.3	93.9	686.5	373.4	49.6	60.1	263.7
	2007	1 067.1	252.3	90.7	724.2	415.9	76.0	64.0	275.9
	2008	1 112.2	234.6	93.0	784.6	433.8	74.2	66.9	292.7
	2009	1 050.6	219.4	89.6	741.7	387.0	74.2	65.4	247.5
Asia	2006	3 073.1	921.2	357.0	1 794.8	2 906.8	552.7	248.8	2 105.3
	2007	3 187.1	938.1	358.1	1 890.8	3 263.6	620.7	260.8	2 382.1
	2008	3 211.8	902.7	339.3	1 969.9	3 361.9	565.6	318.3	2 477.9
	2009	3 061.7	898.7	355.5	1 807.5	3 582.4	604.1	313.1	2 665.2
Ocenia	2006	3.8	1.2	0.1	2.5	12.9	0.0	6.7	6.2
	2007	3.5	0.9	0.1	2.5	13.5	0.0	7.0	6.5
	2008	4.2	1.5	0.1	2.6	13.8	0.0	7.1	6.7
	2009	6.3	1.5	0.2	4.6	13.1	0.0	3.6	9.5

Table 1.4. World seaborne trade in 2006–2009, by type of cargo and country group (concluded)

Country group	Year	Goods loaded				Goods unloaded			
		Total	Crude	Products	Dry cargo	Total	Crude	Products	Dry cargo
		Percentage share							
World	2006	100.0	23.2	11.9	64.9	100.0	24.5	11.3	64.2
	2007	100.0	22.7	11.7	65.6	100.0	24.5	11.1	64.4
	2008	100.0	21.7	11.5	66.7	100.0	23.5	11.7	64.9
	2009	100.0	22.0	11.8	66.2	100.0	23.7	12.1	64.2
Developed economies	2006	32.0	7.4	36.8	40.0	52.8	66.4	59.9	46.4
	2007	32.7	7.5	38.9	40.3	49.0	62.4	57.9	42.4
	2008	33.0	7.2	41.6	39.9	48.4	64.4	54.3	41.6
	2009	32.4	6.9	38.4	39.8	44.3	61.2	55.3	35.9
Transition economies	2006	5.3	6.9	4.5	4.9	0.9	0.3	0.3	1.2
	2007	5.1	6.9	4.3	4.7	0.9	0.4	0.4	1.3
	2008	5.3	7.7	3.9	4.7	1.1	0.3	0.4	1.5
	2009	6.4	8.8	4.5	5.9	0.8	0.3	0.3	1.0
Developing economies	2006	62.6	85.6	58.7	55.1	46.3	33.3	39.8	52.4
	2007	62.2	85.7	56.9	55.0	50.0	37.2	41.7	56.3
	2008	61.8	85.0	54.5	55.4	50.5	35.3	45.3	56.9
	2009	61.2	84.3	57.1	54.3	55.0	38.4	44.4	63.1
Africa	2006	9.2	19.8	9.4	5.3	4.5	2.1	4.5	5.5
	2007	8.9	20.0	8.8	5.1	4.6	2.3	5.0	5.4
	2008	9.0	21.2	8.8	5.1	4.4	2.3	4.6	5.2
	2009	8.7	19.4	9.0	5.1	4.6	2.3	4.5	5.5
Americas	2006	13.4	14.1	10.3	13.8	4.7	2.6	6.7	5.2
	2007	13.4	13.9	9.7	13.8	5.1	3.8	7.1	5.3
	2008	13.5	13.1	9.8	14.3	5.2	3.8	6.9	5.5
	2009	13.4	12.7	9.7	14.3	4.9	3.9	6.8	4.9
Asia	2006	40.0	51.7	39.0	36.0	36.9	28.6	27.8	41.6
	2007	39.9	51.7	38.4	36.1	40.1	31.1	28.8	45.5
	2008	39.1	50.6	35.8	36.0	40.6	29.1	33.0	46.2
	2009	39.0	52.1	38.5	34.8	45.3	32.2	32.7	52.5
Oceania	2006	0.0	0.1	0.0	0.0	0.2	0.0	0.7	0.1
	2007	0.0	0.1	0.0	0.0	0.2	0.0	0.8	0.1
	2008	0.1	0.1	0.0	0.0	0.2	0.0	0.7	0.1
	2009	0.1	0.1	0.0	0.1	0.2	0.0	0.4	0.2

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources. The data have been revised and updated to reflect improved reporting, including more recent figures and detailed information regarding the breakdown by cargo type.

Figure 1.3. (a) World seaborne trade, by country group and region, 2009 *(percentage share in tonnage)*



Source: Compiled by the UNCTAD secreariat on the basis of data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources.

During the fourth quarter of 2008, the outlook for the dry bulk sector was looking bleak when the plummeting Baltic Exchange Dry Index (BDI) made the headlines. In tandem with the BDI, steel production – the main driver of dry bulk shipments (fig. 1.4 (a)) – fell sharply in 2009 (by 8.0 per cent); this brought total output down to 1,219.7 million tons (compared to 1,326.5 million tons in 2008).[28] A the same time, world demand for steel contracted by 6.7 per cent in 2009, with the total volume standing at 1,124.3 million tons.[29] Surprisingly, however, the dry bulk market, driven mainly by strong demand from China, did not perform as badly as expected, with volumes of iron ore – the key raw input material used for the production of steel – performing particularly well.

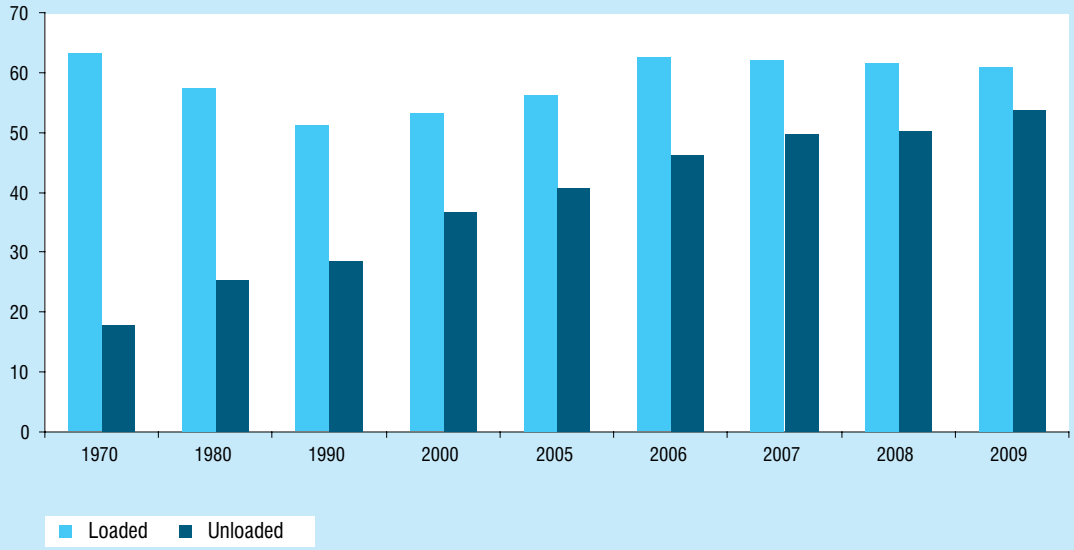
Iron ore shipments

Together with coking coal, iron ore is the main ingredient used in the production of steel. The major iron ore producers include Australia, Brazil, Canada, China, India, the Russian Federation, South Africa, Sweden and the United States. The key players in the sector continue to be Vale in Brazil, BHP Billiton, and Rio Tinto (Australia/United Kingdom). With the failure of an earlier attempt by BHP Billiton to take over Rio Tinto, a non-binding agreement was signed between the two companies in 2009. The joint venture represents a major collaboration within the global iron ore industry. Another important development relating to iron ore is the rapidly evolving pricing system, which will make the annually negotiated fixed contract prices less relevant in the future. Short-term quarterly benchmark prices are introducing a more dynamic pricing system and are replacing the annual contracts which prevailed for over 40 years.[30]

The world's iron ore shipments were estimated at 907 million tons in 2009, an increase of 8.6 per cent over 2008. Major exporters included Australia, Brazil, India and South Africa, while smaller exporters included Canada, Mauritania, Peru and Sweden. Together, Australia and Brazil accounted for about 70.0 per cent of world iron ore exports; Australia remained the world's largest exporter with 362.4 million tons (an increase of more than 17.0 per cent compared to 2008). Exports from Brazil amounted to 266.0 million tons, a drop of 5.6 per cent measured against 2008. Figure 1.4 (b) highlights the main iron ore importers and exporters in 2009.

Surging iron ore imports into Asia more than offset the falling imports in other regions, and they help to explain the resilience shown by the dry bulk market in 2009. The engine of growth was China, whose iron ore imports increased dramatically (by 40.1 per cent over 2008), owing in particular to the Chinese Government's fiscal stimulus package, which boosted domestic demand for steel at a time when the export

Figure 1.3. (b) Developing countries' seaborne trade, selected years *(percentage share in tonnage)*



Source: *Review of Maritime Transport*, various issues.

market was depressed. This was reflected in robust growth in China's steel production, which expanded by 13.5 per cent to reach around 568 million tons, and which allowed China to remain the world's leading steel producer. Other major importers included Japan (24.8 per cent less than in 2008), Western Europe (38.2 per cent less than in 2008) and the Republic of Korea (14.6 per cent less than in 2008). With the exception of Egypt, India, the Islamic Republic of Iran, and Qatar, all other smaller importers, such as Taiwan Province of China and Pakistan, reduced their iron ore imports.

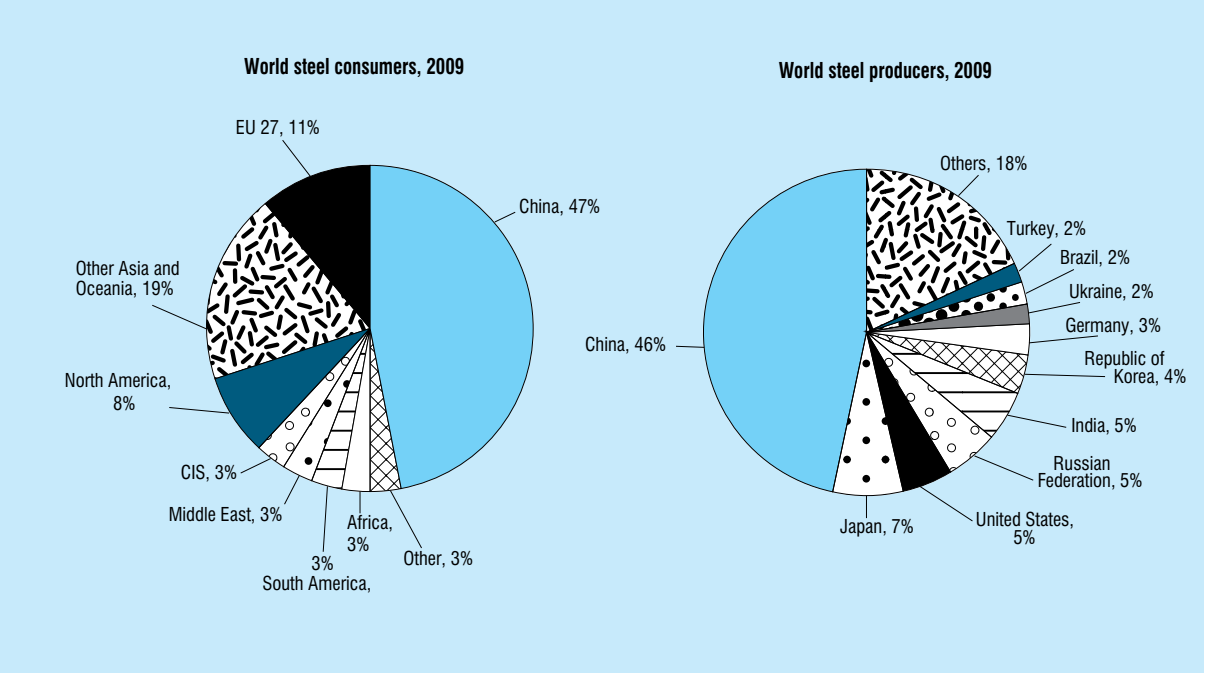
Looking ahead, global iron ore trade volumes are expected to expand by 7.9 per cent in 2010. While China's exceptional performance in 2009 is not expected to be repeated in 2010, China will, nevertheless, continue to power growth in the global iron ore trade. As China continues to actively invest in overseas ventures in Africa, Australia and South America to provide raw materials to its growing economy, demand for bulkers and trade flow patterns are likely be affected, including through potential increases in distances travelled and ton-miles.

Coal shipments

In 2009, the volume of coal shipments (thermal and coking) totalled 805 million tons, a volume equivalent to the 2008 level (799 million tons). Thermal coal exports increased by around 2.1 per cent and reached 590.0 million tons (73.3 per cent of world coal shipments). Shipments of coking coal, which is also used in steel production, fell by 2.7 per cent to 215 million tons. Together, Australia and Indonesia accounted for 62.2 per cent of the world's thermal coal shipments, with Indonesia remaining the world's leading exporter. Indonesia increased its thermal coal exports by a solid 16.8 per cent to reach 233.5 million tons, while Australia increased its thermal coal exports by around 7.1 per cent. Other major thermal coal exporters in 2009 included China, Colombia, the Russian Federation, South Africa and the Bolivarian Republic of Venezuela. Major coal importers and exporters are shown in figure 1.4 (c).

As regards coking or metallurgical coal used in steel production, Australia remained the world's largest exporter, with a total of 138 million tons – a marginal increase of about 1.0 per cent over 2008. Australia is well positioned to increase its share of global trade, given the number of mine expansions for coking coal scheduled to be developed over the next five years. These expansion plans suggest a firm commitment both by mines and by infrastructure operators and owners to support the long-term growth of Australia's export coking coal industry. To benefit from the significant export opportunities associated with these expansion plans, a number of major port infrastructure

Figure 1.4. (a) Steel consumers and producers in 2009 ***(world market share in percentages)***



Source: UNCTAD secretariat, on the basis of data from the World Steel Association (2010), *Steel Statistical Yearbook 2010.*

projects are scheduled for the next decade, too. Other lesser exporters, such as Canada, China and the United States, have reduced their export volumes.

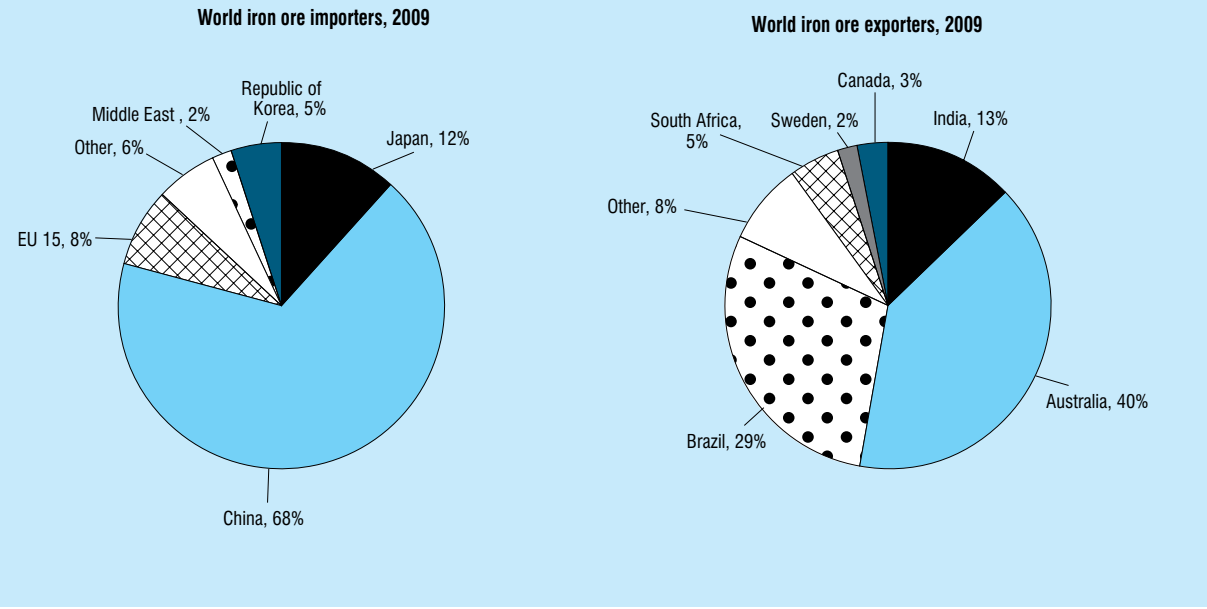
The main destinations for both types of coal exports (thermal and coking) are Europe and Japan, which together accounted for 42.7 per cent of the world's coal imports in 2009. However, over recent years, coal exporters have increasingly focused on Asia. For example, Colombia has started to ship cargo to the Pacific region. South Africa is also looking to intensify its coal exports to Asia. In 2009, India overtook the Netherlands and became the first export market for South Africa's coal. The growth in exports to China, Taiwan Province of China, and India was matched by a reduction in exports from South Africa to Europe and the United States. As noted above, an interesting development in 2009 was the impressive surge of coal imports into China. The total volumes of coking coal imports increased about tenfold, while thermal coal imports almost quadrupled, as the Government closed many domestic mines considered to be unsafe and as international coal prices became more attractive. Growing domestic energy requirements and low international coal prices have prompted China and other Asian countries, including India, to increase their imports. The surge in coal exports from Australia to China caused port congestion and shipping delays, and increased freight rates.

These emerging trends, affecting the direction of coal shipments as well as their scale, are likely to shape the demand for bulk carriers and to alter bulk trade flows. World coal shipments are forecast to increase in 2010, with thermal coal volumes expected to increase at a slower rate than coking coal. An issue to monitor is the pricing system, which is rapidly evolving. Differential pricing is gaining ground, and an increasing share of sales is being priced on quarterly terms rather than annual benchmarks.

Grain shipments

For the calendar year 2009, world grain shipments are estimated to have fallen by 2.2 per cent to 316 million tons, with wheat and coarse grains accounting for about 75.0 per cent of the shipments. The global financial and economic crisis and the subsequent recession have badly hit demand for imported grain in several key importing regions, such as Asia. The use of wheat has been growing at a modest rate in some developing countries (e.g. India), and relatively lower market prices and ample supplies compared to recent years have supported the food demand for wheat. However, the use of wheat and maize for animal

Figure 1.4. (b) Major bulks: iron ore importers and exporters in 2009 *(world market share in percentages)*



Source: UNCTAD secretariat, on the basis of data from Clarkson Research Services, published in the September 2010 issue of *Dry Bulk Trade Outlook*.

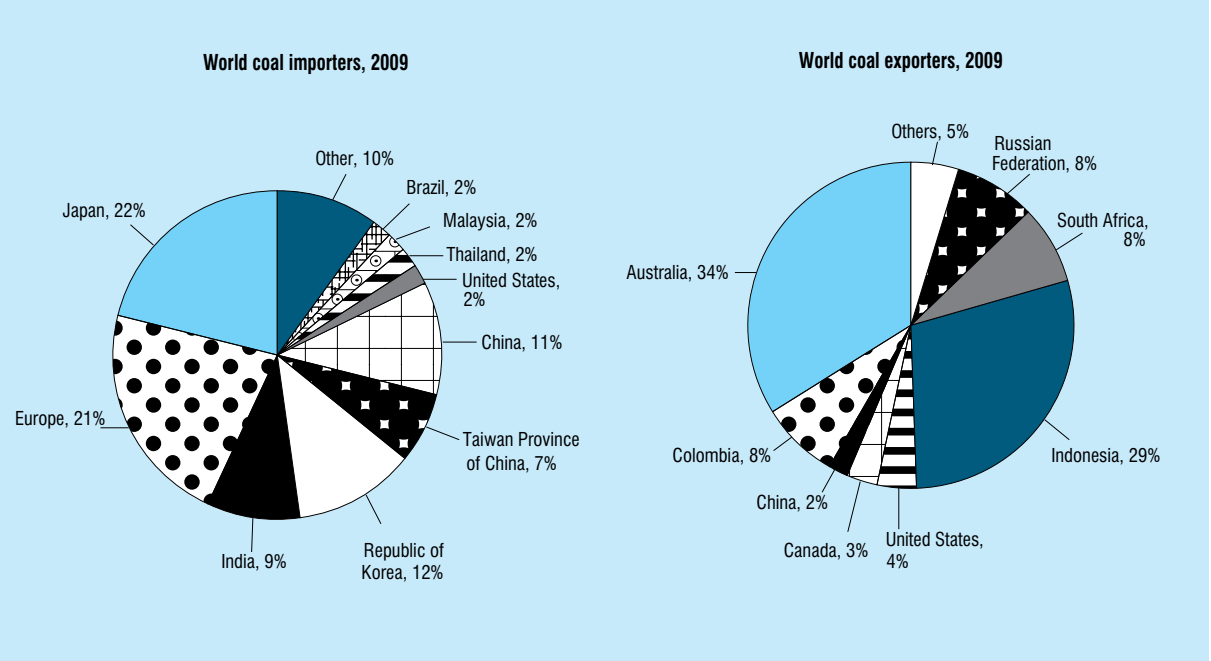
feed has declined in many countries, along with the drop in demand for meat. Industrial use of maize and wheat, mainly to produce starch and ethanol, has also been subdued, due to the less favorable economic situation. With the recovery under way, however, the consumption of wheat and maize for industrial purposes is expected to grow. In some countries (e.g. in the European Union), reduced import demand has also reflected the improved weather conditions and better crop yields.

For the crop year 2009/10, volumes of wheat exports are expected to fall at a faster rate than coarse grains (8.7 per cent as compared with 1.7 per cent). Wheat exports from the world's five largest exporters (Argentina, Australia, Canada, the European Union and the United States) are expected to fall by 12.4 per cent. With a prolonged period of drought – considered to be the worst for 70 years – having a detrimental impact on its crop yields, Argentina is projected to record the sharpest drop in wheat exports (47.0 per cent). The five large exporters are expected to maintain their export volumes of coarse grains (with a marginal fall of less than 1 per cent). Exports from the European Union are expected to record the largest drop (49.0 per cent). In the United States, the April 2010 oil spill in the Gulf of Mexico and the difficulty of containing the oil slick caused concerns for the country's grain exporters, as over 50.0 per cent of all grains exports from United States are shipped from the mouth of the Mississippi.

The drop in grain trade volumes is broad-based, spanning all regions (fig. 1.4 (d)). For example, grain import volumes (for the crop year 2009/10) are expected to fall in the Islamic Republic of Iran (50.3 per cent), the European Union (31.7 per cent), the Commonwealth of the Independent States (19.7 per cent), Morocco (19.6 per cent), Algeria (19.3 per cent), Tunisia (17.9 per cent), the Philippines (13.9 per cent), Cuba (12.5 per cent) and Thailand (11.8 per cent). Despite the projected declines, there are reports of wheat imports picking up in some countries, including China and India, owing to lower prices.

A fall in grain trade volumes will impact upon the demand for handymax[31] ships, which, in addition to servicing the steel product trade, are the main grain carriers. The handymax fleet is growing, with shipping supply outpacing growth in demand. In the medium to longer term, developments and policy measures taken in some countries are also likely to reshape the demand for maritime transport services, where increased grain imports/exports in some parts of the world are likely to be offset by decreased grain imports/exports elsewhere. Examples of such measures include the efforts to preserve water supplies in Saudi

Figure 1.4. (c) Major bulks: coal importers and exporters in 2009 *(world market share in percentages)*



Source: UNCTAD secretariat, on the basis of data from Clarkson Research Services published in the September 2010 issue of *Dry Bulk Trade Outlook*.

Arabia, which implies the end of production of irrigated wheat, and increased imports. By contrast, Algeria is planning to cut its wheat imports by at least two thirds until 2014, and to boost domestic production.

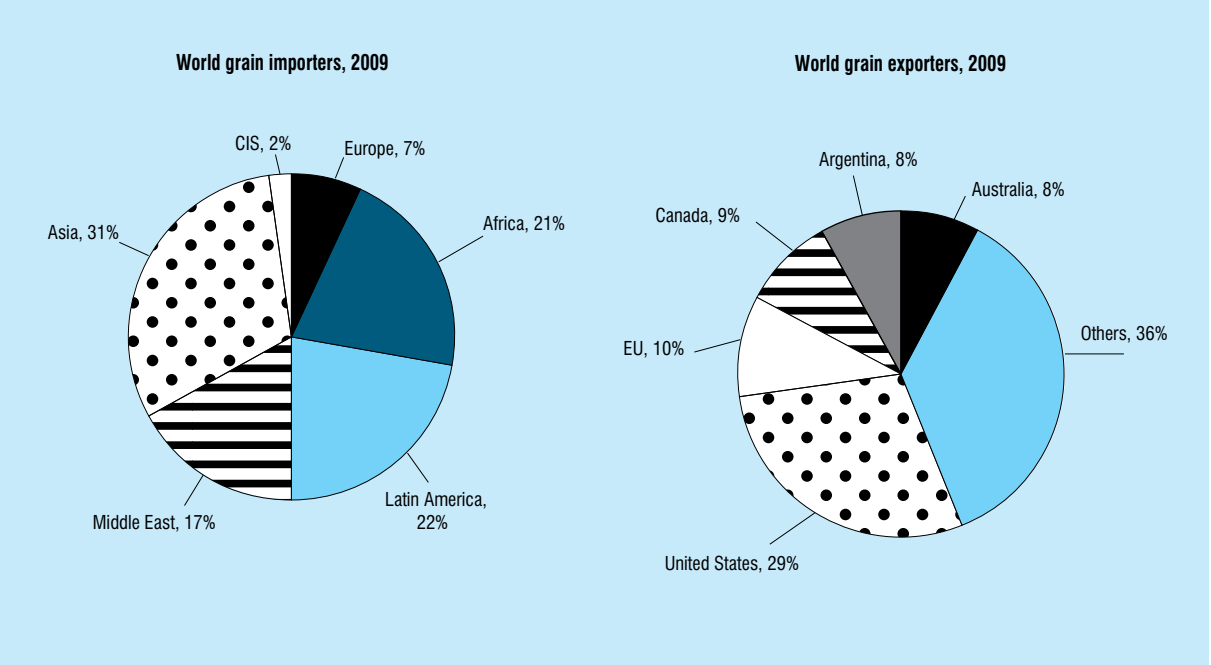
From the perspective of developing countries – especially the most vulnerable countries and the LDCs – the grain trade is of particular importance, given their heavy reliance on food imports. The vulnerability of these countries to developments in the agricultural sector in general, and in the grain segment in particular, is further emphasized by the two recent major crises facing the world. The food crisis and the financial crisis and economic downturn constitute major setbacks to efforts aimed at enhancing food security and alleviating poverty, including in the LDCs. In spite of the expansion in the global production of grains recorded over the past decade, the growth in the world's population, with its associated needs, and, more recently, the sharp increase in the use of grains for biofuels and other industrial purposes, have the potential to usher in greater challenges. These may include supply shortages, ever-increasing food prices, malnourishment and poverty.[32] Although lower than at their peak levels of 2008, and despite the effects of the economic downturn, food prices are still high by recent historical levels. In addition to the market volatility, due, among other things, to weather-related risks and their impact on production and supply levels, other emerging concerns – for example, climate-related impacts such as droughts, floods and water salination – are compounding the challenge.

Bauxite/alumina and phosphate rock

In 2009, world trade in bauxite and alumina fell sharply, by 23.2 per cent, and totalled 66.0 million tons. With Europe, North America and Japan being the main importers, the rapid contraction reflected, in particular, the effect of the crisis on the industrial production of those economies. The major loading areas for bauxite included Africa, the Americas, Asia and Australia. Australia was also a major exporter of alumina, accounting for about half of world exports, while Jamaica contributed a growing share.

Rock phosphate volumes declined sharply, too, from 31 million tons in 2008 to 19 million tons in 2009 – a severe drop of 38.7 per cent. This, in part, reflected the depressed demand in the United States, the main importer. The falling demand was due, in particular, to reduced grain production and demand for fertilizers, and to the impact of tighter credit on the sale of farm inputs such as fertilizers.[33] Phosphate rock volumes are expected to pick up in 2010, partly reflecting the

Figure 1.4. (d) Major bulks: grain importers and exporters in 2009 *(world market share in percentages)*



Source: UNCTAD secretariat, on the basis of data from Clarkson Research Services published in the September 2010 issue of *Dry Bulk Trade Outlook*.

expected expansion in production capacity. Plans are under way for the expansion of existing operations, for example in Brazil, China, Egypt, Finland, Morocco, the Russian Federation and Tunisia; while new mines are scheduled to open in 2010/11 in Australia, Namibia, Peru and Saudi Arabia. Any such expansion will likely affect supply and demand, as well as trade flows and the pattern of the minor bulk trade, and by extension, the handysize shipping market.

Dry cargo: minor bulks

In 2009, the minor bulk trades (manufactures, agribulks, metals and minerals) were badly hit by the economic downturn and fell by 12.6 per cent compared to 2008, down to 851 million tons. Manufactures accounted for the biggest share of the total minor dry bulks (44.6 per cent), followed by metals and minerals (27.7 per cent) and agribulks (27.5 per cent). The largest decline (19.0 per cent) was suffered by goods directly associated with the construction industry, namely metals and minerals, including coke, pig iron, scrap, manganese ore and cement. Trade volumes of manufactures, namely steel and forest products – also linked to the construction and housing sector – fell by 13.8 per cent. In contrast, agribulks suffered a relatively milder contraction – a 2.9 per cent fall as compared with 2008. With the onset of the global recovery in world output, minor bulk volumes are expected to expand by a strong 10.0 per cent in 2010, with trade in manufactures, metals and minerals rising sharply.

Other dry cargo: containerized cargoes

The year 2009 proved to be the most challenging and dramatic year in the history of container shipping. After having grown at an impressive average annual rate of around 10.0 per cent over the last two decades, by far surpassing the growth in other seaborne trade segments (see fig. 1.5), container trade recorded its first absolute contraction ever, since containerization began. In 2009, container trade volumes fell sharply, by 9.0 per cent, with the overall volume totalling 124 million twenty-foot equivalent units (TEUs). Of the remaining 2.22 billion tons of other dry cargo (i.e. total dry cargo excluding major bulks and minor bulks), some 1.19 billion tons are estimated to be carried in containers.[34] Reflecting the historical dip, the share of containerized trade in the world's total dry cargo, which increased from 5.1 per cent in 1980 to 25.4 per cent in 2008, fell to about 24.3 per cent in 2009.

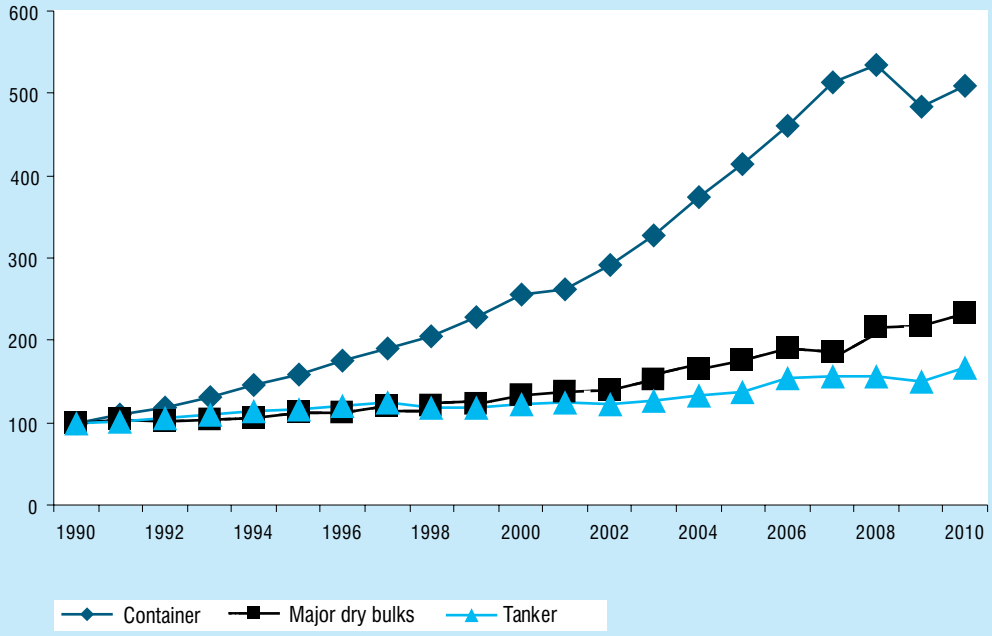
The global financial crisis and subsequent economic recession dented demand for consumer and manufactured goods, as well as for durables. As these

goods are mainly carried by container, and as major importers, namely the United States and Europe, were badly hit by the recession, container trade received a major blow. Container traffic along the three major east–west container trade routes, namely the trans-Pacific, Asia–Europe, and the trans-Atlantic, was the most significantly affected, with volumes recording double-digit declines on some of the major legs (table 1.5 and fig. 1.6)

In 2009, aggregate Asia–Europe volumes declined by 9.5 per cent, with the head haul segment from Asia to Europe contracting by 14.8 per cent. This contrasts significantly with the impressive annual growth rate of about 20.0 per cent recorded previously. Trade on the trans–Pacific route fell by 9.3 per cent, with peak leg volumes declining by 14.2 per cent. Trade between the United States and Europe slumped by 20.1 per cent, with volumes from the United States to Europe falling by 25.1 per cent. The transatlantic trade was badly hit by the combined effect of declining volumes, unsustainably low freight rates, and rising bunker costs. Other container trades have also contracted, albeit at a less dramatic rate than the three major trade lanes. Volumes in intraregional trade fell by 11.3 per cent to around 50.6 million TEUs, while North–South container volumes contracted by 4.2 per cent to 20.7 million TEUs.[35]

The scale of the problem is illustrated by the magnitude of the financial losses reported, and the extreme stress facing shipping lines, which, in some cases, have sought state aid for the refinancing and restructuring of operations.[36] A leading container carrier, Maersk Line, lost $2.1 billion in 2009, compared to the $583 million profit that it recorded in 2008.[37] This loss was incurred even after $1.6 billion of savings had been achieved through restructuring, renegotiating supplier contracts, optimizing networks and reducing fuel consumption. Other carriers have also recorded losses, with the reported collective loss for 2009 estimated to be over $20 billion.[38] The difficulties faced by the container sector were also reflected in dramatically lower container freight rates and containership charter rates, which collapsed earnings for shipowners and caused a gap between the pre-2009 and post-2009 value of container ships. Interestingly, and given that 2009 was the worst year

Figure 1.5. Indices for global container, tanker and major dry bulks volumes, 1990–2010 (1990=100)



Source: UNCTAD secretariat, based on *Review of Maritime Transport,* various issues; and on Clarkson Research Services, *Shipping Review and Outlook,* spring 2010.

Table 1.5. Estimated cargo flows on major East–West container trade routes, 2008–2009
(millions of TEUs and annual percentage change)

	Trans–Pacific	Far East–North America	North America–Far East	**Europe–Asia–Europe**	Asia–Europe	Europe–Asia	**USA–Europe–USA**	USA–Europe	Europe–USA
2008	20.3	13.4	6.9	18.7	13.5	5.2	6.7	3.3	3.3
2009	18.4	11.5	6.9	17.0	11.5	5.5	5.3	2.5	2.8
Percentage change	**-9.3%**	-14.2%	0.1%	**-9.5%**	-14.8%	4.3%	**-20.1%**	-25.1%	-15.1%

Source: European Liner Affairs Association at http://www.elaa.net (accessed in September 2010); and *Containerization International,* August 2010.

on record for container shipping, profit margins for container terminals have been maintained.[39]

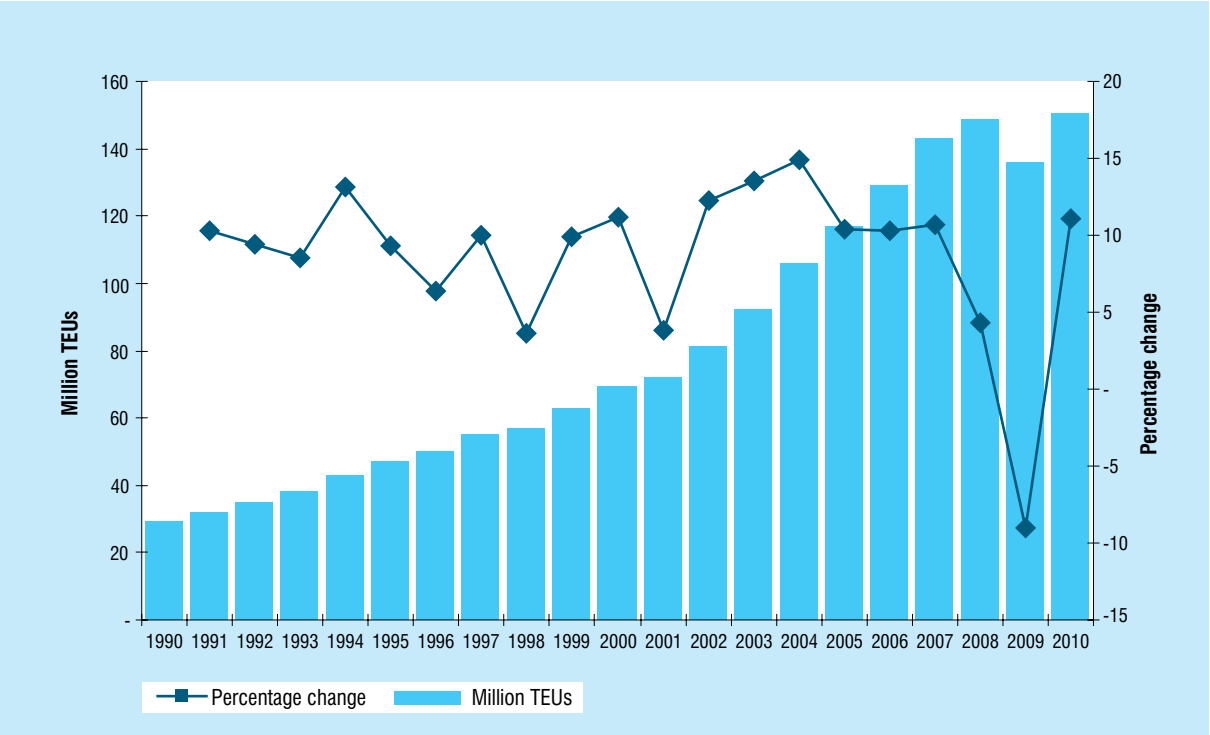
In view of the falling demand, the significant supply of shipping and the large order book, carriers have taken measures to reduce capacity deployment. Ocean carriers have joined forces, and have shown their ability to manage capacity and to get rates increased without the protection previously enjoyed under the conferences system.[40] Measures taken have included cutting back on the number of services and in some cases suspending services, laying-up and idling ships, scrapping, cancelling orders, non-delivery, and slow/super slow steaming (at half speed of around 13 knots). According to some observers,[41] slow steaming undermined schedule reliability on all major east–west trade lanes in the last quarter of 2009, and according to others, slow steaming is skewed towards the carrier in terms of savings on fuel costs and capacity absorption.[42] Some observers remain skeptical about the use of slow steaming given the strain it places on machinery and the associated potential rise in bigger engine claims. Increased wear and tear and damage to ships' machinery may result from slow steaming, if the necessary adjustments and maintenance are not provided. Already, charterers are reported to be pushing for the inclusion of slow steaming clauses in charter parties.[43] Such clauses provide for the reimbursement of the increased maintenance costs and spare parts costs incurred by the charterer.

Despite these very challenging developments, container shipping is currently moving into more positive territory, with the global economic recovery on the way and with a turn in the inventory replenishment cycle. By late 2009, positive signs were emerging, with gradual growth in trade volumes being recorded across different trade lanes. By May 2010, several service upgrades and new services had been launched in the intra-Asia trades to take advantage of the growing cargo flows, especially to and from China.[44] While container trade is forecast to increase by 11.5 per cent in 2010, in view of the large size of the ship order book and the slow pace of improvement, recovery remains fragile. Some observers maintain that resumption of significant growth is not likely until 2011, and more probably, 2012.

While awaiting the big recovery in demand and a tight reining in of the ship order book, the container trade might be already undergoing some changes brought about by the major bust in the cycle. Some of these changes include a narrowing or reversal of container trade imbalances (e.g. larger volumes shipped from Europe and the United States to Asia due to strong import demand from China), the potential relocation of low-manufacturing plants away from China to more cost-efficient locations such as Mexico, and, potentially, a change in the terminal portfolios of shipping lines (changes in terminal ownership and customer base).

In sum, seaborne trade volumes were significantly impacted by the falling global demand that followed 2009's historical contractions in world GDP and merchandise trade. All shipping segments have been negatively affected, with the exception of the major dry bulks which showed more resilience due to China's robust demand for coal and iron ore. Reflecting the emerging recovery in the global economy, seaborne trade volumes are expected to reverse the trend of 2009 and to resume growth in 2010. Nevertheless, there remains some uncertainty as to the strength and the duration of the recovery, due, among other things, to the fragile economic and financial position of some advanced economies.

Figure 1.6. Global container trade, 1990–2010 ***(TEUs and annual percentage change)***



Source: Drewry Shipping Consultants, *Container Market Review and Forecast* 2006/07 and 2008/09; and Clarkson Research Services, *Container Intelligence Monthly,* September 2010.

Note: The data for 2008 to 2010 were obtained by applying growth rates estimated and forecast by Clarkson Research Services in *Container Intelligence Monthly*, September 2010.

3. Outlook and developments affecting seaborne trade

Supply and demand

The recovery on the demand side is a welcome development for shipping. Global GDP and international seaborne trade are expected to recover and grow in 2010, with developing economies, and China in particular, charting the course. China – with its insatiable appetite for raw materials and its incremental shift from being a major source of containerized trade to becoming a growing destination – remains the engine of growth. Other fast-growing Asian countries, including India and Indonesia, are adding further speed. Projections by Clarkson Research Services Limited indicate that global seaborne trade (i.e. goods loaded) is expected to reverse the trend of 2009 and to grow by 5.2 per cent in 2010.

For shipping, economic recovery and trade expansion are only part of the picture and do not tell the full story. A recovery on the demand side is not sufficient for shipping to fully emerge from the "bust". An important factor influencing the outlook is the demand and supply imbalance and its implications for shipping companies, freight markets and shipyards (see chapter 2). Significant fleet expansion, prompted by the promise of an extended boom period, is a major concern. The shipping industry is facing large-scale orders for ships, with a contract value, however, no longer consistent with the pre-crisis asset values, given the fall in ship prices. At the same time, shipowners and shipyards are still confronted with financing and cashflow difficulties. With falling trade volumes in 2009, and with growth in the supply of ships expected to outpace growth in the demand for ships, prospects remain difficult and uncertain for the shipping industry. Delaying and cancelling ship deliveries and orders, renegotiating contracts, laying-up and idling ships, and accelerating scrapping have helped to reduce the gap, and to some extent, to manage the imbalance.

Absorbing excess ship supply and restoring market balance is not a one-off exercise, and even halving the current ship order book would still leave a large fleet and capacity surplus. A strong and sustained growth

in global trade, as well as measures to reduce ship supply capacity – including an exceptional increase in scrapping and very low levels of ship deliveries – are key. Other measures could be envisaged to help the shipbuilding sector, for example converting shipbuilding facilities into repair facilities. This would also help meet the increasing demand for facilities able to receive larger ships, for which there is already a shortage of dry docks. In connection with helping shipbuilding, it should be noted that the issue of support measures in shipbuilding has resurfaced. The OECD Council Working Party on Shipbuilding has called for the resumption of the 2005 negotiations for a global shipbuilding agreement to provide limits on subsidies and other support measures. This was likely triggered by the stimulus packages, which although not benefiting shipbuilding directly, nevertheless included provisions on financial guarantees to help complete orders and assist in financing.

Some emerging global challenges affecting shipping

While the aforementioned considerations are fundamental to shipping, other issues are emerging which have some serious implications for the sector. These include but are not limited to (a) developments in the energy markets and their potential implications for transport costs and trade; (b) safety; (c) security; (d) labour/seafarers' considerations; and, increasingly, (e) environmental protection and sustainability, with the challenge of climate change currently the top priority.

The United Nations Climate Change Conference held in December 2009 under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) came to a conclusion having taken no specific decision regarding shipping. Therefore, the International Maritime Organization (IMO) has continued its work on some of the main issues under consideration, specifically: the mandatory application of technical measures developed by IMO's Marine Environment Protection Committee (MEPC) (e.g. the Energy Efficiency Design Index (EEDI)); and the adoption of market-based measures, such as imposing a levy or tax on ship bunker fuel, and emissions trading (see chapter 6 for more detailed information on the current negotiations). One unresolved issue is the need to strike the right balance between the principle of common but differentiated responsibilities (CBDR) under the UNFCCC, and the IMO approach based on uniform application of obligations. Whatever the outcome of the negotiations, the shipping industry will be expected to play its role in addressing the climate change challenge. It should be noted that some shipping companies are already taking action, an example of this being A.P. Moller–Maersk's reduction of its CO2 emissions by 9.0 per cent in 2008 (compared to 2007), which led to a saving of $500 million through slow steaming, slippery hull coating, better propellers and other efficiency measures.[45] More recently, A.P. Moller-Maersk and Lloyd's Register have teamed up in a two-year pilot programme to test the use of biodiesel fuel. The ultimate objective for the company is to cut emissions by 50.0 per cent by 2020, and by 70.0 per cent by 2030. That being said, a new international regulatory scheme to address the climate change challenge in maritime transport would change the industry's regulatory landscape and would entail adjustments in operations, equipment, management, energy use, and technology uptake, as well as costs.

Security remains a major consideration for shipping. While enhanced security measures in transport and across supply chains are now part of doing business, some developments – especially at the national and regional level – have implications for a globalized industry such as shipping. One such current issue is cargo scanning, with its related questions of technical feasibility and economic viability, and, more importantly, the questions of trade-friendliness, balance, and the level playing field that should exist, especially for smaller players in developing regions. In this context, the United States' 100-per-cent container-scanning initiative, which requires foreign ports to scan all containers bound for the United States, is of particular concern, especially for trading partners of the United States, for the transport industry and for traders and shippers. Trials at a number of foreign ports show that the technology required to scan containers automatically and effectively does not yet exist.[46] The measure is also costly, as illustrated by the figures put forward by the European Commission, which estimate that investment until 2020 would require $280 million, while operational costs would amount to $270 million annually.[47] Recognizing these difficulties, the Department of Homeland Security announced in December 2009 that it would postpone the mandatory application of this requirement until 2014 (see chapter 6).

Another security concern for shipping is the surge in piracy. According to the International Maritime Bureau's Piracy Reporting Centre, there were 406 incidents of piracy and robbery in 2009, with Somalia

accounting for more than 50.0 per cent of the total. In addition to the human costs, the economic implications of piracy are escalating. In order to avoid piracy-prone areas, up to 74 per cent can be added to the length of a tanker ship's voyage from Kuwait to Rotterdam, and 44 per cent to the length of a container ship's voyage from Singapore to Rotterdam.[48] These costs constitute an additional burden for shipowners and can be expected to be passed on to shippers and trade.

Another emerging challenge for shipping relates to labour and manpower. Recognizing the importance of this issue, IMO designated 2010 as Year of the Seafarer, against a background of increasing concern about a looming global crisis in seafaring. The persistent shortage in skilled labour was documented in the 2005 BIMCO/ISF *Manpower Report.* A deficit in the number of qualified officers, together with a growing global fleet and a projected growth in global seaborne trade, are likely to pose a serious hurdle to shipping. An assessment of the extent of the challenge will be presented in the BIMCO/ISF *Manpower Report* scheduled to be released in December 2010.

Oil prices, energy security, investment and sustainability

Oil prices[49] increased from $89.9 per barrel (pb) in January 2008 to $133 pb in July, before falling by more than 70.0 per cent to $39.7 in December 2008. By mid-2009, growth in oil prices had gained speed, with levels reaching $71.4 pb in August and $73.0 pb in December. During the first quarter of 2010, oil prices picked up further speed, increasing to $82 pb in April. The strong rise in oil prices since 2009 reflects anticipation of a revival in demand, and positive sentiment about the global economy.

The evolution in oil prices is of relevance for importers and their import bills, for exporters and their earnings, and for transport costs, and also for future exploration and production projects and their viability. The Organization of the Petroleum Exporting Countries (OPEC) reports that low oil prices in particular have reduced producers' profitability and the cash flows for oil-producing companies, which, in turn, limits the prospects for investing in oil supply expansion projects, including non-conventional oil supply. Energy companies are reported to have reduced the drilling of oil and gas wells, and to have cut back spending on refineries, pipelines and power stations. For example, the number of oil and natural gas rigs operating in the United States is reported to have fallen from 1,992 rigs on 7 November 2008 to 999 rigs in the week of 22 May 2009.

Many ongoing projects have been slowed, while some planned projects have been postponed or cancelled. Since October 2008, over 20 planned large-scale upstream oil and gas projects, involving around 2.0 million barrels per day (mbpd) of oil production capacity, have been deferred indefinitely or cancelled, with most of these projects involving oil sands in Canada. The International Energy Agency (IEA) estimates that global upstream oil and gas investment budgets for 2009 were cut by around 19.0 per cent, compared to 2008. There is a danger that these cutbacks in investment may have implications for future energy demand, which has been forecast to rebound strongly, driven mainly by the growing populations and economic expansion of developing countries.

Apart from investment requirements and how these are affected by oil price levels, geological constraints could undermine energy security. Views about the sustainability of oil vary, with some observers maintaining that oil is running out and becoming increasingly more difficult and costly to extract. The debate over a potential "peak oil" is gaining momentum, with the IEA warning that "the world is heading for a catastrophic energy crunch that could cripple a global economic recovery as most of the major oil fields in the world have passed their peak production."[50] According to the IEA, the oil crunch could occur in 2010, while "peak oil" could come in 2020.[51] Oil exploration in less conventional and more difficult-to-reach locations and reservoirs – including offshore and deepwater locations – is not likely to solve the problem. In this respect, the oil spill caused by the April 2010 explosion of the Deepwater Horizon rig in the Gulf of Mexico illustrates the potential difficulties and risks, in terms of loss of energy production, shipment loss, and environmental damage.

A constrained oil supply, whether due to geology, technology or cost, coupled with a growing demand for energy and for climate change mitigation and adaptation, is likely to drive oil prices upwards. While advances in energy efficiency and the increased use of renewable and cleaner energy may help to moderate the rise, the fact remains that fossil fuels will continue to dominate the energy mix for many years. The IEA suggests that the price of oil will bounce back to $100 pb as soon as the world economy recovers,

while the World Bank predicts that prices will stabilize at $75 pb. The characteristic volatility of oil prices, and the record high levels achieved in mid-2008, at close to $150 pb, suggest, however, that these predictions could well be at the lower end. If the oil price levels that were reached in mid-2008 are any guide, future oil prices can be expected to rise and to again reach or even surpass the record levels of 2008.

As far as shipping is concerned, these considerations are extremely important, both for maritime transport service providers and for trade. Oil dominates the global energy mix, supplying 95.0 per cent of the energy that fuels world transport. In common with other modes of transport, shipping relies heavily on oil for propulsion, and is not yet in a position to effectively adopt energy substitutes. The trends that have been observed indicate that higher oil prices are immediately translated into higher fuel costs. Reflecting a period of rising oil prices, bunker prices (Rotterdam 380 centiStokes (cSt)) averaged $234 per ton in 2005, $293 per ton in 2006, $345 per ton in 2007 and $472 per ton in 2008. Similarly, the rapid fall in oil prices in 2009 resulted in a drop of 25.0 per cent in the 2009 average bunker price (Rotterdam 380 cSt). This positive correlation could have serious financial implications for shipping companies and for their bottom lines, since fuel costs have been shown to account for up to 60.0 per cent of the total operating costs of a shipping company (depending on the type of ship and service)[52]. By extension, rising operating costs for shipowners entail a potential rise in transport costs paid by maritime transport users, namely shippers and trade.

To help clarify the effect of oil prices on maritime freight rates, UNCTAD conducted an empirical study to assess the effect of oil prices on containerized goods and on two selected commodities – iron ore and crude oil carried as cargo.[53] The elasticity of container freight rates to oil prices was found to range between 0.19 and 0.36; a similar elasticity (0.28) was estimated for crude oil carried as cargo. For iron ore, the elasticity was found to be larger, approximately equal to unity. Results have shown that since 2004, the elasticity of container freight rates to oil prices has been larger, suggesting therefore that the effect of oil prices on container freight rates increases in periods of sharply rising and more volatile oil prices. These results are of particular interest in view of the debate on "peak oil" and the oil supply constraints expected over the coming years and their effect on oil prices. The effect of oil prices on bunker fuel costs and maritime freight rates is of great relevance to many developing countries, for which prohibitive transport costs already constitute an impediment to trade and competitiveness.

To sum up, in addition to shipping demand and supply considerations and the importance of narrowing the imbalance between the relevant growth rates, the maritime industry and international seaborne trade are facing a host of other challenges. More specifically, the nexus between energy security, oil and fuel prices, and transport costs – as well as the climate change challenge – are emerging as increasingly important considerations that need to be taken into account by shipping.

C. SELECTED SEABORNE TRADE SECTORS

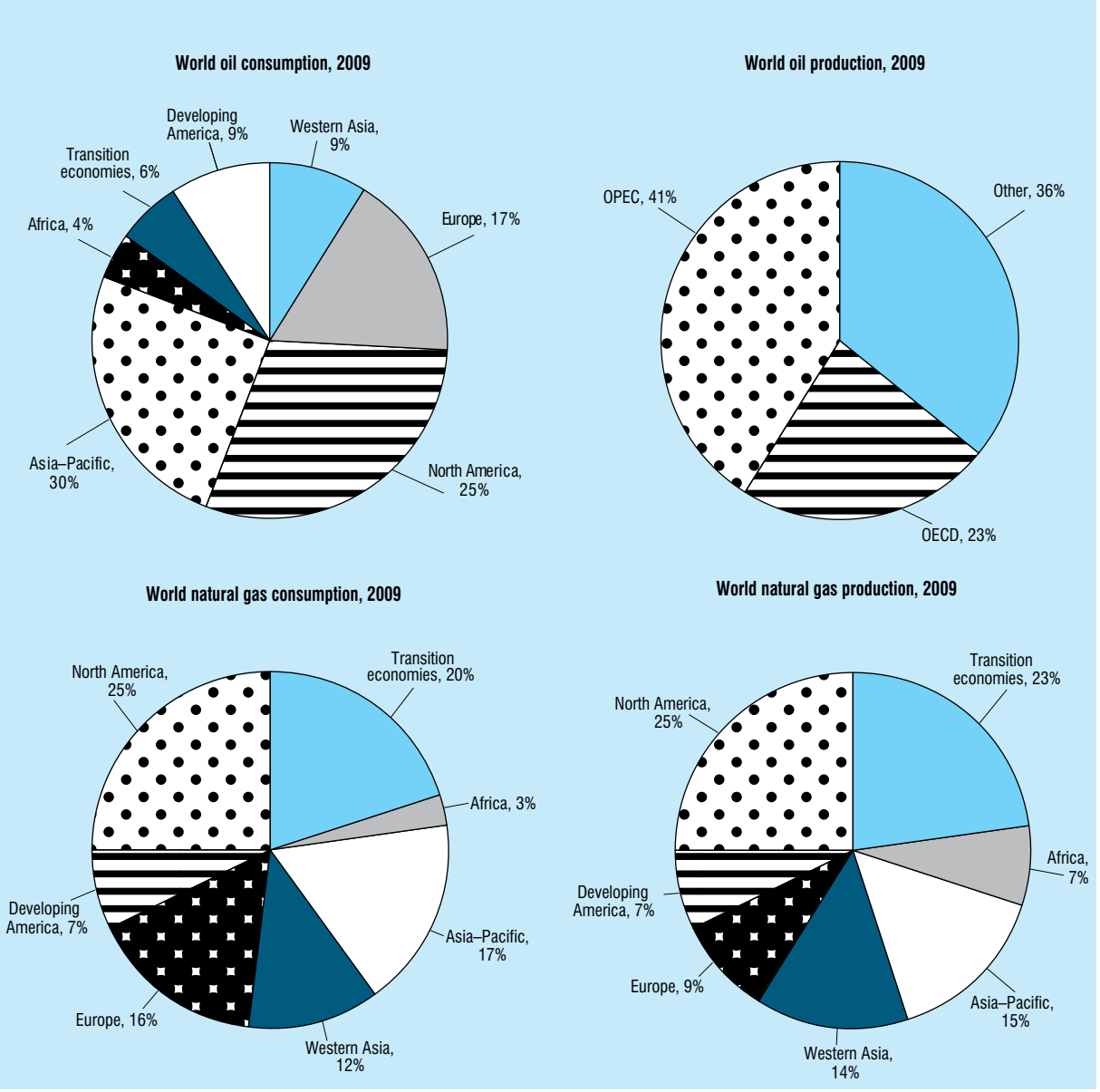
This section considers more closely some energy-related cargoes, namely crude oil and petroleum products, coal and gas. An overview of the supply/production and demand/consumption (fig. 1.7) of these cargoes is presented, given their importance in determining demand for tanker and bulker transport services as well as the scale and geography of tanker and coal trades. These cargoes are relevant too, given the pivotal role of energy in fuelling maritime transport and influencing maritime transport costs, and in the current debate on climate change.

Crude oil consumption[54]

For the second time since 1983, world oil consumption contracted in 2009, falling from 85.2 mbpd in 2008 to 84.1 mbpd in 2009. Growth in demand reversed dramatically in late 2008, and continued to fall in 2009 as the global recession took hold. Diminishing industrial activity compressed demand for oil from the industrial sector, while cold weather supported demand for domestic and commercial heating. Demand for oil in OECD countries fell by 2.0 mbpd – equivalent to 4.8 per cent – a fourth consecutive year of decline. Outside the OECD, demand increased by 2.3 per cent, with growth originating mainly from Asia, led by China, India and Singapore, and followed by Western Asia (e.g. Kuwait, Qatar and Saudi Arabia).

IEA expects world oil demand to increase by 1.8 per cent in 2010 and to reach 86.5 mbpd (up by 1.6 mbpd), mainly because of increased demand in non-OECD countries, especially in Asia. Economic expansion and efficiency gains will contribute to

Figure 1.7. Oil and natural gas: major consumers and producers, 2009 *(world market share in percentages)*



Source: UNCTAD secretariat, on the basis of data published in BP's *Statistical Review of World Energy 2010* (June 2010).

Note: Oil includes crude oil, shale oil, oil sands and NGLs (the liquid content of natural gas where this is recovered separetely). Excludes liquid fuels from other sources such as biomass and coal derivatives.

shaping future oil demand. Global oil intensity (total oil consumption per unit of GDP) is expected to decline faster than the historical trend, with a move by governments, especially in advanced economies, to implement environmental sustainability and energy security–driven policies (e.g. energy efficiency, and structural changes affecting transportation and the power generation sector).[55]

Crude oil supply[56]

In 2009, global oil production[57] fell by 2.0 mbpd (2.5 per cent), down to about 80.0 mbpd. Western Asia remained the main source of supply, together with certain transition economies, North America and Africa. Production in OECD countries remained virtually unchanged (-0.2 per cent), maintaining the grouping's share at 22.5 per cent of the world total.

In 2008 and 2009, OPEC reduced quota levels to support oil prices in the face of falling demand, with total production cuts amounting to 4.2 mbpd. Consequently, OPEC's total oil supply fell by 7.3 per cent, from 35.6 mbpd in 2008 to 33.1 mbpd in 2009. The cartel's share of total production went from 43.4 per cent in 2008 to 41.2 per cent in 2009.

Global production levels are expected to rise in 2010, driven mainly by a modest growth in non-OPEC supply, and by some OPEC members not fully complying with production targets. A factor that may discourage growth in production is the surpluses created by the crisis leading to high levels of commercial inventories, especially in OECD countries. Although countries have started to draw from their inventories due to limited OPEC production and relative growth in consumption, these inventories are estimated to be above the five-year average for the corresponding time of the year and to be equivalent to 58 days of forward cover.[58]

The weaker demand outlook that follows the significantly depressed demand in 2009 also has implications for the oil industry's ability to expand capacity in the medium term, due, among other things, to rising costs, industrial bottlenecks, project delays, and the sharp fall in planned upstream projects. IEA reports that industry-wide upstream capital expenditure was 20.0 per cent lower in 2009 compared to one year earlier, with a portion of this drop reflecting cost reduction. While awaiting the big global recovery in demand, upstream project deferrals continue.

Petroleum products and refinery developments

Total global refinery throughput fell in 2009 to 73.5 mbpd, due to weakening oil demand. Refineries in Europe, Japan and the United States, which account for almost half of world production, have recorded the sharpest drop in utilization rates. In these regions, refineries are operated by independent refiners, who are, accordingly, more sensitive to market conditions. Where refineries are operated by national oil companies, the reduction in throughput was only marginal. In the meantime, capacity expansion is expected to continue in the next few years, with the addition of 7.6 mbpd of new primary distillation capacity over the period 2008–2014.[59] Developing Asia, with a lead from China, accounts for 50 per cent of this new distillation capacity, while Western Asia accounts for around 10 per cent of the increase.

There are concerns, however – especially in the wake of a weaker demand – that with new capacity coming online, there will be further excess capacity. Future expansion in refinery capacity in Western Asia could alter tanker trade flows by reducing product imports into the region. The changing distances between oil producers and refiners, brought about by the growth of refinery capacity in developing regions, will likely affect the geography of global tanker trade.

One major challenge for the product tanker sector relates to the need to ensure that funding for the requisite investment in capacity expansion is available, and that product requirements are consistent with the demand profile (e.g. in order to avoid a mismatch involving crude availability, refining capacity and the required product mix). The biggest challenge, however, is environmental, and includes the mandatory use of low-sulphur fuel in shipping and the question of adequate and timely supply, as well as the cost-effectiveness of low-sulphur fuel. More generally, there is an urgent need to address the challenge of climate change while meeting the ever-growing energy requirements of developing countries.

Natural gas: demand and supply

In 2009, world production of natural gas fell by 2.4 per cent compared to the previous year – to 2,987.0 billion cubic metres (bcm). Europe and the transition economies were the largest producers, with a market share of 32.5 per cent, followed by North America with a share of 25.3 per cent. The other producers included Western Asia (13.6 per cent) and the Asia-Pacific region (14.6 per cent) (see fig. 1.7). The reduced production in 2009 reflects falling gas prices, which undermined returns on gas developments. The strong growth recorded in Western Asia (by 6.5 per cent compared to 2008) could not offset the fall in the production levels of other producing regions. In 2009, world natural gas consumption contracted by 2.3 per cent to 2,940.4 bcm. Demand fell sharply in Europe, North America, developing countries in the Americas, Africa, and the countries with economies in transition, but increased in the Asia-Pacific region and in Western Asia. Production is expected to remain flat in 2010, reflecting the pace of the economic recovery, while consumption is expected to grow by 1.4 per cent.

World coal: demand and supply

The economic slowdown and the reduced demand for coal-fired power generation kept coal consumption levels in 2009 at nearly the same level as in 2008 (-0.2

per cent). Nevertheless, coal remains the fastest-growing fuel in the world. This is due to the growing share of coal in the energy mix of China and India, which together have accounted for over 80.0 per cent of growth over recent years. China – the world's largest consumer (with approximately a 50.0 per cent share) – increased its consumption by 9.6 per cent.

Coal-mining continues to raise a number of environmental concerns, and faces the challenge of reconciling urgent climate change policy action with the need to meet the growing energy requirements of the developing economies. A step in the right direction includes ensuring greater advances in clean coal technology, carbon capture and storage (CCS), and other alternative energy sources. In this respect, it should be noted that coal consumption fell sharply in the European Union and the United States not only because of reduced power-generation requirements, but also due to policies and initiatives concerned with curbing CO_2 emissions and supporting renewable energies. Other factors limiting Europe's coal consumption include the improved supplies of gas, and the expected fall in prices due partly to a surplus of LNG (high stocks). In Japan, a restart of nuclear plants will likely further reduce the demand for coal. In line with developments in the tanker and iron ore trades, Asia, and more specifically, China and India, are likely to play an important role in fuelling growth in coal shipments.

On the supply side, global coal production grew by 2.4 per cent and reached 3,408.6 million tons of oil equivalent (mtoe), with much of global coal production being used in the country in which it was produced. This growth reflects the continued increase in China's production levels, and the sharp reduction in the Russian Federation's production levels (by 9.2 per cent in 2009 compared to 2008). China remained the world's largest producer, with a share of 45.6 per cent, followed by the United States, India, Australia, the Russian Federation, Indonesia and South Africa (see fig. 1.4. (c) earlier in this chapter for the major coal traders). A further increase in production is expected to result from growth in Asia and South Africa, and from a recovery in output in the Russian Federation.

To sum up, a better understanding of the developments affecting the various energy sources – oil, gas and coal – is essential in order to understand the changes in demand for maritime transport services, because of the effect of these developments on energy production and consumption patterns and on trade flows and composition. This is also crucial in view of the heavy reliance of shipping on oil for propulsion and the implications of this for transport costs and seaborne trade.

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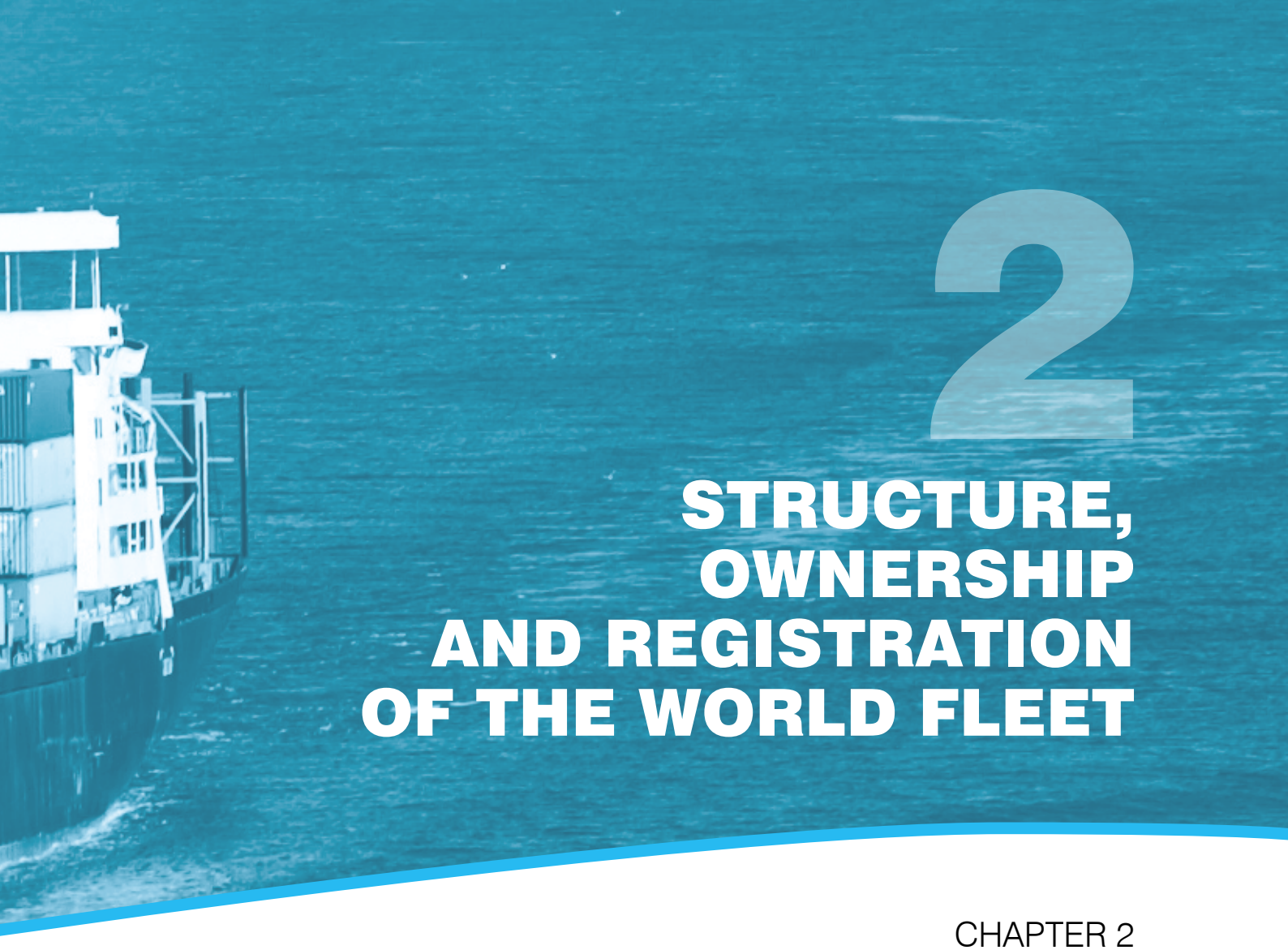


2

STRUCTURE, OWNERSHIP AND REGISTRATION OF THE WORLD FLEET

CHAPTER 2

At the beginning of 2010, the world merchant fleet reached 1,276 million deadweight tons (dwt), an increase of 84 million dwt (7 per cent) over 2009. This growth resulted from record new deliveries of 117 million dwt, as against demolitions and other withdrawals from the market of approximately 33 million dwt. In spite of the economic crisis, new deliveries in 2009 grew by 42 per cent over 2008 as a result of ships having been ordered prior to the downturn in demand. The resulting oversupply of tonnage then led to a surge in demolitions of older tonnage by more than 300 per cent.

In 2009, China overtook Germany as the third-largest shipowning country, surpassed Japan as the second-biggest shipbuilding country, and replaced India as the busiest ship-recycling country. China has also emerged as an important provider of ship finance, supporting owners and shipyards in avoiding the cancellation of ship orders.

This chapter presents the supply-side dynamics of the world maritime industry. It covers the vessel types, age profile, ownership and registration of the world fleet. It also reviews deliveries of ships, tonnage on order, newbuilding prices, and the markets for second-hand tonnage. Particular focus is placed on ship recycling, as the current oversupply of tonnage has led to a surge of tonnage sold for demolition.

A. STRUCTURE OF THE WORLD FLEET

1. World fleet growth and principal vessel types

Trends in vessel types

In January 2010, there were 102,194 commercial ships in service, with a combined tonnage of 1,276,137 thousand dwt (table 2.1). Oil tankers accounted for 450 million dwt (35.3 per cent) and dry bulk carriers for 457 million dwt (35.8 per cent), representing annual increases of 7.6 and 9.1 per cent respectively.

Table 2.1. World fleet size by principal vessel types, 2009–2010[a] *(beginning-of-year figures, thousands of dwt)*

Principal types	2009	2010	Percentage change 2010/2009
Oil tankers	418 266	450 053	7.6
	35.1	*35.3*	*0.2*
Bulk carriers	418 356	456 623	9.1
	35.1	*35.8*	*0.7*
General cargo ships	108 881	108 232	-0.6
	9.1	*8.5*	*-0.7*
Container ships	161 919	169 158	4.5
	13.6	*13.3*	*-0.3*
Other types of ships	84 895	92 072	8.5
	7.1	*7.2*	*0.1*
Liquefied gas carriers	36 341	40 664	11.9
	3.0	*3.2*	*0.1*
Chemical tankers	8 141	7 354	-9.7
	0.7	*0.6*	*-0.1*
Offshore supply	22 567	24 673	9.3
	1.9	*1.9*	*0.0*
Ferries and passenger ships	6 083	6 152	1.1
	0.5	*0.5*	*0.0*
Other/ n.a.	11 762	13 229	12.5
	1.0	*1.0*	*0.1*
World total	1 192 317	1 276 137	7.0
	100.0	*100.0*	

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Vessels of 100 gross tons and above. Percentage shares are shown in italics.

Container ships reached 169 million dwt – an increase of 4.5 per cent over 2009 – while the fleet of general cargo ships declined during 2009, reaching 108 million dwt in January 2010, corresponding to just 8.5 per cent of the fleet. Among other vessel types, the tonnage of liquefied gas carriers continued to grow, reaching 41 million dwt. This was an increase of almost 12 per cent over 2008, in which deliveries had already reached a historic high.

The long-term trend in the composition of the world fleet is illustrated in figure 2.1. During the last decade, the container ship fleet has grown by 154 per cent and the dry and liquid bulk fleet has grown by about 50 per cent, while general cargo tonnage has remained relatively stable. Since 1980, the share of containerized tonnage has increased eightfold, against a reduction by half of the general cargo fleet; this is a reflection of the increased containerisation of the trade in manufactured goods. The last five years have seen a historic surge in the total tonnage, by 42 per cent; this includes a 72 per cent increase in the containerized fleet.

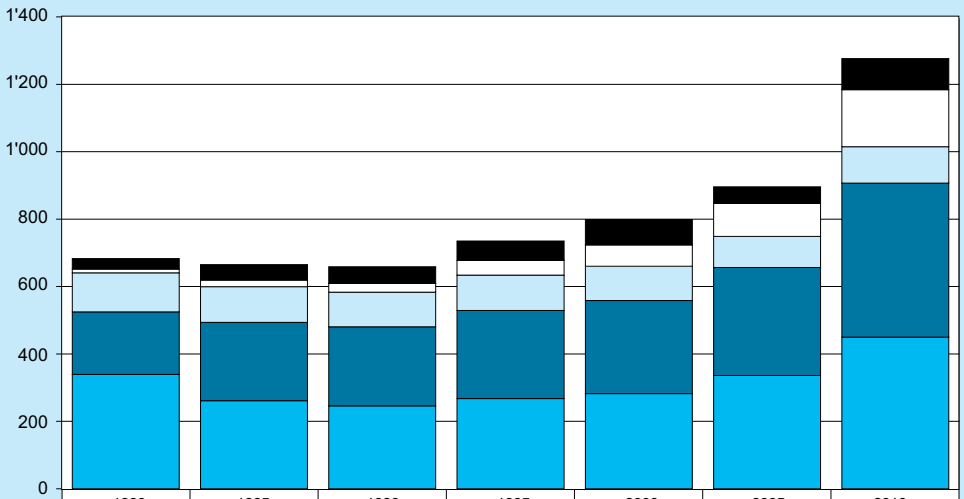
The world container ship fleet

The world fleet of fully cellular container ships continued to expand in 2009, albeit at a slower rate than in previous years. The year-on-year growth in vessel numbers was 0.8 per cent. As vessel sizes continued to increase, the growth rate in TEU capacity was higher, at 5.6 per cent, and the average vessel size went up by 4.7 per cent. On 1 January 2010, the world cellular container ship fleet stood at 4,677 vessels, with a combined total carrying capacity of 12.8 million TEU (see table 2.2).

As regards new deliveries in 2009, the average TEU capacity of cellular container ships that entered service during the year was 4,016 TEU, a further increase from the previous year's 3,489 TEU (table 2.3). The growth in the average vessel size of new vessels continued in 2010, reaching 4,942 TEU during the first five months of the year.

The largest container ships in service in early 2010 had a nominal capacity of 14,770 TEU. These were eight ships owned and operated by Maersk Line from Denmark, delivered between 2006 and 2008 by the Odense shipyard in Denmark. However, weight constraints have not allowed all those containers to be fully loaded. For this reason, it has recently become practice to also report the TEU capacity "at 14 tons", i.e. how many twenty-foot containers can be loaded if filled with 14 tons of cargo. The adjusted cargo-

Figure 2.1. World fleet by principal vessel types, selected years[a] *(beginning-of-year figures, millions of dwt)*



	1980	1985	1990	1995	2000	2005	2010
Other	31	45	49	58	75	49	92
Container	11	20	26	44	64	98	169
General cargo	116	106	103	104	101	92	108
Dry bulk	186	232	235	262	276	321	457
Oil tanker	339	261	246	268	282	336	450

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Cargo-carrying vessels of 100 gross tons and above.

Table 2.2. Long-term trends in the cellular container ship fleet[a]

World total	1987	1997	2007	2008	2009	2010	Growth 2010/2009 (per cent)
Number of vessels	1 052	1 954	3 904	4 276	4 638	4 677	0.84
TEU capacity	1 215 215	3 089 682	9 436 377	10 760 173	12 142 444	12 824 648	5.62
Average vessel size	1 155	1 581	2 417	2 516	2 618	2 742	4.74

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Vessels of 100 gross tons and above. Beginning-of-year figures, except those from 1987, which are mid-year figures.

Table 2.3. Geared and gearless fully cellular container ships built in 2008 and 2009

	Geared			Gearless			Total		
	2008	2009	Change %	2008	2009	Change %	2008	2009	Change %
Number of ships	88	45	-48.9	346	235	-32.1	434	280	-35.5
Percentage of ships	*20.3*	*16.1*		*79.7*	*83.9*		*100.0*	*100.0*	
TEU	154 708	84 436	-45.4	1 359 454	1 040 119	-23.5	1 514 162	1 124 555	-25.7
Percentage of TEU	*10.2*	*7.5*		*89.8*	*92.5*		*100.0*	*100.0*	
Average vessel size (TEU)	1 758	1 876	6.7	3 929	4 426	12.6	3 489	4 016	15.1

Source: Compiled by the UNCTAD secretariat, on the basis of data regarding the existing container ship fleet, obtained from *Containerisation international Online*, May 2009 (2008 data) and May 2010 (2009 data).

carrying capacity of the 14,770 TEU vessels is thus reduced to 12,508 TEU.[1] The largest container ships delivered in 2009 were two 13,880 TEU vessels for the French carrier CMA CGM (9,932 TEU at 14 tons), and the largest vessels delivered so far in 2010 are owned and operated by MSC of Switzerland and have a nominal capacity of 14,000 TEU (no adjusted capacity reported).[2]

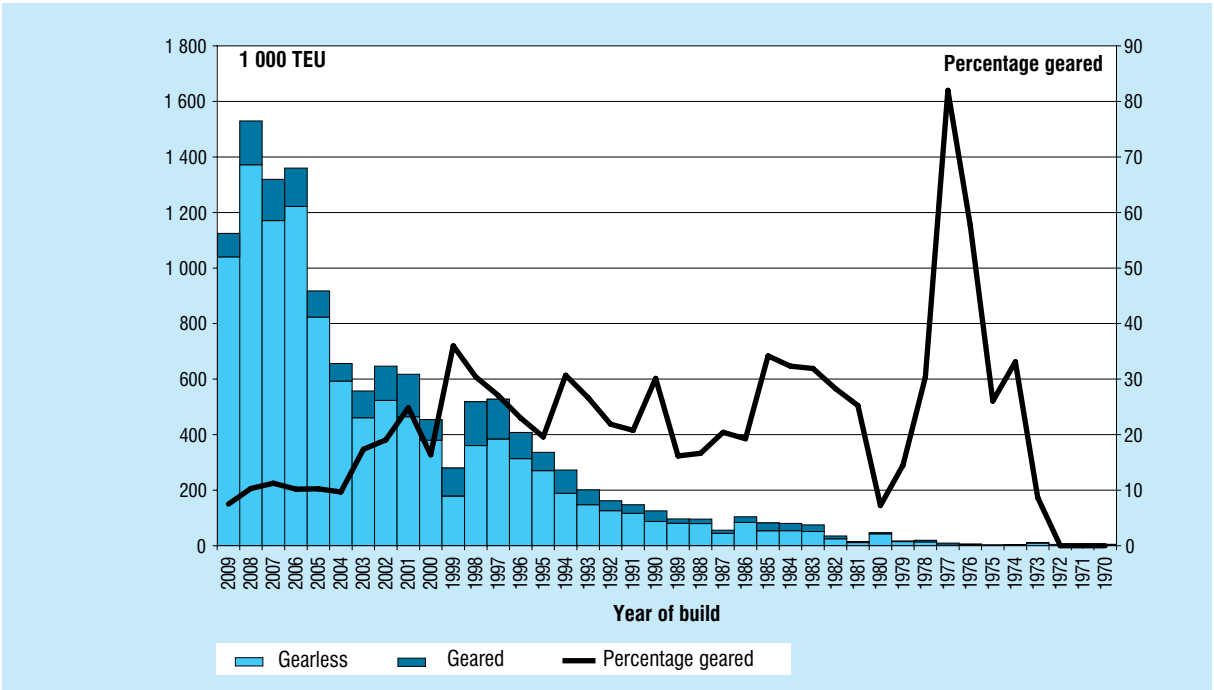
Most new container ships are gearless and therefore depend on port cranes for the loading and unloading of containers. Gearless ships are less costly to operate than geared ships, as the latter involve higher capital, fuel and maintenance expenditures. Also, port cranes allow for higher handling speeds. Geared ships will remain a niche market only appropriate for those ports where low cargo volumes do not justify investment in port cranes or where the public sector does not have the financial resources for such investment. The diseconomies of scale resulting from the lower levels of traffic in those ports will ultimately mean higher total logistics costs and cargo handling time for importers and exporters, because of the dependence on geared ships.

Looking at the age profile of the current container ship fleet (fig. 2.2), it is interesting to note that the earliest container ships were all gearless. In the 1970s, onboard container cranes were introduced as a new technology and were deployed on more than half of newbuildings in some years. Since then, the share of geared vessels has fluctuated and slowly decreased. In 2009, only 7.5 per cent of TEU capacity on new vessels was geared, a further decrease from the 10.2 per cent share in 2008 (table 2.3). The share of geared ships is highest in the 1,500 to 2,499 TEU size range, where more than 60 per cent of the fleet is geared. Among the smallest ships, of between 100 and 499 TEU, the geared share is only 31 per cent, and for ships larger than 4,000 TEU it is practically zero.[3]

Major liner shipping operators

The container ship fleet is operated by liner shipping companies. These companies may not necessarily own the vessels, but they operate them to provide regular containerized shipping services. In January 2010, the top 10 liner companies operated 50.2 per cent of the container ship fleet, a slight decrease from the 51.2 per cent in January 2009 (table 2.4). During the downturn in demand, the major operators tended to reduce their chartered-in tonnage by returning vessels to owners. Some of these ships are then laid up, if no new charterer can be found. In general, it is

Figure 2.2. Geared and gearless fully cellular container ships by year of build
(*in thousands of TEU, as at 1 January 2010*)



Source: Compiled by the UNCTAD secretariat, on the basis of data regarding the existing container ship fleet, obtained from *Containerization International Online*, May 2010

Table 2.4. The 20 top ranked operators of container ships, 1 January 2010 (number of ships and total shipboard capacity deployed, in TEUs)

Ranking	Operator	Country/ territory	Number of vessels	Average vessel size	TEU	Share of world total, TEU	Cumulated share, TEU	Percentage of growth in TEU over 1 Jan. 2009
1	Maersk Line	Denmark	427	4 090	1 746 639	11.7%	11.7%	0.3%
2	MSC	Switzerland	394	3 827	1 507 843	10.1%	21.8%	-0.2%
3	CMA CGM Group	France	289	3 269	944 690	6.3%	28.1%	9.2%
4	Evergreen Line	China, Taiwan Province of	167	3 549	592 732	4.0%	32.0%	-5.9%
5	APL	Singapore	129	4 068	524 710	3.5%	35.6%	11.4%
6	COSCON	Singapore	143	3 468	495 936	3.3%	38.9%	0.9%
7	Hapag-Lloyd Group	Germany	116	4 053	470 171	3.1%	42.0%	-5.3%
8	CSCL	China	120	3 809	457 126	3.1%	45.1%	5.9%
9	Hanjin	Republic of Korea	89	4 495	400 033	2.7%	47.8%	9.4%
10	NYK	Japan	77	4 670	359 608	2.4%	50.2%	0.4%
11	MOL	Japan	90	3 871	348 353	2.3%	52.5%	-10.0%
12	K Line	Japan	89	3 655	325 280	2.2%	54.7%	5.1%
13	Yang Ming	China, Taiwan Province of	80	3 966	317 304	2.1%	56.8%	-0.1%
14	OOCL	China, Hong Kong	63	4 609	290 350	1.9%	58.7%	-20.3%
15	Hamburg Sud	Germany	88	3 226	283 897	1.9%	60.6%	10.7%
16	HMM	Republic of Korea	53	4 905	259 941	1.7%	62.4%	0.5%
17	Zim	Israel	64	3 371	215 726	1.4%	63.8%	-14.3%
18	CSAV	Chile	66	2 968	195 884	1.3%	65.1%	38.0%
19	UASC	Kuwait	45	3 924	176 578	1.2%	66.3%	13.6%
20	PIL	Singapore	84	2 071	173 989	1.2%	67.5%	17.6%
Total top 20 carriers			2 673	3 774	10 086 790	67.5%	67.5%	1.4%
Others			6 862	709	4 864 981	32.5%	32.5%	8.6%
World container ship fleet			9 535	1 568	14 951 771	100.0%	100.0%	3.6%

Source: UNCTAD secretariat, based on Fleet Statistics from *Containerisation International Online*, available at http://www.ci-online.co.uk.

Note: Includes all container-carrying ships. Not fully comparable to tables 2.2. and 2.3, which only cover the specialized fully cellular container ships.

the larger ships that are being returned to shipowners, as the smaller vessels are more versatile in the face of low demand.

The container ship operating sector is increasingly concentrated. Overall, the TEU capacity operated by the top 20 companies in 2009 increased by 135,000 TEU to reach 10.1 million TEU, corresponding to 67.5 per cent of the world total TEU capacity. Among the top 20 operators, Maersk Line maintained its lead position, closely followed by MSC and by CMA CGM, in second and third places respectively (table 2.4). The gap between second and third place narrowed during 2009. The top 20 liner companies remained unchanged from the previous year, with 11 companies from developing economies and 9 from developed economies. Asian economies dominated the list, with 14 companies from that region. One of the top 20 carriers is from Latin America. Five are from Europe, including the top three liner companies, which are headquartered in Denmark, Switzerland and France.

The largest percentage decreases in operated fleets were recorded for OOCL, Zim, MOL and Evergreen, while CSAV, PIL, UASC, APL and Hamburg Süd saw the highest positive growth. In all, the top 20 liner shipping companies began 2010 with a combined capacity 1.4 per cent larger than at the start of 2009, compared to an overall growth rate of the global container-carrying fleet of 3.6 per cent.[4]

Container production and leasing

Towards the end of 2009, the world container fleet stood at 27.1 million TEU, a decline of 5.5 per cent compared to the previous year. Lessors whose main business is the leasing of containers to liner shipping companies owned 37.6 per cent of the total; the remainder of the container fleet was owned by the carriers themselves. The share of the lessors has slowly declined in recent years; in 2005 it still stood at 43.8 per cent (fig. 2.3).

Unlike the building of container ships, the construction of containers adjusts relatively quickly to changes in demand. Container production in 2009 sank to 350,000 TEU, due to the low demand for new boxes, which was down from a peak of 4,250,000 TEU in 2007. The weakening of global demand that began in the last quarter of 2008 further worsened in the first three quarters of 2009, before a slight improvement in the last quarter as some new orders for new boxes were received from leasing companies. Container producers, who are mostly based in China, had to shut down numerous factories, and limit the operation of the remaining factories to one shift, corresponding to 33 per cent of capacity.

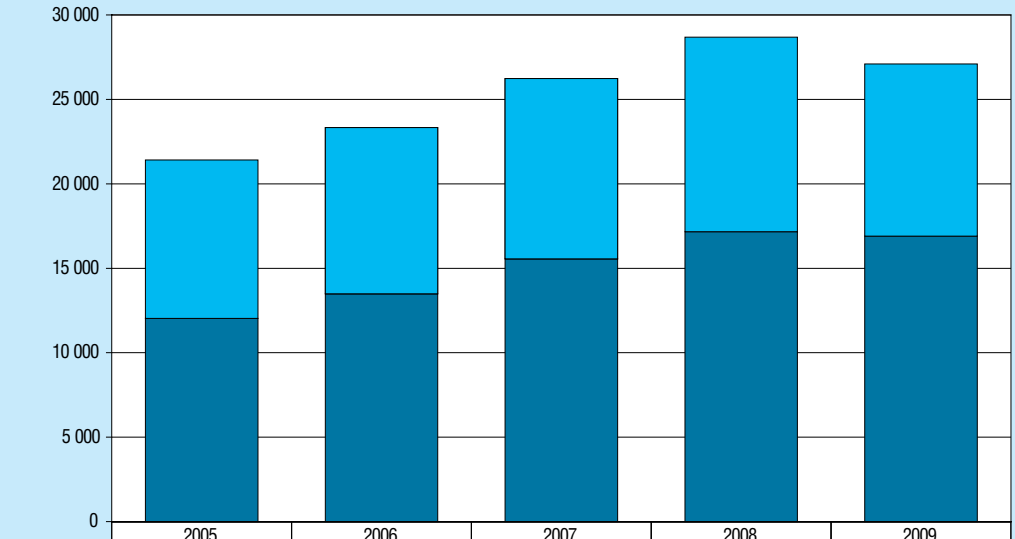
The annual average price of newly produced twenty-foot containers fell to $2,025 in 2009. As the cost of new material also fell, the last quarter of 2009 saw the new box price fall to $1,900 (fig. 2.4). The drastic cut in production and the accompanying drop in prices were also due to producers aiming to strike a balance between the need to lower the inventory of boxes built using the higher-cost materials of 2008 and the objective of building new boxes made from the relatively cheaper materials being used in 2009.

2. Age distribution of the world merchant fleet

The average age of the world fleet decreased during 2009 as new tonnage was delivered and more ships were demolished during the economic crisis. In particular, the average age per deadweight ton decreased (as compared to the average age per ship), as the newly delivered ships tend to be larger than most of those in the existing fleet; vessels built during the last four years are, on average, six times larger than those built before 1990.

Container ships are the youngest vessel type, with an average age (per ship) of 10.6 years, followed by bulk carriers (16.6 years), oil tankers (17.0 years), general cargo ships (24.6 years) and other types (25.3 years) (table 2.5).

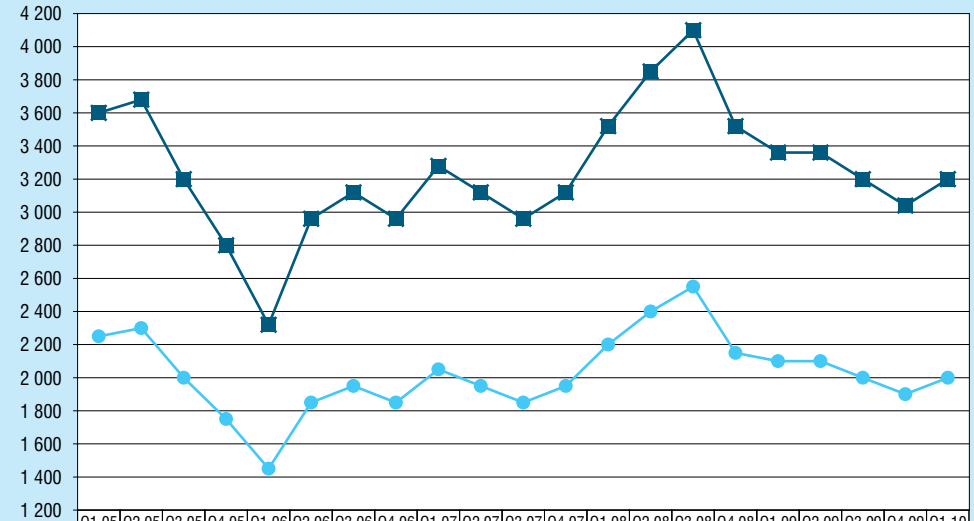
Figure 2.3. World Container fleet *(end-of-year figures, thousands of TEU)*



	2005	2006	2007	2008	2009
Lessors	9 380	9 850	10 680	11 525	10 200
Sea carriers	12 035	13 485	15 555	17 160	16 900

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Containerization International Magazine,* August 2008 and May 2010.

Figure 2.4. Container prices *(quarterly averages, in dollars)*



	Q1 05	Q2 05	Q3 05	Q4 05	Q1 06	Q2 06	Q3 06	Q4 06	Q1 07	Q2 07	Q3 07	Q4 07	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09	Q3 09	Q4 09	Q1 10
40ft	3 600	3 680	3 200	2 800	2 320	2 960	3 120	2 960	3 280	3 120	2 960	3 120	3 520	3 850	4 100	3 520	3 360	3 360	3 200	3 040	3 200
20ft	2 250	2 300	2 000	1 750	1 450	1 850	1 950	1 850	2 050	1 950	1 850	1 950	2 200	2 400	2 550	2 150	2 100	2 100	2 000	1 900	2 000

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Containerisation International Magazine*, various issues.

The major open and international registries have the youngest fleet among the country groups reported in table 2.5. The average age per ship of the open-registry fleets is under 16 years, with 25 per cent of these ships being under five years old. The corresponding share of ships that are under five years old is 15 per cent in developing economies, 10 per cent in developed economies, and only 8 per cent in transition economies.

Figure 2.5 provides more detailed illustrations of the age profiles of the world fleet and selected vessel types in January 2010. It also shows the percentage of tonnage demolished during 2009 by year of build. The likelihood of a vessel being demolished is highest for ships between 30 and 35 years old. Ships under 18 years old are not usually scrapped, and as ships get older, those few that have survived 40 or more years are again more likely to be kept in service.

The dry bulk vessel fleet expanded dramatically in 2009, and the percentage of tonnage demolished was relatively high for those built in the 1970s. The container ship fleet expanded less in 2009 than in the previous four years, and many ships built in the 1980s were demolished. New tonnage of oil tankers reached a historic high in 2009. The general cargo fleet continues to include a lot of tonnage that was built in the 1980s, 1970s and even 1960s, and the proportion of this older fleet that is being demolished is lower than for other vessel types; general cargo ships can thus be expected to continue to be the oldest component of the world fleet.

Very few specialized reefer ships have been built since 2001, as refrigerated cargo is increasingly being transported by reefer containers on container ships. More than half of the specialized reefer tonnage built in 1979 was demolished in 2009. As most existing reefer ships were built in the 1980s and 1990s, a large proportion of this fleet can be expected to be demolished during the next two decades, and developing countries' fruit exports will then depend almost entirely on containerized transport.

B. OWNERSHIP OF THE WORLD FLEET

At the beginning of 2010, owners from Greece controlled 15.96 per cent of the world's tonnage, followed by owners from Japan with 15.73 per cent and then owners from China with 8.96 per cent (table 2.6).[5] All three countries have seen their market share increase since 2009, and China has actually overtaken Germany as the third-largest shipowning country. In terms of vessel numbers, Japan continues to be the leading country, with 3,751 ships of 1,000 GT and above, followed by China with 3,633 ships. In terms of nationally

Table 2.5. Age distribution of the world merchant fleet, by vessel type, as of 1 January 2010
(percentage of total ships and dwt)

Country grouping Types of vessels		0–4 years	5–9 years	10–14 years	15–19 years	20 years and +	Average age (years) 2010	Average age (years) 2009	Change 2010/2009
WORLD									
Bulk carriers	Ships	19.0	16.0	14.2	10.8	40.1	16.58	17.22	-0.64
	dwt	25.2	19.4	15.7	12.4	27.4	13.77	14.27	-0.50
Average vessel size (dwt)		74 809	68 046	62 375	64 563	38 537			
Container ships	Ships	31.3	21.7	20.9	12.8	13.3	10.56	10.92	-0.37
	dwt	38.9	26.0	17.2	9.5	8.4	8.72	9.01	-0.29
Average vessel size (dwt)		44 701	43 151	29 644	26 579	22 653			
General cargo	Ships	9.6	8.0	9.1	11.1	62.3	24.63	24.44	0.18
	dwt	16.1	9.8	13.5	9.8	50.8	21.40	22.12	-0.72
Average vessel size (dwt)		8 260	6 083	7 372	4 391	4 043			
Oil tankers	Ships	24.2	16.0	10.7	12.0	37.1	17.03	17.55	-0.52
	dwt	31.8	28.2	16.7	13.0	10.2	10.13	10.72	-0.59
Average vessel size (dwt)		55 138	74 066	65 636	45 454	11 514			
Other types	Ships	9.2	9.3	9.1	8.7	63.8	25.33	25.26	0.07
	dwt	28.3	14.1	11.3	8.4	37.9	17.47	18.24	-0.77
Average vessel size (dwt)		4 923	2 444	1 980	1 548	953			
All ships	Ships	12.7	10.8	10.2	9.9	56.4	22.93	23.00	-0.07
	dwt	28.8	22.2	15.8	11.7	21.5	13.35	13.97	-0.62
Average vessel size (dwt)		28 401	25 665	19 266	14 799	4 764			
DEVELOPING ECONOMIES									
Bulk carriers	Ships	19.8	15.5	14.1	10.0	40.6	16.35	16.90	-0.55
	dwt	24.9	17.7	15.3	12.8	29.3	14.04	14.32	-0.28
Average vessel size (dwt)		74 036	67 566	63 914	75 360	42 528			
Container ships	Ships	32.2	19.9	19.7	13.7	14.5	10.74	11.20	-0.45
	dwt	41.2	24.9	15.2	10.0	8.7	8.59	8.98	-0.39
Average vessel size (dwt)		43 804	42 738	26 365	24 903	20 470			
General cargo	Ships	9.9	8.3	7.6	9.0	65.2	24.73	24.72	0.01
	dwt	16.4	8.4	12.0	9.4	53.8	21.75	22.55	-0.80
Average vessel size (dwt)		8 705	5 332	8 296	5 500	4 347			
Oil tankers	Ships	22.8	12.7	10.4	11.1	43.0	18.18	18.84	-0.67
	dwt	31.4	24.2	15.2	16.2	13.0	11.02	11.74	-0.72
Average vessel size (dwt)		57 643	80 173	60 786	61 255	12 669			
Other types	Ships	11.8	9.1	7.9	8.4	62.8	24.66	24.77	-0.11
	dwt	24.6	12.1	10.7	8.6	44.1	19.16	19.53	-0.37
Average vessel size (dwt)		3 903	2 478	2 536	1 900	1 313			
All ships	Ships	14.6	10.6	9.4	9.3	56.2	22.31	22.55	-0.24
	dwt	28.4	19.6	14.7	13.0	24.4	14.01	14.56	-0.55
Average vessel size (dwt)		28 942	27 569	23 149	20 633	6 436			
DEVELOPED ECONOMIES									
Bulk carriers	Ships	11.2	15.5	15.0	16.8	41.5	19.18	19.51	-0.33
	dwt	22.7	25.5	17.4	13.3	21.0	13.42	14.33	-0.91
Average vessel size (dwt)		94 095	77 011	54 176	37 086	23 663			
Container ships	Ships	27.1	28.5	24.2	11.6	8.7	9.91	9.79	0.12
	dwt	33.0	30.8	21.9	8.3	6.0	8.68	8.47	0.21
Average vessel size (dwt)		56 948	50 512	42 453	33 521	32 073			
General cargo	Ships	13.4	10.6	17.8	20.3	38.0	20.84	20.81	0.03
	dwt	23.0	15.3	22.1	11.9	27.6	16.68	17.34	-0.66
Average vessel size (dwt)		6 974	5 877	5 054	2 369	2 952			
Oil tankers	Ships	25.0	24.6	12.5	19.0	18.9	13.82	14.21	-0.39
	dwt	32.4	39.4	17.9	7.4	3.0	7.87	8.43	-0.56
Average vessel size (dwt)		52 391	64 571	57 974	15 640	6 398			
Other types	Ships	7.1	11.0	12.1	9.1	60.7	25.29	25.08	0.20
	dwt	22.3	20.1	17.8	9.7	30.1	16.36	16.59	-0.23
Average vessel size (dwt)		*3 051*	1 784	1 433	1 041	485			
All ships	Ships	10.1	12.6	13.4	11.6	52.3	23.15	23.03	0.12
	dwt	28.7	30.9	18.9	9.4	12.0	11.02	11.56	-0.54
Average vessel size (dwt)		20 926	17 953	10 346	5 943	1 690			

Table 2.5. Age distribution of the world merchant fleet, by vessel type, as of 1 January 2010 *(percentage of total ships and dwt)* (concluded)

Country grouping Types of vessels		0–4 years	5–9 years	10–14 years	15–19 years	20 years and +	Average age (years) 2010	Average age (years) 2009	Change 2010/2009
COUNTRIES WITH ECONOMIES IN TRANSITION									
Bulk carriers	Ships	13.3	7.1	7.2	15.5	56.9	20.83	22.56	-1.74
	dwt	14.0	8.5	10.0	19.4	48.1	19.35	20.98	-1.63
Average vessel size (dwt)		38 169	43 581	50 346	45 469	30 701			
Container ships	Ships	13.7	15.0	17.6	18.9	34.8	15.85	15.62	0.23
	dwt	23.3	30.1	5.5	17.3	23.8	12.23	11.74	0.49
Average vessel size (dwt)		42 144	49 510	7 698	22 535	16 899			
General cargo	Ships	6.6	10.0	4.6	10.2	68.6	24.54	24.22	0.32
	dwt	7.5	6.2	4.7	7.5	74.1	25.59	26.87	-1.28
Average vessel size (dwt)		4 058	2 195	3 613	2 615	3 844			
Oil tankers	Ships	12.3	9.9	4.2	9.0	64.5	23.50	23.81	-0.31
	dwt	29.0	26.7	6.6	14.7	23.0	13.06	13.75	-0.69
Average vessel size (dwt)		32 115	36 749	21 097	22 448	4 871			
Other types	Ships	5.6	4.9	3.2	10.6	75.6	25.76	25.41	0.34
	dwt	26.8	25.8	7.2	12.4	27.7	13.93	15.51	-1.58
Average vessel size (dwt)		17 361	19 311	8 244	4 242	1 339			
All ships	Ships	7.6	8.0	4.6	10.8	69.0	24.37	24.30	0.07
	dwt	18.7	16.3	7.5	14.9	42.6	18.09	20.18	-2.09
Average vessel size (dwt)		19 308	16 025	12 866	10 749	4 835			
TEN MAJOR OPEN AND INTERNATIONAL REGISTRIES									
Bulk carriers	Ships	24.4	18.4	14.9	8.9	33.4	14.33	15.13	-0.80
	dwt	28.8	19.8	15.6	10.5	25.3	12.65	13.13	-0.48
Average vessel size (dwt)		77 349	70 508	68 395	77 633	49 661			
Container ships	Ships	35.0	21.9	20.5	12.2	10.4	9.61	10.33	-0.72
	dwt	41.6	25.7	15.7	9.0	7.9	8.30	8.97	-0.67
Average vessel size (dwt)		42 863	42 299	27 597	26 629	27 543			
General cargo	Ships	15.3	9.5	13.8	11.8	49.6	19.81	20.46	-0.66
	dwt	19.8	12.2	16.5	9.2	42.4	17.77	19.15	-1.38
Average vessel size (dwt)		11 712	11 685	10 873	7 094	7 772			
Oil tankers	Ships	35.8	23.3	14.2	9.2	17.4	10.70	11.34	-0.64
	dwt	30.7	28.9	18.6	13.7	8.0	9.48	9.71	-0.23
Average vessel size (dwt)		64 870	93 392	98 974	112 217	34 731			
Other types	Ships	19.9	10.4	10.6	7.3	51.8	21.23	21.87	-0.64
	dwt	35.6	13.0	10.2	5.9	35.4	15.88	16.72	-0.84
Average vessel size (dwt)		19 566	13 683	10 463	8 772	7 450			
All ships	Ships	24.6	15.8	14.3	9.8	35.4	15.89	16.63	-0.75
	dwt	31.0	22.9	16.4	11.1	18.6	11.83	12.34	-0.51
Average vessel size (dwt)		47 430	54 537	43 025	42 637	19 748			

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

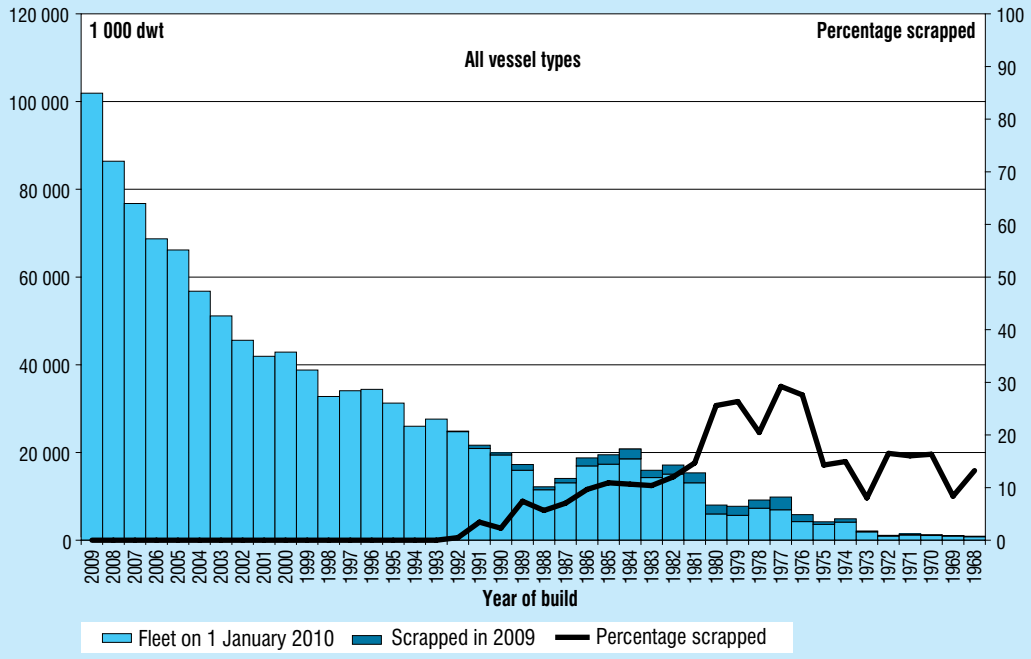
[a] Vessels of 100 gross tons and above.

flagged and beneficially owned tonnage, the Greek fleet is the world's largest, accounting for 58.5 million dwt, followed by the Chinese-owned and flagged fleet with 41 million dwt.

Together, the top 35 shipowning countries (in terms of dwt) control 95.5 per cent of the world tonnage. About one third of this tonnage is controlled by owners from developing countries and about two thirds by owners from developed countries.[6] Of the top 35 countries and territories, 18 are classified as developed, 16 as developing, and 1 as an economy in transition. Sixteen of the countries or territories are in Asia, 15 are in Europe, and 4 are in the Americas, while none are in Africa or Oceania.

As regards flags of registration, 68.4 per cent of the world's tonnage is foreign-flagged. The percentage is higher for developed countries (approximately 75 per cent foreign-flagged) than for developing countries (about 57 per cent foreign-flagged). One of the motivations for shipowners to use a foreign flag is the possibility of employing foreign seafarers. This is of particular interest to companies based in countries with high wage levels; that is to say, it is more likely to be the case in developed than in developing countries.

Figure 2.5. Age distribution of the world merchant fleet, by vessel type, as of 1 January 2010
***(percentage of total ships and dwt)* (continued)**



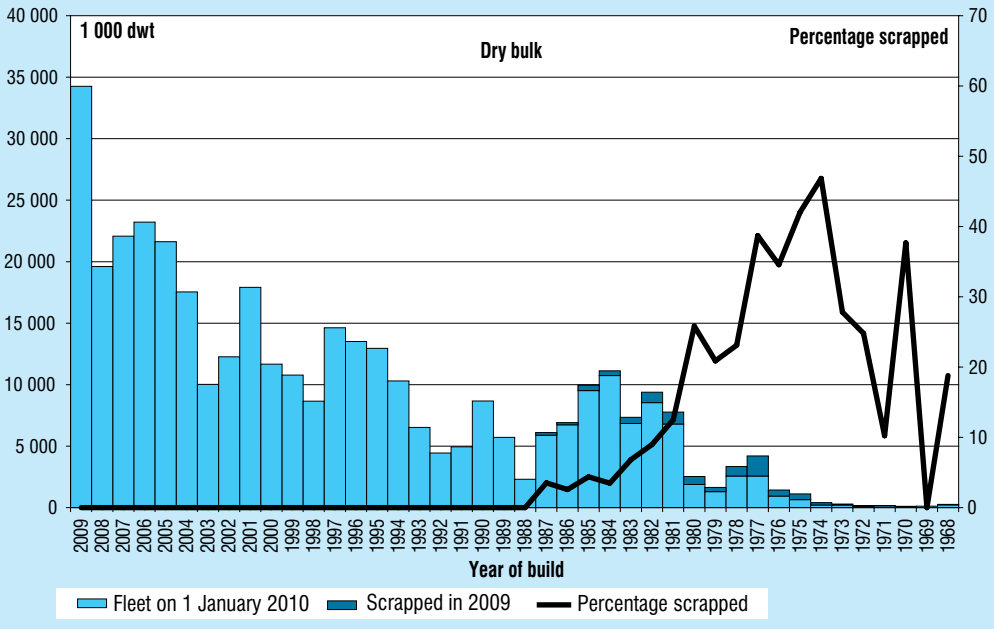
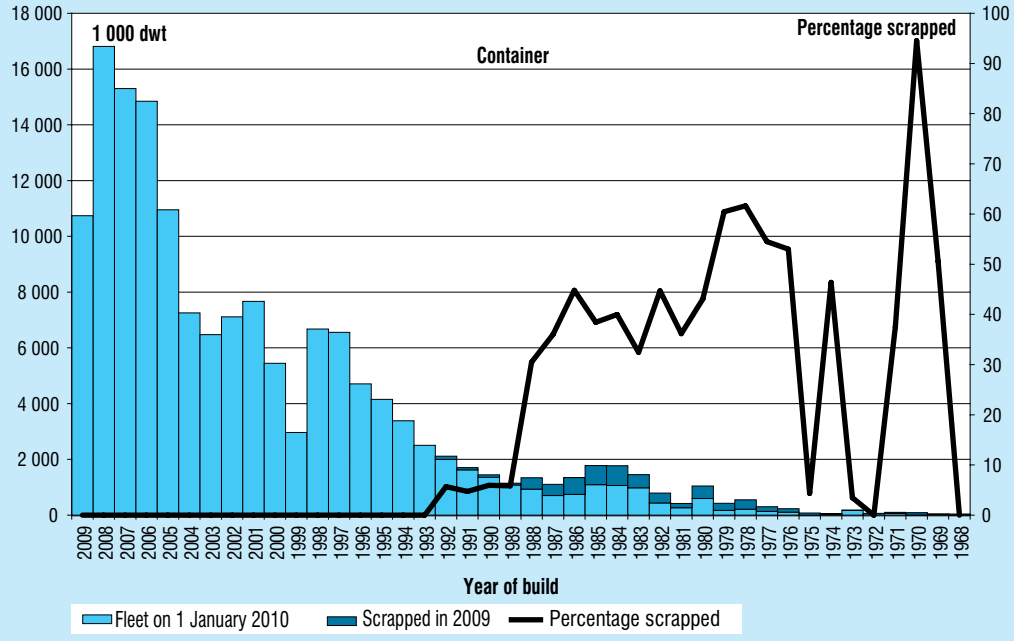


Figure 2.5. Age distribution of the world merchant fleet, by vessel type, as of 1 January 2010
***(percentage of total ships and dwt)* (continued)**



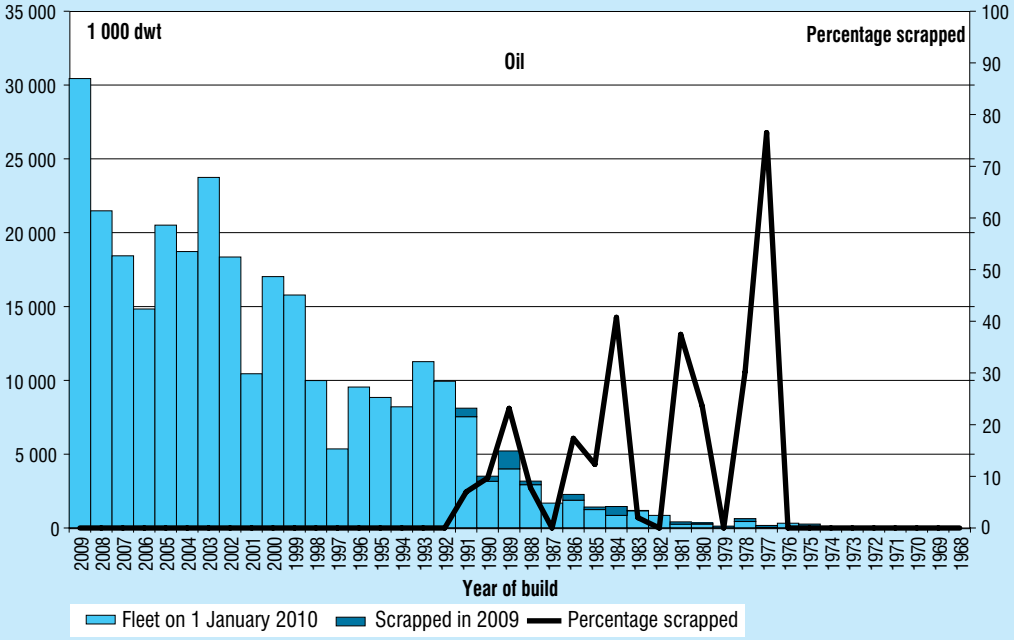
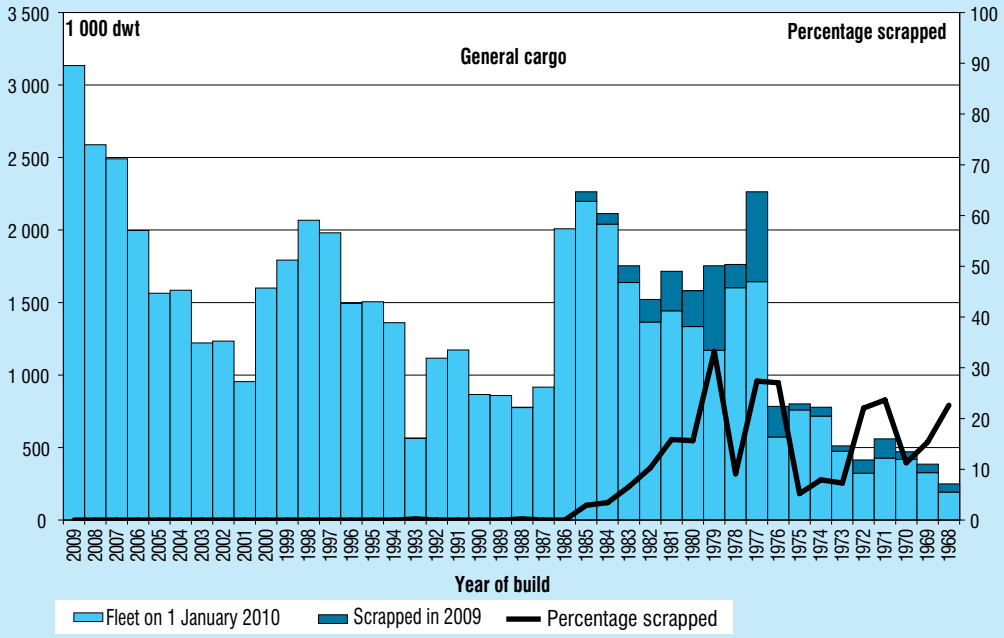
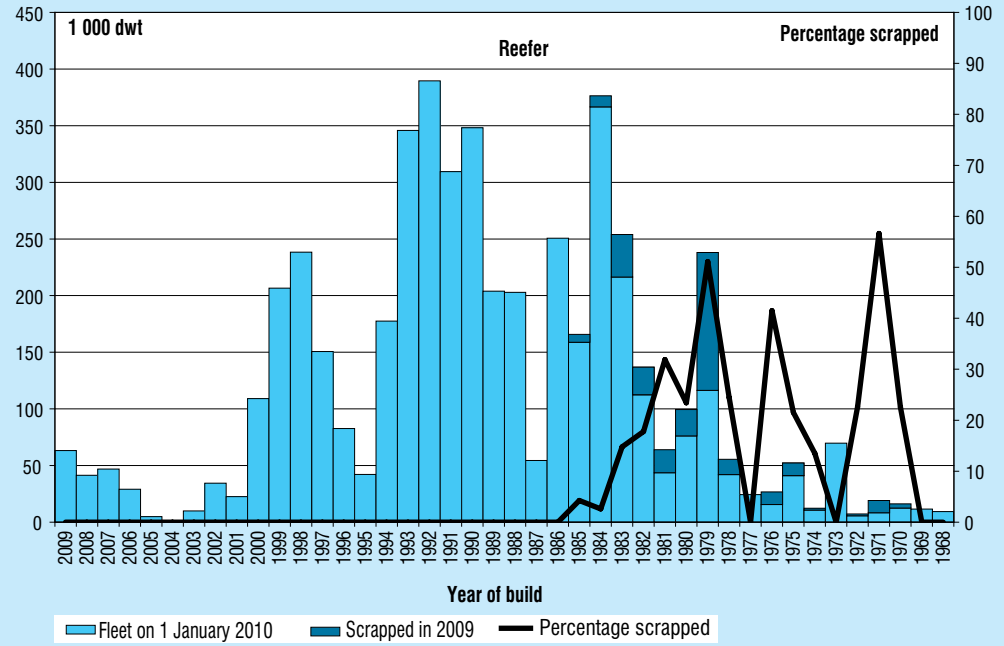


Figure 2.5. Age distribution of the world merchant fleet, by vessel type, as of 1 January 2010 *(percentage of total ships and dwt)* (concluded)





Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Charts are based on the available data for 95.5 per cent of the fleet of vessels of 1,000 gross tons (GT) and above built between 1968 and 2009.

Table 2.6. The 35 countries and territories with the largest controlled fleets (dwt), as at 1 January 2010[a]

Country or territory of ownership [b]	Number of vessels			Deadweight tonnage				
	National flag[c]	Foreign flag	Total	National flag[c]	Foreign flag	Total	Foreign flag as a percentage of total	Total as a percentage of world total, 1 Jan. 2010
Greece	741	2 409	3 150	58 478 197	127 616 965	186 095 162	69	15.96
Japan	720	3 031	3 751	14 443 324	168 876 356	183 319 680	92	15.73
China	2 024	1 609	3 633	41 026 075	63 426 314	104 452 389	61	8.96
Germany	458	3 169	3 627	16 926 387	86 969 282	103 895 669	84	8.91
Republic of Korea	775	425	1 200	18 865 348	26 017 970	44 883 318	58	3.85
United States	920	945	1 865	21 529 559	19 761 196	41 290 755	48	3.54
Norway	820	1 148	1 968	14 102 299	26 416 491	40 518 790	65	3.48
China, Hong Kong	350	330	680	21 225 179	13 216 692	34 441 871	38	2.95
Denmark	360	580	940	12 937 381	20 261 040	33 198 421	61	2.85
Singapore	598	387	985	17 377 216	15 232 228	32 609 444	47	2.80
China, Taiwan Province of	92	545	637	3 769 436	25 721 242	29 490 678	87	2.53
United Kingdom	357	437	794	8 948 902	17 262 720	26 211 622	66	2.25
Italy	608	236	844	15 277 538	7 176 463	22 454 001	32	1.93
Russian Federation	1 472	515	1 987	5 860 326	13 571 242	19 431 568	70	1.67
Canada	210	223	433	2 303 767	15 980 908	18 284 675	87	1.57
Bermuda	0	180	180	0	17 192 696	17 192 696	100	1.47
India	443	66	509	14 280 882	2 885 687	17 166 569	17	1.47
Turkey	558	664	1 222	7 139 310	9 629 658	16 768 968	57	1.44
Iran (Islamic Republic of)	74	91	165	853 008	12 839 807	13 692 815	94	1.17
Saudi Arabia	74	98	172	1 740 908	11 464 923	13 205 831	87	1.13
Belgium	85	149	234	5 581 132	6 966 887	12 548 019	56	1.08
Malaysia	380	100	480	8 783 140	3 655 990	12 439 130	29	1.07
United Arab Emirates	63	354	417	698 818	8 525 258	9 224 076	92	0.79
Indonesia	778	90	868	7 069 985	1 868 730	8 938 715	21	0.77
Cyprus	129	206	335	3 542 642	5 339 340	8 881 982	60	0.76
Netherlands	528	272	800	4 828 515	3 989 203	8 817 718	45	0.76
Brazil	128	33	161	2 272 241	5 463 966	7 736 207	71	0.66
France	180	224	404	2 994 852	4 390 712	7 385 564	59	0.63
Sweden	136	217	353	1 453 082	5 570 298	7 023 380	79	0.60
Viet Nam	460	84	544	4 560 855	2 230 992	6 791 847	33	0.58
Kuwait	39	47	86	3 835 639	2 767 625	6 603 264	42	0.57
Spain	173	231	404	1 405 579	3 839 347	5 244 926	73	0.45
Isle of Man	2	30	32	4 968	4 817 656	4 822 624	100	0.41
Switzerland	35	122	157	1 023 109	2 925 288	3 948 397	74	0.34
Thailand	298	45	343	3 007 664	785 892	3 793 556	21	0.33
Total (35 countries)	15 068	19 292	34 360	348 147 263	764 657 064	1112 804 327	69	95.46
World total	17 279	21 133	38 412	368 251 867	797 468 296	1165 720 163	68	100.00

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Vessels of 1,000 GT and above, ranked by deadweight tonnage; excluding the United States Reserve Fleet and the United States and Canadian Great Lakes fleets (which have a combined tonnage of 5.7 million dwt).

[b] The country of ownership indicates where the true controlling interest (i.e. parent company) of the fleet is located. In several cases, determining this has required making certain judgements. Thus, for instance, Greece is shown as the country of ownership for vessels owned by a Greek national with representative offices in New York, London and Piraeus, although the owner may be domiciled in the United States.

[c] Includes vessels flying the national flag but registered in territorial dependencies or associated self-governing territories such as the Isle of Man (United Kingdom), and also second registries such as DIS (Denmark), NIS (Norway) or FIS (France). For the United Kingdom, British-flag vessels are included under the national flag, except for Bermuda.

C. REGISTRATION OF SHIPS

1. Flags of registration

In January 2010, the 35 largest flags of registration accounted for 93.23 per cent of the world fleet – a further increase from the 92.9 per cent share of one year earlier (table 2.7).[7] The largest flag of registration continues to be Panama, with 289 million dwt (22.6 per cent of the world fleet), followed by Liberia (142 million dwt; 11.1 per cent), the Marshall Islands (6.1 per cent), Hong Kong, China (5.8 per cent), Greece (5.3 per cent) and the Bahamas (5.02 per cent). Together, these top 5 registries accounted for 51 per cent of the world's deadweight tonnage, and the top 10 registries accounted for 71.3 per cent – both figures showing increases over the previous year.

As regards the number of ships, the largest fleets are flagged in Panama (8,100 vessels of 100 GT and above), the United States (6,546), Japan (6,221), Indonesia (5,205), China (4,064) and the Russian Federation (3,465). Except for Panama, these fleets include a large number of general cargo and other smaller vessels that are employed in coastal, inter-island and inland waterway cabotage services.

The flag of Indonesia recorded the highest percentage growth, mostly due to nationally owned vessels that had previously been registered under foreign flags that moved back to the national registry in 2009. In January 2010, only 20.9 per cent of Indonesian-controlled tonnage was using a foreign flag, down from 29.4 per cent one year earlier.

The top 10 major open and international registries in 2010 comprised the same flags as in 2009. They increased their combined market share by a further 0.32 percentage points between 1 January 2009 and 1 January 2010 to reach 55.44 per cent (table 2.8). The 10 major open and international registries have their highest shares among dry bulk carriers (61.3 per cent) and oil tankers (55.5 per cent). Among the remaining registries, which include national registries and smaller open registries, the share of developed countries decreased by 0.34 percentage points during 2009 to reach 17.9 per cent in January 2010, while developing countries kept their share approximately stable at 25.2 per cent. Developed countries' fleets have their highest shares among container ships (26.3 per cent), while developing countries provide their flag most often to general cargo vessels (35.6 per cent of the world fleet in this vessel category). Among the developing regions, Asia has by far the largest share, with 22.4 per cent of the world fleet, followed by Latin America and the Caribbean, with 1.8 per cent.

The following section examines in greater detail the links between vessel ownership and registration for the 10 major open and international registries and the 35 major countries and territories of ownership.

2. Ownership and registration

Most open and international registries specialize in certain countries of ownership (table 2.9 and fig. 2.6).[8] The registry of Panama caters mainly for owners from China, Greece, Japan and the Republic of Korea. The flag of Liberia is used mostly for ships owned by German and Greek owners. The clients of the Marshall Islands registry are principally from Germany, Greece and the United States. The client base of the Bahamas is relatively broadly spread. The largest group of owners for the Maltese registry is from Greece. From the country-of-ownership perspective, a mirror image is obtained (fig. 2.7). Carriers from China, Japan and the Republic of Korea rely mostly on the flag of Panama; German owners register their ships mainly in Liberia; and owners from the United States often choose the flag of the Marshall Islands, which used to be a United States dependent territory. Greek owners, on the other hand, use a wider portfolio of different flags of registration, including their own national flag.

D. SHIPBUILDING, DEMOLITION AND THE SECOND-HAND MARKET

1. Shipbuilding

Even as the economic crisis continued through 2009, the world's shipyards continued to deliver new ships. As in 2008, and even without significant new orders, vessels continued to be built, on the basis of orders that had been placed prior to the economic crisis.

During 2009, there were 3,658 newbuildings recorded as delivered – a new historical record compared to the previous year's record of 2,999 newbuildings, and an increase of 22 per cent in terms of vessel numbers. In terms of deadweight tonnage, newbuildings stood at 117.3 million dwt, against 82.3 million dwt in 2008,

Table 2.7. The 35 flags of registration with the largest registered deadweight tonnage, as at 1 January 2010[a]

Flag of registration	Number of vessels	Share of world total, vessels	Deadweight tonnage, 1 000 dwt	Share of world total, dwt	Cumulated share, dwt	Average vessel size, dwt	Dwt growth 2010/2009, percentage
Panama	8 100	7.93	288 758	22.63	22.63	35 649	5.40
Liberia	2 456	2.40	142 121	11.14	33.76	57 867	12.80
Marshall Islands	1 376	1.35	77 827	6.10	39.86	56 561	13.70
China, Hong Kong	1 529	1.50	74 513	5.84	45.70	48 733	16.10
Greece	1 517	1.48	67 629	5.30	51.00	44 581	7.29
Bahamas	1 426	1.40	64 109	5.02	56.03	44 957	3.38
Singapore	2 563	2.51	61 660	4.83	60.86	24 058	1.42
Malta	1 613	1.58	56 156	4.40	65.26	34 815	10.84
China	4 064	3.98	45 157	3.54	68.80	11 112	12.90
Cyprus	1 026	1.00	31 305	2.45	71.25	30 512	-0.26
Republic of Korea	3 009	2.94	20 819	1.63	72.88	6 919	-7.88
Norway (NIS)	560	0.55	18 648	1.46	74.34	33 300	-8.24
United Kingdom	1 697	1.66	17 758	1.39	75.73	10 464	11.33
Japan	6 221	6.09	17 707	1.39	77.12	2 846	14.86
Germany	948	0.93	17 570	1.38	78.50	18 534	-2.11
Italy	1 635	1.60	17 276	1.35	79.85	10 566	19.84
Isle of Man	363	0.36	16 711	1.31	81.16	46 036	15.12
India	1 349	1.32	14 970	1.17	82.33	11 097	-2.16
Denmark (DIS)	490	0.48	13 500	1.06	83.39	27 551	8.18
Antigua and Barbuda	1 237	1.21	13 034	1.02	84.41	10 536	4.65
United States	6 546	6.41	12 792	1.00	85.42	1 954	7.40
Indonesia	5 205	5.09	10 471	0.82	86.24	2 012	49.04
Malaysia	1 344	1.32	10 225	0.80	87.04	7 608	8.88
Bermuda	155	0.15	10 107	0.79	87.83	65 204	-1.86
France (FIS)	165	0.16	8 330	0.65	88.48	50 487	16.61
Turkey	1 344	1.32	7 878	0.62	89.10	5 862	5.37
Saint Vincent and the Grenadines	1 043	1.02	7 329	0.57	89.67	7 027	-0.96
Russian Federation	3 465	3.39	7 283	0.57	90.24	2 102	2.00
Netherlands	1 332	1.30	7 252	0.57	90.81	5 445	6.42
Philippines	1 823	1.78	7 033	0.55	91.36	3 858	4.19
Belgium	246	0.24	6 575	0.52	91.88	26 728	-0.85
Viet Nam	1 415	1.38	5 415	0.42	92.30	3 827	16.14
Cayman Islands	150	0.15	3 961	0.31	92.61	26 404	-8.19
China, Taiwan Province of	641	0.63	3 944	0.31	92.92	6 153	-7.11
Kuwait	209	0.20	3 856	0.30	93.23	18 451	-0.23
Total top 35 flags of registration	68 262	66.80	1 189 679	93.23	93.23	17 428	7.44
World total	102 194	100.00	1 276 137	100.00	100.00	12 487	7.03

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Ships of 100 GT and above; ranked by deadweight tonnage.

Table 2.8. Distribution of dwt capacity of vessel types, as percentages, by country group of registration, 2010[a]
(percentage change 2010/2009 in italics)

	Total fleet	Oil tankers	Bulk carriers	General cargo	Container ships	Other types
World total	100.00	100.00	100.00	100.00	100.00	100.00
Developed countries	17.89	20.23	11.00	17.84	26.34	25.17
	-0.34	*0.18*	*-0.50*	*0.56*	*-0.75*	*-1.56*
Countries with economies in transition	1.00	0.84	0.44	4.55	0.10	2.06
	-0.06	*0.02*	*-0.06*	*-0.13*	*-0.01*	*-0.07*
Developing countries	25.23	23.23	26.99	35.56	19.81	24.05
	0.02	*-0.10*	*-0.20*	*0.56*	*0.96*	*-0.25*
of which:						
Africa	0.67	0.73	0.29	1.89	0.12	1.91
	0.09	*0.26*	*-0.00*	*0.13*	*-0.01*	*-0.12*
America	1.75	1.86	1.24	4.22	0.27	3.57
	-0.16	*-0.18*	*-0.16*	*-0.07*	*-0.02*	*-0.27*
Asia	22.36	20.33	24.92	28.68	19.39	17.65
	0.08	*-0.15*	*-0.09*	*0.41*	*0.99*	*0.13*
Oceania	0.44	0.32	0.54	0.78	0.03	0.92
	0.02	*-0.03*	*0.05*	*0.09*	*0.00*	*0.01*
Other, unallocated	0.44	0.22	0.28	2.09	0.12	0.99
	0.05	*-0.03*	*0.09*	*0.36*	*0.08*	*-0.02*
10 major open and international registries[b]	55.44	55.47	61.29	39.96	53.63	47.74
	0.32	*-0.08*	*0.68*	*-1.35*	*-0.28*	*1.91*

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Vessels of 100 GT and above.

[b] There exists no clear definition of "open and international registries". UNCTAD has grouped the 10 major open and international registries to include the 10 largest fleets with more than 90 per cent foreign-controlled tonnage. See table 2.9 for the list of registries.

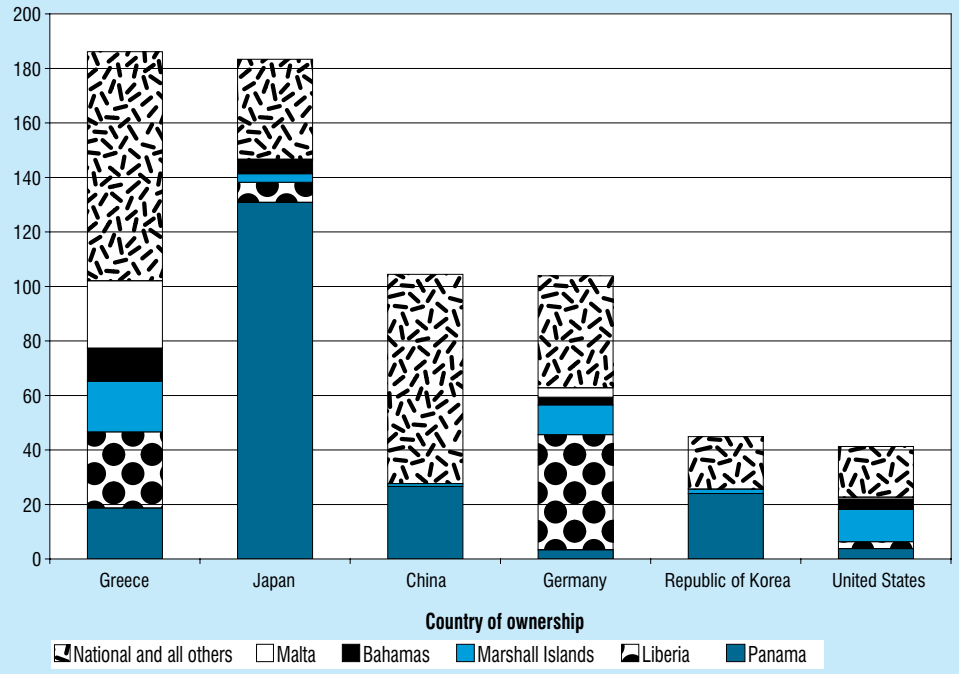
corresponding to an impressive growth of 42 per cent.

More than 90 per cent of construction took place in just three Asian countries, namely the Republic of Korea (37.3 per cent of gross tonnage), China (28.6 per cent) and Japan (24.6 per cent). All remaining countries together accounted for only 9.6 per cent of global shipbuilding in 2009 (table 2.10).

The three main shipbuilding countries specialize in different vessel types (fig. 2.8). While the Republic of Korea focuses on container ships and tankers, China has a higher market share in dry bulk carriers. Japan builds mostly oil tankers and only a small share of the container ships. More than 57 per cent of container ship tonnage and 73 per cent of gas carriers are built in the Republic of Korea. China has its highest market share in general cargo ships, with 64 per cent, and Japan dominates the vehicle carrier market, with 63 per cent of the global production of this vessel type. The other countries maintain a higher market share in other specialized ships, such as tugs, offshore supply or fishing vessels used in national waters, and cruise ships and other passenger ships (table 2.10).

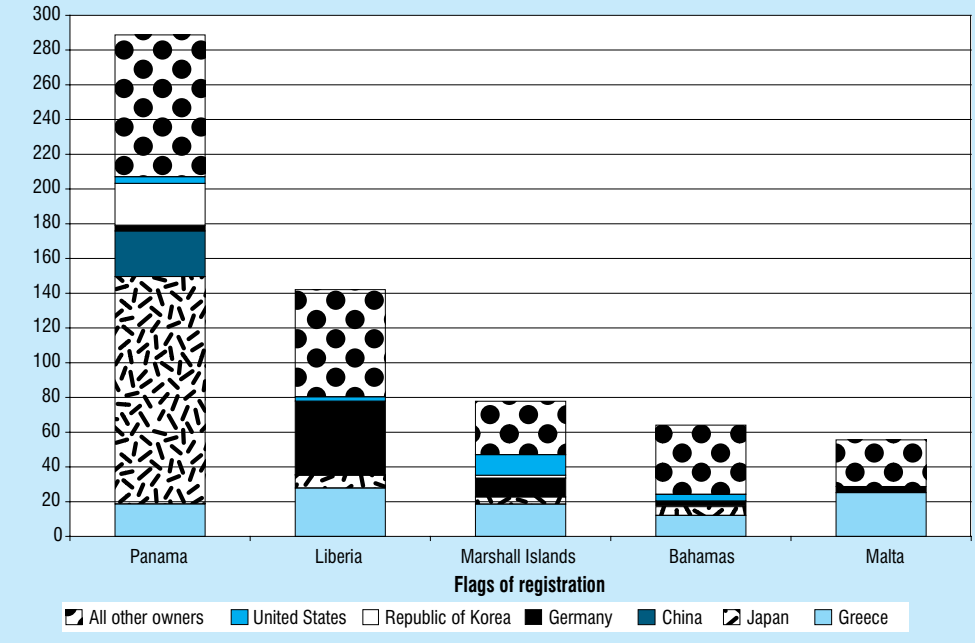
In addition to the three Asian shipbuilders mentioned above, several other Asian countries participated in global vessel construction in 2009. Bangladesh built one 2,950 dwt general cargo ship. Taiwan Province of China is home to six yards, which in 2009 built 18 ships, including 11 container vessels of up to 8,200 TEU carrying capacity. Hong Kong (China) built just one vessel in 2009. Thirteen yards in India

Figure 2.6. Major countries of ownership and their flags of registration, 2010[a]
(beginning-of-year figures, in millions of deadweight tons)



Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.
[a] Cargo-carrying vessels of 1,000 GT and above.

Figure 2.7. Major open and international registries and the countries of ownership, 2010[a]
(beginning-of-year figures, in millions of deadweight tons)



Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.
[a] Cargo-carrying vessels of 1,000 GT and above.

Table 2.9. True nationality of 10 major open and international registry fleets, as at 1 January 2010[a]

Country or territory of ownership	Panama			Liberia			Marshall Islands		
	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%
Greece	457	18 728	7.6	437	27 888	21.5	313	18 629	28.2
Japan	2 294	130 879	52.8	111	7 359	5.7	32	3 118	4.7
China	567	26 262	10.6	13	399	0.3	13	963	1.5
Germany	31	3 386	1.4	977	42 239	32.5	243	10 898	16.5
Republic of Korea	355	24 017	9.7	1	1	0.0	19	1 608	2.4
United States	159	3 808	1.5	54	2 541	2.0	169	11 877	18.0
Norway	111	3 294	1.3	45	952	0.7	72	3 286	5.0
China, Hong Kong	123	5 119	2.1	69	4 391	3.4	5	125	0.2
Denmark	41	1 335	0.5	4	244	0.2	7	355	0.5
Singapore	103	3 124	1.3	36	4 434	3.4	27	2 514	3.8
China, Taiwan Province of	321	12 649	5.1	80	6 438	5.0		0	-
United Kingdom	49	1 949	0.8	30	1 332	1.0	4	194	0.3
Italy	27	852	0.3	51	3 288	2.5	3	13	0.0
Russian Federation	40	316	0.1	104	8 962	6.9	7	132	0.2
Canada	8	324	0.1	3	159	0.1	4	122	0.2
Bermuda	6	677	0.3	4	1 176	0.9	35	5 439	8.2
India	19	740	0.3	1	150	0.1	6	549	0.8
Turkey	85	820	0.3	13	306	0.2	67	2 518	3.8
Iran (Islamic Republic of)	8	68	0.0		0	-		0	-
Saudi Arabia	7	150	0.1	24	6 180	4.8	1	1	0.0
Belgium	4	199	0.1	1	14	0.0	1	442	0.7
Malaysia	17	312	0.1		0	-	12	75	0.1
United Arab Emirates	107	2 725	1.1	25	1 382	1.1	17	781	1.2
Indonesia	16	273	0.1	3	265	0.2	1	6	0.0
Cyprus	14	1 143	0.5	37	665	0.5	42	1 146	1.7
Netherlands	24	129	0.1	7	93	0.1	16	428	0.6
Brazil	7	936	0.4	18	3 820	2.9	1	280	0.4
France	14	253	0.1	3	305	0.2	3	18	0.0
Sweden	3	6	0.0	9	377	0.3	1	13	0.0
Viet Nam	37	1 053	0.4	3	140	0.1		0	-
Kuwait	11	657	0.3		0	-		0	-
Spain	45	294	0.1	1	40	0.0	5	187	0.3
Isle of Man	7	804	0.3	19	3 913	3.0		0	-
Switzerland	27	691	0.3	16	425	0.3	10	357	0.5
Thailand	11	74	0.0		0	-	1	33	0.0
Total of the 35 countries	5 155	248 045	100.0	2 199	129 880	100.0	1 137	66 111	100.0
Registry's market share among the 35 countries	15.0	22.3		6.4	11.7		3.3	5.9	

Table 2.9. True nationality of 10 major open and international registry fleets, as at 1 January 2010[a] (continued)

Bahamas			Malta			Cyprus			Country or territory of ownership
Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%	
217	12 150	21.2	436	24 693	49.9	218	11 654	39.9	Greece
89	4 986	8.7	8	345	0.7	20	723	2.5	Japan
6	429	0.7	11	191	0.4	8	211	0.7	China
46	2 822	4.9	113	3 454	7.0	186	4 239	14.5	Germany
	0	-	3	13	0.0		0	-	Republic of Korea
108	3 823	6.7	35	637	1.3	7	60	0.2	United States
243	5 560	9.7	89	878	1.8	25	194	0.7	Norway
4	23	0.0	1	12	0.0	2	36	0.1	China, Hong Kong
52	721	1.3	42	670	1.4	3	52	0.2	Denmark
10	57	0.1	4	111	0.2	4	101	0.3	Singapore
	0	-		0	-		0	-	China, Taiwan Province of
58	2 092	3.7	16	309	0.6	24	1 301	4.5	United Kingdom
11	509	0.9	52	967	2.0	4	47	0.2	Italy
1	2	0.0	54	499	1.0	50	2 128	7.3	Russian Federation
103	10 617	18.5	1	24	0.0	2	64	0.2	Canada
14	1 703	3.0	4	74	0.2	7	322	1.1	Bermuda
1	8	0.0	2	162	0.3	3	284	1.0	India
2	98	0.2	204	4 533	9.2		0	-	Turkey
	0	-	61	9 334	18.9	10	3 180	10.9	Iran (Islamic Republic of)
18	4 940	8.6		0	-		0	-	Saudi Arabia
11	142	0.2	14	397	0.8	2	14	0.0	Belgium
13	107	0.2	1	3	0.0		0	-	Malaysia
27	1 390	2.4	1	30	0.1	15	380	1.3	United Arab Emirates
2	82	0.1		0	-		0	-	Indonesia
23	706	1.2	33	942	1.9	124	3 438	11.8	Cyprus
33	1 902	3.3	5	29	0.1	48	476	1.6	Netherlands
2	363	0.6		0	-		0	-	Brazil
23	547	1.0	11	507	1.0		0	-	France
3	111	0.2	2	57	0.1	4	18	0.1	Sweden
	0	-		0	-		0	-	Viet Nam
2	85	0.1	2	147	0.3		0	-	Kuwait
11	1 144	2.0	13	212	0.4	13	287	1.0	Spain
	0	-		0	-		0	-	Isle of Man
1	97	0.2	15	215	0.4		0	-	Switzerland
4	99	0.2		0	-		0	-	Thailand
1 138	57 313	100.0	1 233	49 444	100.0	779	29 208	100.0	Total of the 35 countries
3.3	5.2		3.6	4.4		2.3	2.6		Registry's market share among the 35 countries

Table 2.9. True nationality of 10 major open and international registry fleets, as at 1 January 2010[a] (continued)

Country or territory of ownership	Isle of Man			Antigua and Barbuda			Bermuda			Saint Vincent and the Grenadines		
	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%	Number of vessels	1 000 dwt	%
Greece	54	4 640	28.9	5	109	0.9	3	225	3.7	68	1 839	36.3
Japan	13	1 047	6.5		0	-	2	164	2.7	3	10	0.2
China	2	571	3.6		0	-	16	2 200	36.5	74	1 732	34.2
Germany	53	901	5.6	1 018	11 407	93.2	17	667	11.1	8	112	2.2
Republic of Korea		0	-		0	-		0	-		0	-
United States	5	184	1.1	6	23	0.2	26	358	5.9	23	116	2.3
Norway	62	2 090	13.0	10	97	0.8	5	58	1.0	15	55	1.1
China, Hong Kong		0	-		0	-	5	640	10.6	4	51	1.0
Denmark	47	489	3.0	27	138	1.1		0	-	19	52	1.0
Singapore	1	50	0.3		0	-		0	-	3	24	0.5
China, Taiwan Province of		0	-		0	-		0	-	4	5	0.1
United Kingdom	80	4 553	28.3		0	-	7	384	6.4	8	74	1.5
Italy		0	-		0	-		0	-	10	111	2.2
Russian Federation		0	-	3	8	0.1		0	-	19	244	4.8
Canada	1	21	0.1		0	-		0	-	1	3	0.1
Bermuda	5	1 496	9.3		0	-		0	-	1	10	0.2
India		0	-		0	-		0	-	5	12	0.2
Turkey		0	-	7	38	0.3		0	-	16	55	1.1
Iran (Islamic Republic of)		0	-		0	-		0	-	1	1	0.0
Saudi Arabia		0	-		0	-		0	-		0	-
Belgium		0	-		0	-		0	-	12	33	0.7
Malaysia		0	-		0	-		0	-		0	-
United Arab Emirates		0	-		0	-		0	-	17	269	5.3
Indonesia		0	-		0	-		0	-		0	-
Cyprus		0	-	1	10	0.1		0	-	3	21	0.4
Netherlands	2	3	0.0	17	78	0.6		0	-	3	7	0.1
Brazil		0	-		0	-		0	-	2	5	0.1
France		0	-		0	-	1	7	0.1	27	63	1.2
Sweden	1	23	0.1	1	5	0.0	17	1 318	21.9	1	4	0.1
Viet Nam		0	-		0	-		0	-		0	-
Kuwait		0	-		0	-		0	-		0	-
Spain		0	-		0	-		0	-		0	-
Isle of Man	2	5	0.0	2	29	0.2		0	-		0	-
Switzerland		0	-	7	305	2.5		0	-	13	161	3.2
Thailand		0	-		0	-		0	-		0	-
Total of the 35 countries	328	16 073	100.0	1 104	12 246	100.0	99	6 022	100.0	360	5 071	100.0
Registry's market share among the 35 countries	1.0	1.4		3.2	1.1		0.3	0.5		1.0	0.5	

Table 2.9. True nationality of 10 major open and international registry fleets, as at 1 January 2010[a] (concluded)

Total major 10 open and international registries					Total national controlled fleet	Major 10 registries as % of total nationally controlled fleet	Country or territory of ownership
Number of vessels	% of vessels	1 000 dwt	% of dwt	Average vessel size	1 000 dwt		
2 208	16.32	120 554	19.46	54 599	186 095	64.8	Greece
2 572	19.01	148 629	24.00	57 787	183 320	81.1	Japan
710	5.25	32 959	5.32	46 421	104 452	31.6	China
2 692	19.89	80 125	12.94	29 764	103 896	77.1	Germany
378	2.79	25 640	4.14	67 830	44 883	57.1	Republic of Korea
592	4.37	23 426	3.78	39 572	41 291	56.7	United States
677	5.00	16 464	2.66	24 319	40 519	40.6	Norway
213	1.57	10 399	1.68	48 820	34 442	30.2	China, Hong Kong
242	1.79	4 058	0.66	16 768	33 198	12.2	Denmark
188	1.39	10 415	1.68	55 398	32 609	31.9	Singapore
405	2.99	19 092	3.08	47 140	29 491	64.7	China, Taiwan Province of
276	2.04	12 191	1.97	44 169	26 212	46.5	United Kingdom
158	1.17	5 788	0.93	36 634	22 454	25.8	Italy
278	2.05	12 291	1.98	44 211	19 432	63.3	Russian Federation
123	0.91	11 334	1.83	92 146	18 285	62.0	Canada
76	0.56	10 898	1.76	143 398	17 193	63.4	Bermuda
37	0.27	1 903	0.31	51 442	17 167	11.1	India
394	2.91	8 368	1.35	21 238	16 769	49.9	Turkey
80	0.59	12 584	2.03	157 294	13 693	91.9	Iran (Islamic Republic of)
50	0.37	11 272	1.82	225 434	13 206	85.4	Saudi Arabia
45	0.33	1 241	0.20	27 575	12 548	9.9	Belgium
43	0.32	496	0.08	11 544	12 439	4.0	Malaysia
209	1.54	6 956	1.12	33 284	9 224	75.4	United Arab Emirates
22	0.16	626	0.10	28 451	8 939	7.0	Indonesia
277	2.05	8 070	1.30	29 134	8 882	90.9	Cyprus
155	1.15	3 144	0.51	20 284	8 818	35.7	Netherlands
30	0.22	5 405	0.87	180 161	7 736	69.9	Brazil
82	0.61	1 699	0.27	20 721	7 386	23.0	France
42	0.31	1 932	0.31	46 007	7 023	27.5	Sweden
40	0.30	1 193	0.19	29 827	6 792	17.6	Viet Nam
15	0.11	889	0.14	59 263	6 603	13.5	Kuwait
88	0.65	2 164	0.35	24 594	5 245	41.3	Spain
30	0.22	4 752	0.77	158 390	4 823	98.5	Isle of Man
89	0.66	2 250	0.36	25 283	3 948	57.0	Switzerland
16	0.12	206	0.03	12 879	3 794	5.4	Thailand
13 532	100.00	619 412	100.00	45 774	1 112 804	55.7	Total of the 35 countries
39.4		55.7					Registry's market share among the 35 countries

Table 2.10. Deliveries of newbuildings, main shipbuilding countries *(2009, thousands of gross tons)*

	Republic of Korea	China	Japan	All other countries	Total	Percentage of total gross tonnage
Bulk and ore carriers	4 115	9 386	8 107	866	22 474	28.9
Percentage	*18.3*	*41.8*	*36.1*	*3.9*	*100.0*	
Crude and crude/oil products tankers	8 153	5 567	3 792	61	17 573	22.6
Percentage	*46.4*	*31.7*	*21.6*	*0.3*	*100.0*	
Container ships (fully cellular)	6 672	2 187	1 124	1 685	11 669	15.0
Percentage	*57.2*	*18.7*	*9.6*	*14.4*	*100.0*	
Products and chemical tankers	4 627	2 422	1 494	1 074	9 617	12.4
Percentage	*48.1*	*25.2*	*15.5*	*11.2*	*100.0*	
LNG and LPG tankers	4 351	338	1 237	47	5 974	7.7
Percentage	*72.8*	*5.7*	*20.7*	*0.8*	*100.0*	
Vehicles carriers	445	407	1 995	332	3 178	4.1
Percentage	*14.0*	*12.8*	*62.8*	*10.4*	*100.0*	
General cargo ships	10	1 171	242	412	1 835	2.4
Percentage	*0.5*	*63.8*	*13.2*	*22.4*	*100.0*	
All other vessel sub-types	584	722	1 110	2 950	5 366	6.9
Percentage	*10.9*	*13.5*	*20.7*	*55.0*	*100.0*	
Total	28 957	22 201	19 101	7 427	77 686	100.0
Percentage of total gross tonnage	*37.3*	*28.6*	*24.6*	*9.6*	*100.0*	

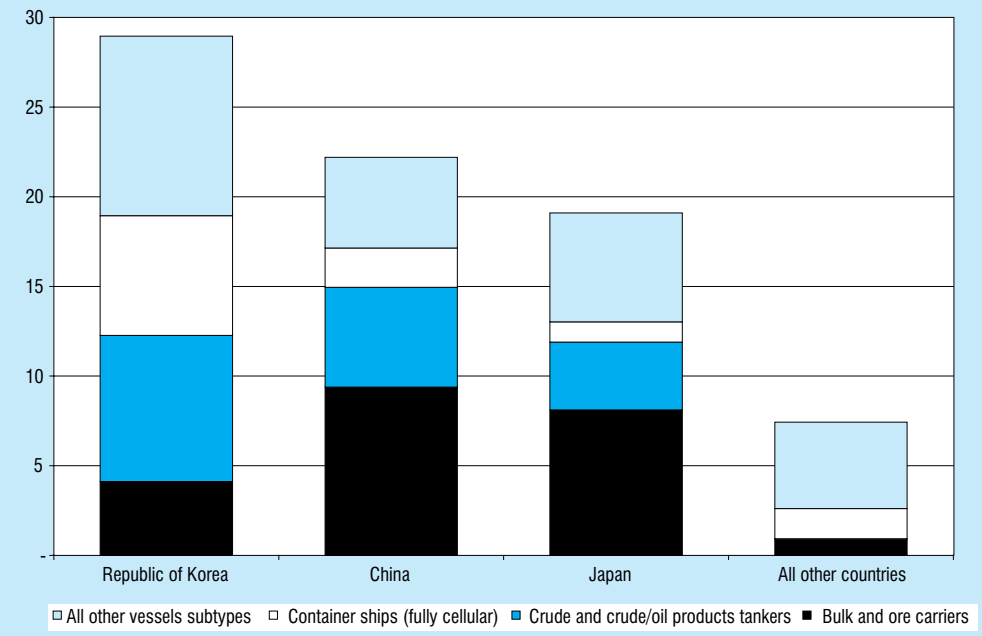
Source: Compiled by the UNCTAD secretariat, on the basis of data from IHS Fairplay.

built 33 ships, mostly specialized tugs and general cargo and platform supply ships; in addition, some product tankers and an Indian-flagged 29,400 dwt bulk carrier were delivered during the year. Indonesia has 63 active shipyards, which delivered 189 ships in 2009, mostly a range of specialized tugs, but also cement carriers, general cargo ships and product tankers. Six shipyards in the Islamic Republic of Iran built 11 ships, including two roll-on roll-off (ro-ro) vessels. The Democratic People's Republic of Korea delivered two ships during the year, including one ro-ro vessel. In Malaysia, 45 shipyards delivered 227 ships, mostly tugboats and supply vessels, and also some large offshore supply vessels and chemical tankers. Papua New Guinea built one ship during the year. In the Philippines, a total of 8 yards built 24 ships, including 7 container vessels with a capacity of around 4,300 TEUs, and 9 dry bulk carriers of 58,000 dwt. A yard in Saudi Arabia delivered 4 anchor-handling supply ships. Singapore has 13 shipyards, which delivered 34 mostly smaller ships, such as tugs and supply vessels. Yards in Sri Lanka constructed 3 ships, including one ro-ro passenger ship. In Thailand, 10 ships were supplied by 3 yards, including one small cellular container vessel. The United Arab Emirates is home to 8 yards, which delivered 25 mostly smaller crew-supply and tug vessels. In Viet Nam, 99 ships were built by 41 yards, including several dry bulk carriers of around 55,000 dwt each and general cargo ships of 4,300 dwt.[9]

In Latin America, Argentina, Cuba, Ecuador and Mexico were reported to have delivered one vessel each in 2009. Brazil built 35 ships at 6 shipyards, including tugboats and offshore and platform supply vessels. Three shipyards in Chile delivered a total of 11 fishing and passenger ships and tugboats. One shipyard in Peru built 4 tugs.

In Africa, Egypt built 4 tugboats at three yards. Kenya delivered one 1,800 dwt deck vessel with liquid cargo capacity, currently registered in Sierra Leone. One tugboat was constructed in the Libyan Arab Jamahiriya. South Africa built five ships at three yards, including one 4,680 dwt products tanker used for bunkering in South Africa.

Figure 2.8. Deliveries of newbuildings in the main shipbuilding countries, 2009 (*in thousands of gross tons*)



Source: Compiled by the UNCTAD secretariat, on the basis of data from IHS Fairplay.

2. Demolition of ships

At the beginning of 2009, there were 99,741 commercial vessels of 100 GT and above. During the year, 3,658 new vessels were delivered (+3.7 per cent of the existing fleet at the beginning of the year, in terms of vessel numbers), while 1,205 ships were withdrawn and mostly demolished (a reduction of 1.2 per cent from the existing fleet). The resulting fleet total in January 2010 amounted to 102,194 ships (+2.5 per cent compared to January 2009).[10]

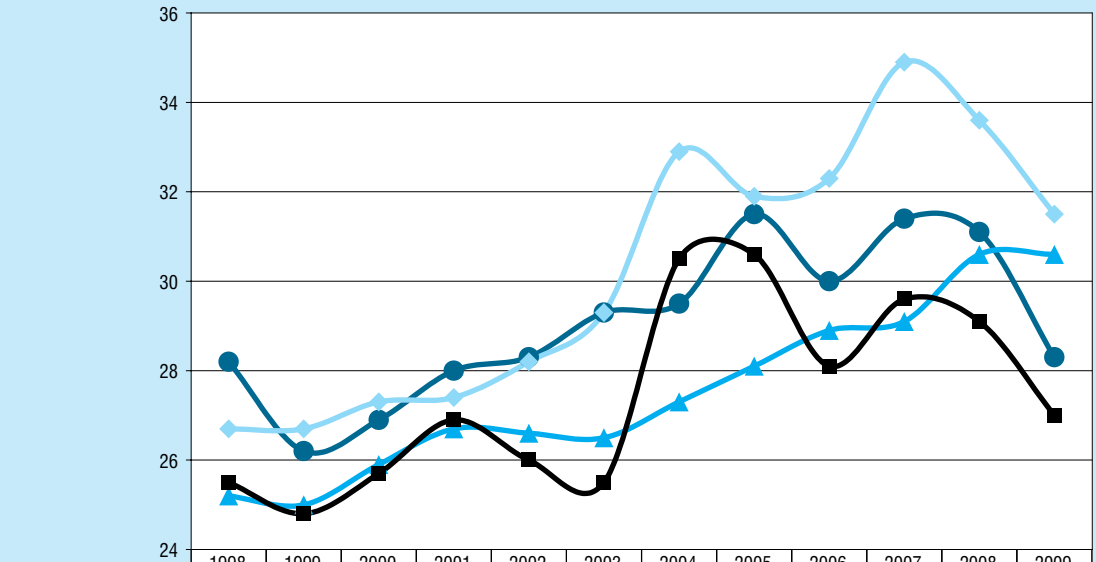
The market for ship demolition – also called scrapping or recycling – is far more volatile than the market for shipbuilding, as ships can be sold for demolition at short notice. In periods when freight and charter rates are high, shipowners are very reluctant to withdraw any ships from the market, while in times of low demand for maritime transport, owners are much more inclined to sell their ships to scrap yards. The disadvantage of selling in times of low demand is that prices for scrap metal are very low. Between mid-2008 and early 2009, the price for scrap metal had fallen from around $650 per light displacement ton (ldt) to just $200. Since then, the price has recovered, reaching about $400 in March 2010.

In recent years, the average age of broken-up ships has tended to increase, as ships are now built to last longer, and, in times of economic growth, owners keep older ships in service for longer. During the economic downturn in 2008 and 2009, however, the share of tonnage being demolished increased, and the average age of the fleet therefore decreased (see fig. 2.9, as well as the age profiles and share of broken-up tonnage presented in fig. 2.5).

Of the tonnage demolished in 2009, container ships and dry bulk carriers accounted for the largest share, with about 23 per cent each, followed by vehicle carriers (15 per cent of scrapped tonnage) and tankers (13 per cent) (table 2.11 and fig. 2.10). Container ships saw a particular surge in demolition activity during 2009. The total container-carrying capacity scrapped during 2009 was 364,300 TEU, up from 99,900 TEU in 2008, and from just 1,900 TEU four years earlier.[11] Still, even the surge in scrapping in 2009 corresponded to only 3 per cent of the existing container capacity.

The market for ship demolition is as concentrated as the market for shipbuilding. Just three countries accounted for 90 per cent of the gross tonnage demolished in 2009, with China leading (34.5 per

Figure 2.9. Average age of broken-up ships, by type, 1998 to 2009[a] *(in years)*



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tankers	28.2	26.2	26.9	28.0	28.3	29.3	29.5	31.5	30.0	31.4	31.1	28.3
Dry bulk carriers	25.2	25.0	25.9	26.7	26.6	26.5	27.3	28.1	28.9	29.1	30.6	30.6
Container ships	25.5	24.8	25.7	26.9	26.0	25.5	30.5	30.6	28.1	29.6	29.1	27.0
General cargo ships	26.7	26.7	27.3	27.4	28.2	29.3	32.9	31.9	32.3	34.9	33.6	31.5

Source: Compiled by the UNCTAD secretariat, on the basis of data from the *Shipping Statistics and Market Review* produced by the Institute of Shipping Economics and Logistics. Volume 52, no. 1/2 – 2010, table 2.2.

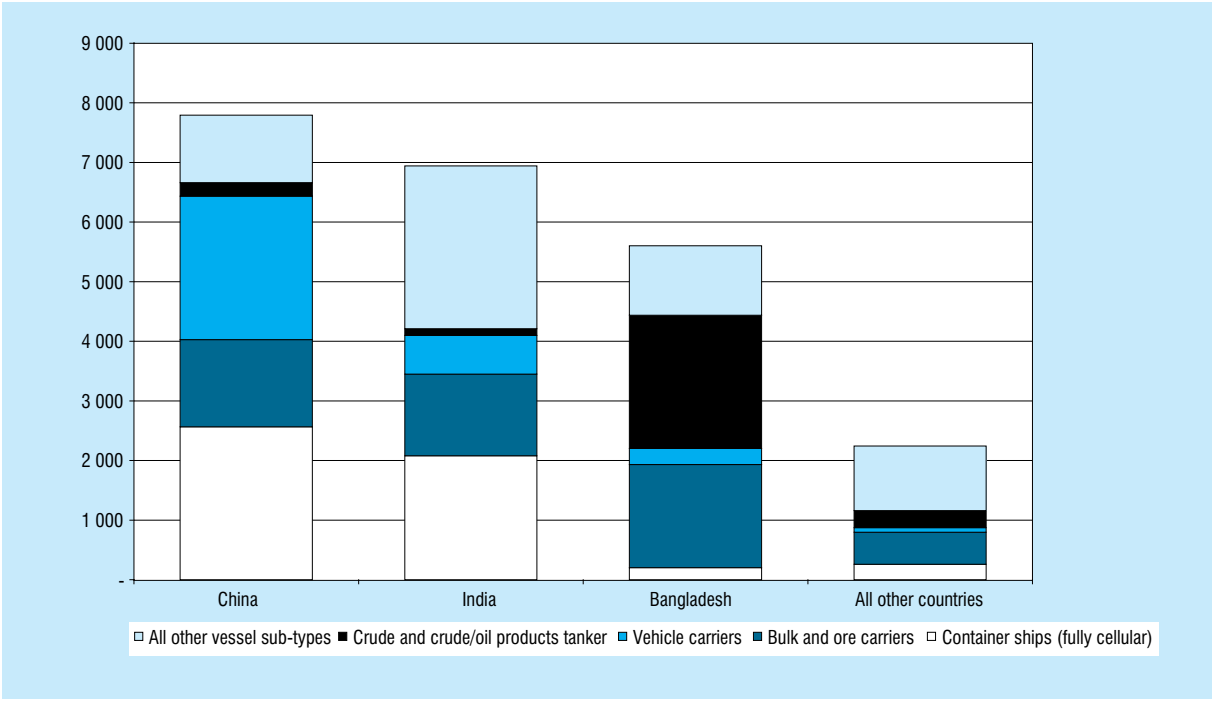
[a] Ships of 300 GT and over.

Table 2.11. Tonnage reported sold for demolition, main ship breaking countries, 2009 (thousands of gross tons)

	China	India	Bangladesh	Pakistan	All other countries	Total	Percentage of total gross tonnage
Container ships (fully cellular)	2 566	2 079	201	147	112	5 104	*22.6*
Percentage	*50.3*	*40.7*	*3.9*	*2.9*	*2.2*	*100.0*	
Bulk and ore carriers	1 461	1 369	1 731	399	140	5 100	*22.6*
Percentage	*28.7*	*26.9*	*33.9*	*7.8*	*2.7*	*100.0*	
Vehicle carriers	2 407	652	270	-	75	3 404	*15.1*
Percentage	*70.7*	*19.2*	*7.9*	-	*2.2*	*100.0*	
Crude and crude/oil products tankers	227	110	2 234	287	-	2 858	*12.7*
Percentage	*7.9*	*3.9*	*78.2*	*10.1*	-	*100.0*	
General cargo ships	482	1 144	183	161	227	2 197	*9.7*
Percentage	*21.9*	*52.0*	*8.4*	*7.3*	*10.4*	*100.0*	
Products and chemical tankers	108	271	438	99	22	938	*4.2*
Percentage	*11.5*	*28.9*	*46.7*	*10.6*	*2.4*	*100.0*	
LPG tankers	1	216	211	44	7	478	*2.1*
Percentage	*0.2*	*45.1*	*44.1*	*9.2*	*1.4*	*100.0*	
All other vessel sub-types	541	1 102	335	281	243	2 501	*11.1*
Percentage	*21.6*	*44.0*	*13.4*	*11.2*	*9.7*	*100.0*	
Total gross tonnage	7 792	6 943	5 603	1 417	826	22 581	*100.0*
Percentage of total gross tonnage	*34.5*	*30.7*	*24.8*	*6.3*	*3.7*	*100.0*	

Sources: Compiled by the UNCTAD secretariat, on the basis of data from IHS Fairplay.

Figure 2.10. Tonnage reported sold for demolition in the main shipbreaking countries, 2009
(thousands of gross tons)



Source: Compiled by the UNCTAD secretariat, on the basis of data from IHS Fairplay.

cent), followed by India (30.7 per cent) and then Bangladesh (24.8 per cent). Pakistan (6.3 per cent) and all other countries combined (3.7 per cent) made up the remainder (table 2.11).

In the field of ship scrapping, too, countries specialize in certain vessel types. In 2009, Chinese scrap yards purchased 71 per cent of the vehicle carriers and 50 per cent of the container ships sold for demolition. India mainly demolished container ships and other specialized tonnage, while Bangladesh purchased most of the large oil tankers, with a 78 per cent market share in this segment.

Developed countries are not participating significantly in ship recycling, as developing countries with low wages are more competitive in this very labour-intensive industry. More stringent environmental regulations further add to the higher costs in developed countries.

3. Tonnage on order

As only a few new orders were placed in 2009 and shipyards slowed down the delivery of existing orders, the overall picture regarding the global order book has not changed much in recent months (table 2.12 and fig. 2.11). The tonnage on order as at 31 December 2009 consisted of 258.3 million dwt of dry bulk carriers (54.5 per cent of the total world deadweight tonnage on order), 109.3 million dwt of oil tankers (23.1 per cent), 15 million dwt of general cargo vessels (3.2 per cent), 53.9 million dwt of container ships (11.4 per cent) and 37.4 million dwt of other vessel types (7.9 per cent). The total tonnage on order stood at 9,222 vessels, with a combined capacity of 474 million dwt.

4. Prices of newbuildings and second-hand tonnage

On account of overcapacity, prices for both new and second-hand ships continued to fall in 2008 and 2009 and in early 2010 (tables 2.13 and 2.14). Average newbuilding prices for dry bulk vessels went down by between 24 and 29 per cent between 2008 and 2009, container ships were sold 19 to 33 per cent cheaper in 2009 compared to 2008, and oil tanker prices fell by between 23 and 26 per cent.

In the case of second-hand ships, the decline was even more dramatic. Average prices for 10-year-old dry

Table 2.12. World tonnage on order, 2000–2009[a] (thousands of deadweight tons)

Beginning of month	Tankers			Bulk carriers			General cargo ships		
	1 000 dwt	Ships	Average vessel size, dwt	1 000 dwt	Ships	Average vessel size, dwt	1 000 dwt	Ships	Average vessel size, dwt
December 2000	40 328	284	142 001	31 208	486	64 214	3 966	446	8 892
March 2001	44 361	319	139 061	27 221	439	62 007	3 963	441	8 986
June 2001	45 123	339	133 105	26 103	400	65 258	4 154	419	9 914
September 2001	48 386	381	126 998	21 944	337	65 115	3 967	393	10 094
December 2001	51 894	399	130 060	22 184	353	62 845	3 826	372	10 286
March 2002	47 836	404	118 405	19 027	300	63 425	3 758	357	10 525
June 2002	49 564	425	116 622	18 132	283	64 069	3 932	353	11 139
September 2002	47 774	431	110 845	18 869	283	66 676	3 979	369	10 782
December 2002	47 591	488	97 523	28 641	391	73 251	2 832	257	11 018
March 2003	50 284	515	97 639	32 019	441	72 605	2 958	263	11 249
June 2003	55 771	540	103 279	33 408	455	73 425	2 592	250	10 368
September 2003	57 856	580	99 752	41 499	575	72 172	2 841	269	10 562
December 2003	61 123	631	96 867	46 732	640	73 019	3 068	295	10 400
March 2004	62 096	615	100 969	48 761	671	72 670	3 021	312	9 683
June 2004	66 652	649	102 699	50 545	696	72 623	2 838	317	8 954
September 2004	66 969	661	101 314	52 768	703	75 061	2 921	323	9 043
December 2004	71 563	701	102 087	62 051	796	77 953	3 306	370	8 935
March 2005	68 667	679	101 129	63 404	792	80 055	3 312	388	8 536
June 2005	70 520	686	102 799	65 326	801	81 556	4 079	456	8 945
September 2005	68 741	693	99 193	63 495	788	80 578	4 777	521	9 170
December 2005	70 847	724	97 855	66 614	805	82 750	5 088	584	8 712
March 2006	83 385	791	105 417	63 829	784	81 415	5 798	634	9 145
June 2006	93 277	887	105 160	69 055	859	80 390	7 370	683	10 791
September 2006	106 912	987	108 321	73 226	898	81 543	7 602	715	10 632
December 2006	118 008	1 078	109 470	79 364	988	80 328	8 004	737	10 860
March 2007	120 819	1 113	108 553	100 256	1 204	83 269	9 561	843	11 342
June 2007	122 429	1 107	110 595	143 795	1 657	86 781	10 782	885	12 184
September 2007	124 758	1 149	108 580	183 574	2 137	85 903	12 042	956	12 597
December 2007	124 845	1 134	110 093	221 808	2 573	86 206	13 360	1 035	12 908
March 2008	128 128	1 139	112 492	243 600	2 804	86 876	15 097	1 195	12 633
June 2008	142 333	1 202	118 413	262 452	3 009	87 222	15 911	1 255	12 678
September 2008	151 423	1 245	121 625	288 959	3 316	87 141	16 787	1 332	12 603
December 2008	140 504	1 154	121 754	292 837	3 347	87 492	17 849	1 374	12 991
March 2009	130 777	1 088	120 200	289 763	3 303	87 727	17 439	1 363	12 795
June 2009	119 709	986	121 409	280 102	3 194	87 696	16 684	1 296	12 874
September 2009	114 460	934	122 548	269 558	3 050	88 380	16 354	1 264	12 939
December 2009	109 310	884	123 654	258 343	2 918	88 534	15 018	1 179	12 738
Percentage of total, December 2009	23.1	9.6		54.5	31.6		3.2	12.8	

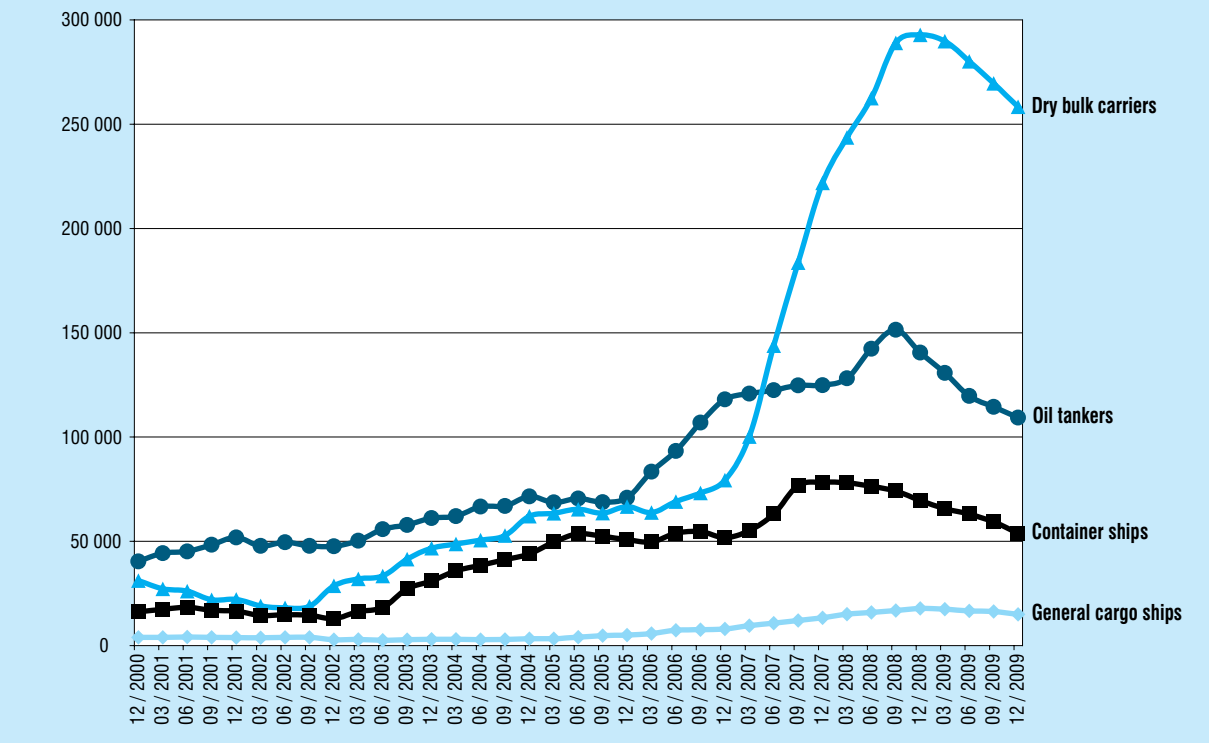
Table 2.12. World tonnage on order, 2000–2009[a] (thousands of deadweight tons) (concluded)

Container vessels			Other ships			Total			Beginning of month
1 000 dwt	Ships	Average vessel size, dwt	1 000 dwt	Ships	Average vessel size, dwt	1 000 dwt	Ships	Average vessel size, dwt	
16 140	394	40 964	8 870	1 087	8 160	100 513	2 697	37 268	**December 2000**
17 350	435	39 884	10 154	1 132	8 970	103 048	2 766	37 255	**March 2001**
18 393	441	41 708	11 790	1 138	10 360	105 563	2 737	38 569	**June 2001**
16 943	413	41 025	12 181	1 153	10 564	103 421	2 677	38 633	**September 2001**
16 550	393	42 111	13 501	1 201	11 242	107 955	2 718	39 719	**December 2001**
14 476	355	40 776	12 839	1 200	10 700	97 936	2 616	37 437	**March 2002**
14 793	362	40 865	15 415	1 324	11 643	101 836	2 747	37 072	**June 2002**
14 509	338	42 927	15 342	1 292	11 875	100 473	2 713	37 034	**September 2002**
13 000	296	43 919	16 174	1 386	11 669	108 238	2 818	38 409	**December 2002**
16 281	326	49 943	16 199	1 365	11 868	117 742	2 910	40 461	**March 2003**
18 296	367	49 853	17 085	1 367	12 498	127 152	2 979	42 683	**June 2003**
27 216	503	54 107	18 062	1 484	12 171	147 475	3 411	43 235	**September 2003**
30 974	580	53 403	19 277	1 492	12 920	161 174	3 638	44 303	**December 2003**
35 840	658	54 468	20 068	1 520	13 203	169 786	3 776	44 965	**March 2004**
38 566	724	53 268	22 833	1 682	13 575	181 434	4 068	44 600	**June 2004**
41 172	808	50 956	24 368	1 714	14 217	188 198	4 209	44 713	**September 2004**
43 904	880	49 891	27 361	1 898	14 416	208 185	4 645	44 819	**December 2004**
49 624	1 006	49 328	27 328	1 940	14 087	212 335	4 805	44 190	**March 2005**
53 605	1 101	48 688	29 884	2 002	14 927	223 414	5 046	44 275	**June 2005**
52 378	1 132	46 271	31 209	2 158	14 462	220 600	5 292	41 686	**September 2005**
50 856	1 124	45 245	33 147	2 285	14 506	226 551	5 522	41 027	**December 2005**
49 749	1 130	44 026	36 750	2 373	15 487	239 512	5 712	41 931	**March 2006**
53 876	1 185	45 465	39 768	2 522	15 768	263 347	6 136	42 918	**June 2006**
54 676	1 199	45 601	42 322	2 714	15 594	284 738	6 513	43 718	**September 2006**
51 717	1 143	45 247	45 612	2 962	15 399	302 706	6 908	43 820	**December 2006**
55 144	1 229	44 869	49 245	3 327	14 802	335 025	7 716	43 420	**March 2007**
63 063	1 305	48 324	52 382	3 562	14 706	392 451	8 516	46 084	**June 2007**
76 804	1 412	54 394	56 767	3 864	14 691	453 945	9 518	47 693	**September 2007**
78 348	1 435	54 598	56 947	3 876	14 692	495 309	10 053	49 270	**December 2007**
78 042	1 419	54 998	58 304	4 174	13 968	523 171	10 731	48 753	**March 2008**
76 388	1 352	56 500	57 574	4 302	13 383	554 657	11 120	49 879	**June 2008**
74 090	1 322	56 044	56 563	4 442	12 734	587 823	11 657	50 427	**September 2008**
69 593	1 209	57 563	52 088	4 256	12 239	572 871	11 340	50 518	**December 2008**
65 610	1 121	58 528	48 131	4 117	11 691	551 720	10 992	50 193	**March 2009**
63 064	1 028	61 346	43 989	3 796	11 588	523 548	10 300	50 830	**June 2009**
59 314	948	62 567	40 947	3 591	11 403	500 632	9 787	51 153	**September 2009**
53 903	813	66 301	37 434	3 428	10 920	474 008	9 222	51 400	**December 2009**
11.4	8.8		7.9	37.2		100.0	100.0		**Percentage of total, December 2009**

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Ships of 100 GT and above.

Figure 2.11. World tonnage on order, 2000–2010[a] *(thousands of deadweight tons)*



Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by IHS Fairplay.

[a] Ships of 100 GT and above.

Table 2.13. Representative newbuilding prices in selected years *(millions of dollars, annual averages)*

Type and size of vessel	2003	2004	2005	2006	2007	2008	2009	March 2010	Percentage change 2009/2008
Dry bulk - Handysize, 30,000 dwt	16	19	21	22	33	38	29	25	-23.7
Dry bulk - Panamax, 75,000 dwt	23	32	35	36	47	54	39	35	-27.8
Dry bulk - Capesize, 170,000 dwt	38	55	62	62	84	97	69	57	-28.9
Container - geared, 500 TEU	13	18	18	16	16	21	14	10	-33.3
Container - gearless, 6,500 TEU	67	86	101	98	97	108	87	74	-19.4
Container - gearless, 12,000 TEU	n.a.	n.a.	n.a.	n.a.	154	164	114	105	-30.5
Oil tanker - Handy, 50,000 dwt	28	35	42	47	50	52	40	34	-23.1
Oil tanker - Suezmax, 160,000 dwt	47	60	73	76	85	94	70	63	-25.5
Oil tanker - VLCC, 300,000 dwt	67	91	119	125	136	153	116	99	-24.2
Chemical tanker - 12,000 dwt	12	16	18	21	33	34	33	30	-2.9
LPG carrier - 15,000 m3	28	36	45	49	51	52	46	40	-11.5
LNG carrier - 160,000 m3	153	173	205	217	237	222	226	210	1.8

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Drewry Shipping Insight*.

Table 2.14. Second-hand prices for five-year-old ships, 2000–2008 *(millions of dollars, end-of-year figures)*

Type and size of vessel [a]	2003	2004	2005	2006	2007	2008	2009	March 2010	Percentage change 2009/2008
Dry bulk - Handysize, 28,000 dwt, 10 years old	10	15	20	20	28	31	17	20	-45.2
Dry bulk - Panamax, 75,000 dwt, 5 years old	20	35	40	39	83	70	31	36	-55.7
Dry bulk - Capesize, 150,000 dwt, 10 years old	23	41	32	49	75	82	32	35	-61.0
Container - geared, 500 TEU, 10 years old	5	7	11	10	9	13	4	4	-69.2
Container - geared, 2,500 TEU, 10 years old	20	29	39	41	24	36	18	15	-50.0
Container - geared, 3,500 TEU, 10 years old	25	34	43	44	43	45	24	18	-46.7
Oil tanker - Handy, 45,000 dwt, 5 years old	25	35	44	47	40	51	30	26	-41.2
Oil tanker - Suezmax, 150,000 dwt, 5 years old	43	60	72	76	87	95	59	59	-37.9
Oil tanker - VLCC, 300,000 dwt, 5 years old	60	91	113	116	124	145	84	80	-42.1
Chemical tanker - 12,000 dwt, 10 years old	9	11	12	14	23	23	20	17	-13.0
LPG carrier - 15,000 m3, 10 years old	21	23	30	39	40	39	39	25	0.0

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Drewry Shipping Insight*.

bulk vessels decreased by between 45 and 61 per cent between 2008 and 2009, 10-year-old container ships were between 47 and 69 per cent cheaper in 2009 than in 2008, and oil tanker prices declined by between 38 and 42 per cent. On average, over the eight periods covered in tables 2.13 and 2.14, second-hand vessel prices were 50 per cent more volatile than newbuilding prices (i.e. the statistical variance was 50 per cent higher), because second-hand prices are market-driven whereas newbuilding prices are driven by the cost of shipbuilding.

The most expensive new ships continue to be LNG carriers, which in March 2010 typically cost $210 million, followed by large container ships, which typically sold for $105 million. New small dry bulk carriers, in turn, were on sale for around $25 million.

Shipping can benefit from important economies of scale. While a 12,000 TEU ship carries almost twice as many containers as a 6,500 TEU ship, its price is only about 42 per cent higher. By the same token, a 170,000 dwt Capesize dry bulk carrier is only 63 per cent more expensive than a 75,000 dwt Panamax, although it is 127 per cent larger in size. A very large crude carrier (VLCC) is almost twice as big as a Suezmax tanker, yet its price is only 57 per cent higher (table 2.13).

5. The delayed adjustment of supply to changes in demand

Short-term adjustments

Shipping has been hit particularly hard by the economic crisis. The downturn in trade in 2009 led directly to a rapid decline in demand for transport and related services. And yet, as shown above, in spite of this downturn in demand, shipping capacity expanded throughout 2009, as vessels ordered in earlier years continued to be delivered by the world's shipyards.

The supply side's response to changes in demand is never immediate. Between 2002 and 2004, demand for containerized trade grew faster than the supply of container-carrying capacity, so the industry ordered new tonnage. This tonnage is usually delivered two to three years later, and since 2006, the supply of container ships has been growing faster than demand. In 2009, the difference in these two growth rates amounted to a staggering 15 percentage points (see also fig. 3.3 in chapter 3). The resulting oversupply of tonnage has led to a significant drop in container freight rates, which decreased by one third between the end of 2008 and the end of 2009 (see chapter 4). A similar picture emerges in dry bulk shipping, where the cost of chartering vessels fell by more than half. The low freight and charter rates, combined with the downturn in trade volumes, have led to historic financial losses

for operators. The world's largest container shipping company, Maersk Line, reported a loss of $2.1 billion in 2009. Hanjin Line lost $1.1 billion during the same year, Neptune Orient Line lost $741 million, and similar losses were recorded all across the industry. Total losses for the top 20 container carriers are estimated at $20 billion for the year. For 2010, prospects are again much better; for example, the French carrier CMA CGM reported an estimated profit of $270 million for the first quarter ended 31 March, and expects to earn $1.8 billion for the year 2010 as a whole, before taxes, depreciation and amortization.[12]

The maritime business has long been known for being cyclical. In times of growth and high profits, shipowners have positive cash flows and they order new capacity. This capacity, however, takes time to be delivered. There are waiting times, because shipbuilding berths tend to be full in times of prosperity; any new construction will only be started two to three years after it has been ordered, and then the construction itself can take up to one year. During the industry's boom years, the world saw records for new vessel orders being set year after year. These vessels are still being delivered today, which is why the world fleet is still expanding in spite of the economic crisis. The resulting surplus capacity and shipping companies' negative cash flows caused a standstill in new orders during most of 2009.

Although the current boom-and-bust cycle in the shipping business is extreme, and is partly due to the downturn in demand, the cyclical nature of the shipping business is not new. It has been compared to the "pig cycle" that was identified in the United Kingdom in the 1930s.[13] Basically, this means that boom and bust is at least partly self-inflicted by the shipping industry. New output is produced in response to changes in price, but only after a time lag, and the time lag itself is the cause of future price changes. Ideally, the new vessels added would arrive in a steady flow, but in practice, investment in new vessel capacity follows the pig cycle. Intensive new activity occurs at the peak of the highly profitable boom period, but then the new ships become available in bust times; the bust is made worse by the delivery of the new ships.

Even without the economic crisis, the huge order book of new ships would, by now, have led to an oversupply of tonnage and a corresponding decline in vessel prices; but the economic downturn has certainly made this situation worse. In the case of container ships, for example, the fleet is forecast to continue to grow over the next four to five years, and most of this growth is on account of ships that can carry more than 8,000 TEU. Specifically, 156 container ships of more than 10,000 TEU are due to be delivered by 2013, whereas there were only 42 ships of that size in service in April 2010.[14] With regard to dry bulk vessels, the order book currently stands at two thirds of the existing fleet.[15]

Freight rates and second-hand vessel prices react immediately to changes in the supply/demand balance. The supply of new capacity, however, reacts much more slowly. The industry has five ways to adjust its supply to a decline in demand, most of which only work in the long term:

Firstly, shipping companies will immediately stop ordering new tonnage. 2009 saw only nine new orders for container ships, compared to 213 in 2008 and 538 in 2007. For tankers, the new orders in 2009 stood at 153, down from 509 in 2008 and 1,054 in 2007. There were only 290 new orders for dry bulk carriers in 2009, compared to 1,204 in 2008 and 2,060 in 2007.[16]

Secondly, owners may, to some extent, terminate or postpone existing orders at the shipyards. In the container ship market especially, activity in 2009 focused primarily on restructuring the existing order book; it is estimated that about 60 per cent of orders that were initially scheduled for delivery during the first three months of 2010 "slipped" to a later date.[17] The rate of such "slippage" is lower for dry and liquid bulk carriers. When negotiating postponements, some shipyards were more flexible than others – notably yards that only existed on paper as greenfield projects when the orders were placed. Numerous deliveries were postponed, but most were not cancelled. Some shipyards helped their clients to finance the ships through leaseback schemes, and the fleet capacity of the world's top 20 container lines is still on course to expand by more than a third over the next four years.

Thirdly, as a short-term measure, vessels may slow-steam, thus reducing the effective capacity supplied by the existing fleet. Slow-steaming means that the voyage speed of ships is reduced, which then makes it necessary to employ a larger number of ships to maintain the same frequency or to serve the same level of demand. Employing nine or ten vessels on a service that usually only requires eight ships has two main potential advantages: firstly, it helps to maintain freight rates without having to lay off ships, and secondly, it saves fuel. During the economic downturn,

shippers were not too concerned about delays in the delivery of goods, as they were mostly aiming to reduce their inventory anyhow. However, as the economy is now picking up, traders and factories may no longer accept the longer delivery times.

Fourthly, the industry may temporarily withdraw existing tonnage from service. Many surplus vessels are not effectively deployed and are instead laid off.[18] In the beginning of 2010, 12 per cent of the global container carrying-capacity was idle and was anchored at different harbours. Put differently, there were more than 500 container ships idled at anchorages around the globe, with double that quantity still due to be delivered.[19] Although the economy is picking up and the idle capacity in May 2010 was estimated at just 4 per cent of the existing fleet, the surplus tonnage will remain for years to come.[20]

And finally, owners may demolish vessels. Despite capacity constraints at the scrap yards, 2009 did in fact see a surge in ship recycling, as shipowners sold their vessels as scrap metal. Notably, China saw a record in tonnage imported for scrapping. Nevertheless, the growth was lower than initially expected. As prices for scrap metal are currently very low, many vessel owners are preferring to hold on and to merely lay off their ships, rather than to scrap them, hoping for better times to come.

With ships being temporarily withdrawn from service, actual fleet deployment – i.e. the assignment of container ships to trade routes – effectively decreased during 2009. The container capacity deployed on the main trade routes between East Asia and Europe and between East Asia and North America was 20 per cent lower in January 2010 than it had been one year earlier. Interestingly, the reduction in fleet deployment was less drastic on major South–South routes, as trade among developing countries was less affected by the economic downturn than most of the developed world's trade. Fleet deployment between southern Africa and East Asia dropped by only 7 per cent, between East Asia and South America it dropped by 13 per cent, and between southern Africa and South America it actually increased during 2009, by 3.4 per cent. This reflects the positive role that developing countries, and South–South trade in particular, are playing in support of global economic recovery.

Consolidation: adjustment in the long term

During previous periods of low profits, significant consolidation took place in the container shipping industry. During the 1990s, in the United States, Sea-Land was taken over by Maersk (Denmark), American President Lines by NOL (Singapore), and parts of Crowley by Hamburg Süd (Germany). Since the start of the current crisis, carriers have incurred heavy losses. Nevertheless, all of the top 25 companies have been able to maintain their independence; there have been no mergers or acquisitions among them over the last couple of years.

Even so, the losses currently being incurred are unsustainable. Some government agencies and industry associations are already seeking ways of assisting member companies, but in doing so, they come up against competition (antitrust) authorities. In the European Union, for example, the Competition Directorate is contesting a government loan guarantee for the container carrier Hapag-Lloyd. A scheme devised by a group of European owners of container ships to jointly manage capacity was similarly contested by the Competition Directorate. In the long run, there is probably no way around further industry consolidation.

The countercyclical side of shipping

While shipowners and yards are still struggling to cope with the oversupply of tonnage, the outlook on the demand side is improving (see also chapter 1). Importers and factories that are now posting new orders overseas are in a lucky position, as there is ample spare capacity to transport their goods, and freight rates are far below the peaks of 2008. While the oversupply of tonnage has had a negative impact on the profitability of the transport industry, it has had mostly positive implications for importers and exporters.

In a way, the procyclical investment patterns of the shipping industry effectively act as a countercyclical corrective mechanism to international trade. While the economy was overheating and trade was booming, high freight costs and port congestion on occasion acted as a brake that somewhat spoiled the party. Today, as the business world and policymakers discuss how to revive global trade, it is positive to note that transaction costs are relatively low and there is no shortage of capacity to carry the reviving trade in goods. Waiting times in ports and freight rates have shortened significantly, bringing some relief to traders in the form of lower transport costs and smoother operations. Shipping one ton of dry bulk cargo over 1,000 nautical miles by sea in early 2010 cost between $4 and $7, as compared to between $10 and $16 in 2008.

A notable exception to this has been port congestion relating to the demand in China for iron ore, which continued to rise in 2009. This resulted in a high percentage of the fleet calling at the exporting ports of Australia, Brazil, and India, and also at the importing ports in China, which pushed up vessel waiting times and freight rates. At its peak on 26 June 2009, almost one fifth of the specialized fleet was reported to be queuing up outside a port in one of these four countries.[21]

The exceptions prove the rule. In container shipping, Asia's largest carrier – Evergreen – was the only top 20 company with an empty order book for new vessels in early 2010, although it is now planning to acquire 100 new container ships. Evergreen seems to have predicted the crisis back in 2006 and refrained from placing new orders, at a time when many of its rivals were still expanding.

In general, countercyclical ordering makes a lot of sense – and is of course easier said than done. Ordering new ships at the low point of a cycle is cheaper, delivery can take place earlier, and the company will have new and modern ships the moment that demand revives. The flip side to this approach is that it is risky; the cost of financing will be high, and a higher cash deposit may be required to offset the higher risk. Nonetheless, there still appears to be some truth in the old (and perhaps cynical) saying that a successful shipowner does not earn money on transport, but on buying and selling vessels at the right moment.

The growing participation of China in maritime businesses

To some extent, the shipping cycle may look like history repeating itself. Nevertheless, with every such cycle, some lasting change takes place, and in the context of the recent financial crisis, the emergence of China on the market for ship finance could be one such lasting change. It is interesting to note that Chinese banks have lent to foreign shipowners since the banking crisis started in September 2008,[22] replacing the traditional sources of financing from Germany and the United Kingdom and helping owners to take delivery of previously ordered ships. When orders by foreign owners were cancelled, Chinese shipyards would often still finalize the construction of the ship and then sell it at reduced prices to domestic carriers.

Developments in China are particularly noteworthy with regard to the supply of, and demand for, shipping services. On the demand side, Chinese containerized exports make up a quarter of the world total. On the supply side, Chinese shipping companies are among the fastest-growing, and China has the most important container and crane manufacturers. During 2009, China overtook Germany as the third-largest shipowning country. It has overtaken both Japan as the second-biggest shipbuilding country and India as the busiest ship-recycling country.

The maritime faculties of the universities of Shanghai and Dalian are the world's largest in terms of student numbers, and China is one of the few countries participating in almost all maritime subsectors, including owning, operation, construction, recycling, registration, classification, manning and financing. However, all this does not mean that Chinese-owned ships will necessarily use the Chinese flag, or that only Chinese-owned ships will be deployed to transport national trade. China still benefits from the globalized shipping industry for its exports of goods. By keeping shipping markets open and, at the same time, supplying vessels, cranes and ship financing, China is ensuring that, in the long term too, there will be sufficient shipping capacity to transport its foreign trade at low freight costs.

ENDNOTES

1 If empty containers are loaded on deck, the practical TEU carrying capacity can effectively be even higher. According to company sources, the vessel *Ebba Maersk* sailed with 15,011 TEUs from Tangier on 19 May 2010, stowing containers up to nine tiers high on deck.

2 *Containerisation International Online* (2010). See: http://www.ci-online.co.uk. 13 May.

3 Clarkson Research Services (2010). *Container Intelligence Monthly*. April.

4 When calculating growth rates for the container ship fleet, different ways of measuring may lead to different figures. The TEU growth rate for fully cellular container ships (table 2.2) is higher than the TEU growth rate for all container ships (table 2.4), because the share of fully cellular containers has increased. The growth rate in terms of dwt (table 2.1) is, again, higher than in terms of TEU (table 2.4), as the cargo-carrying capacity per TEU also depends on vessel size, age, and other characteristics. If we want to compare container ships with other vessel types, dwt is a better measurement than TEU, which is only relevant for container ships. When comparing geared with gearless container ships, it is useful to look only at fully cellular container ships. If we analyse the market shares of container companies, the total container-carrying capacity of all ships needs to be taken into account .

5 The information in this section is based on data on vessels of 1,000 GT and above, as the country of ownership for smaller ships is not always available. Vessels of 1,000 GT and above account for 91.3 per cent (1,165 million dwt) of the world total of 1,276 million dwt for all ships of 100 GT of above (see annex IIIb).

6 Please refer to annex I for the classification of countries for these statistical purposes.

7 The information in this section is based on data on vessels of 100 GT and above (see also annex IIIb), except where the country of vessel ownership is considered. In the latter case, the data are for vessels of 1,000 GT and above.

8 The figures for ownership – i.e. the nationality of the ships' controlling interests – are not always precise. Stockholding companies, for example, may be owned by a large number of nationals from different countries. Nevertheless, for most ships, it is possible to identify the country under whose flag the ship is registered, as well as the nationality of its owner.

9 UNCTAD secretariat, based on data provided by IHS Fairplay.

10 UNCTAD secretariat calculations, based on data provided by IHS Fairplay.

11 Clarkson Research Services (2010). *Container Intelligence Monthly*. April.

12 *Journal of Commerce.* http://www.joc.com. Various issues.

13 Coase R and Fowler RF (1935). Bacon production and the pig cycle in Great Britain. *Economica 2* (n.s. 6): 142–147.

14 *Containerisation International Online* (2010). May. Also: Bayne D (2010) (Drewry Shipping Consultants). How has the global financial crisis affected the container port and shipping industry? Presented to the Intermodal Asia 2010 conference held in Sydney, Australia.

15 Clarkson Research Services (2010). *Dry Bulk Trade Outlook.* January.

16 Clarkson Research Services (2010). *Container Intelligence Monthly.* April.

17 Clarkson Research Services (2010). *Container Intelligence Monthly.* April.

18 For the purposes of this analysis, "laid off" or "idle" ships also include ships that are "laid up" or withdrawn from the shipping market for other reasons, for example for repairs or for use as storage vessels.

19 *Containerisation International Online* (2010). 5 February .

20 AXS Marine (2010). Alphaliner. As reported in *Dynaliners 22/2010.* 4 June.

21 Clarkson Research Services (2009). *Dry Bulk Trade Outlook.* November.

22 *Worldyards* (2010). See: http://www.worldyards.com. See also: *Shipping and Finance* (2010): 8–9. 24 March.

3

PRODUCTIVITY OF THE WORLD FLEET, AND SUPPLY AND DEMAND IN WORLD SHIPPING

CHAPTER 3

This chapter provides information on the operational productivity of the world fleet and an analysis of the balance between supply and demand for tonnage and container-carrying capacity. The key indicators are comparisons of cargo generation and fleet ownership, tons of cargo carried per deadweight ton, and analysis of tonnage oversupply in the main shipping market sectors. A special section looks at the impact of slow steaming on the vessel productivity of the active container ship fleet, concluding that the oversupply of tonnage in combination with the reduction of service speed in liner shipping has led to a decline in the productivity of the active fleet by approximately 26 per cent since 2008.

A. OPERATIONAL PRODUCTIVITY

Productivity of major vessel types

Against a decline in world seaborne trade by 4 per cent in 2009 as compared to 2008 (see chapter 1), the world fleet grew by 7 per cent during 2009. Accordingly, the overall fleet productivity in 2009, measured in tons of cargo carried per deadweight ton, decreased further compared to the 2008 figures (see tables 3.1 and 3.2 and fig. 3.1).[1] The global average volume of cargo in tons per carrying capacity dwt decreased, and the average ship was fully loaded only 6.6 times in 2009, compared to 7.3 times in 2008.

Table 3.1. Cargo carried per deadweight ton (dwt) of the total world fleet, selected years

Year	World fleet (millions of dwt, beginning of year)	Total cargo (millions of tons)	Tons carried per dwt
1970	326	2 566	7.9
1980	683	3 704	5.4
1990	658	4 008	6.1
2000	799	5 983	7.5
2006	960	7 682	8.0
2007	1 042	7 984	7.7
2008	1 118	8 210	7.3
2009	1 192	7 874	6.6

Source: Calculated by the UNCTAD secretariat, on the basis of UNCTAD data on seaborne trade (in tons) and IHS Fairplay data on the world fleet (in dwt).

The fundamental reason for the decline in average productivity in recent years continues to be the oversupply of tonnage available (see also chapter 2), which contrasts with the effective decline in world seaborne trade. In spite of the recorded surge in ship scrapping, which was more than three times higher in 2009 than in 2008, many ships had to be laid off, and even the active fleet often had to slow-steam or to take longer but less costly routes, thus reducing the tons carried per dwt.

The productivity of oil tankers in terms of tons carried per dwt decreased by a further 5.6 per cent, from 6.7 in 2008 to 6.33 in 2009; and for dry bulk it decreased by 5.5 per cent, from 5.32 to 5.02 tons. The cargo volumes carried by the residual fleet decreased by a staggering 18.3 per cent, from 10.66 to 8.71 tons per dwt (table 3.2). The residual fleet includes mainly general cargo and container ships; the latter have seen significant slow steaming during the last two years

Slow steaming and container ship fleet productivity[2]

Slow steaming in liner shipping has been increasingly implemented since 2008. This is primarily a consequence of overcapacity, with around 240 new container ships being delivered from March 2007 to March 2009, equivalent to a 10 per cent increase in supply, while demand from containerized trade was reducing by a similar amount. This led to a situation where there were 500 idle container ships in January 2010.[3] Slow steaming was also encouraged by the increase in marine bunker prices, which reached a peak of $700 per ton in July 2008 in Rotterdam, compared with $300 in January 2007 and $400 in early 2010. Reducing speed and adding vessels to services are a means firstly of absorbing the overcapacity and helping to restore rates, and secondly, because of the strong negative relationship between speed and fuel consumption at sea, of saving on bunker costs, even though more ships are deployed.

Given the benefits of savings from reduced bunker consumption and the expectation of a market recovery, slow steaming has been the preferred option of many container ship operators in order to offset the impact of oversupply-triggered low productivity in terms of ton-miles per dwt of the active fleet. The latter is a function of tonnage transported, of the average number of miles performed per vessel, and of the additional capacity in dwt required to maintain a weekly frequency. By stretching the time of rotations, the quality of services is reduced as laden containers spend more time at sea.

From the carriers' perspective, slow steaming means stretching out a service by one, two or more weeks, leading to (a) the deployment of more dwt for the same volume of cargo, and (b) a reduction in the number of miles travelled in a year by each vessel. To assess these two components, we analyse a large sample from the Alphaliner[4] database in January 2010 with information on 2,051 container ships of 1,000 TEU and above. We limit our focus to ships of 1,000 TEU and above because slow steaming has mostly been implemented in services using relatively large vessels. The reason is that slow steaming is more likely to occur when services are long enough for fuel consumption savings to be significant enough to offset the additional costs involved in adding (or not laying off) a vessel. At the beginning of 2010, around 80 per cent of services on the Europe–Far East route, 60 per cent of pendulum services, and 42 per cent of trans-Pacific services were under slow steaming, compared

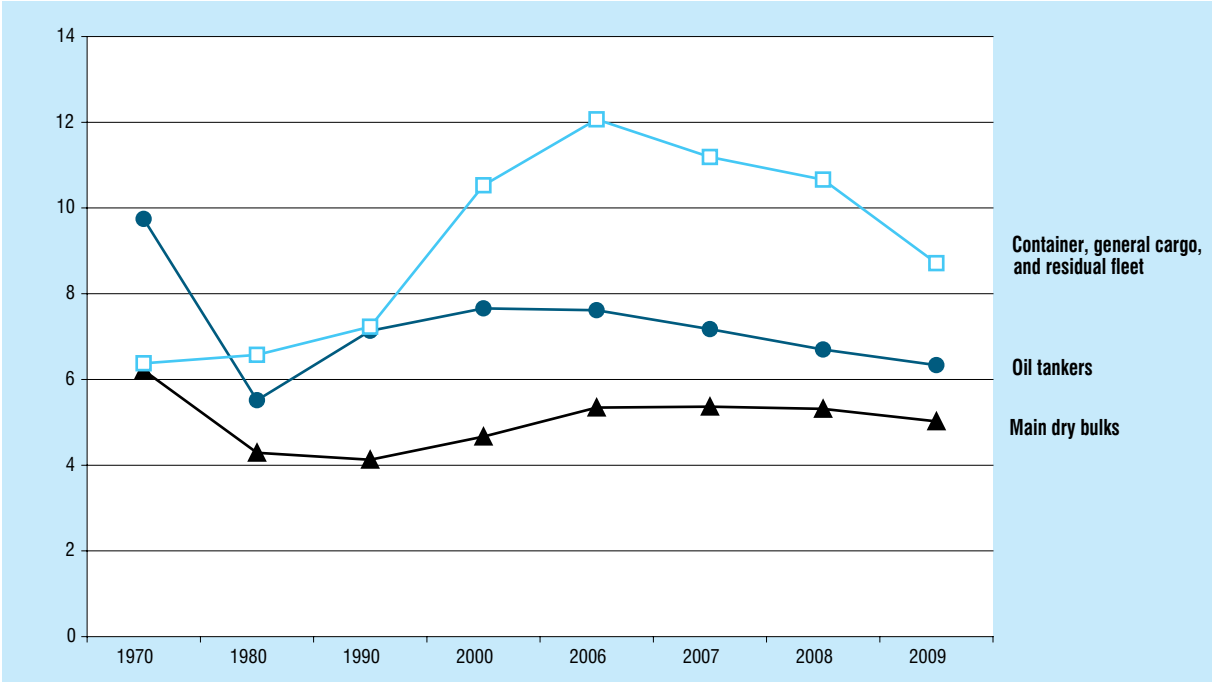
Table 3.2. Estimated productivity of tankers, bulk carriers and the residual fleet,[a] selected years

Year	Oil cargo (millions of tons)	Tanker fleet (millions of dwt, beginning of year)	Tons carried per dwt of tankers	Main dry bulks (millions of tons)	Dry bulk fleet (millions of dwt, beginning of year)	Tons carried per dwt of bulk carriers	All other dry cargoes (millions of tons)	Residual fleet[a] (millions of dwt, beginning of year)	Tons carried per dwt of the residual fleet[a]
1970	1 442	148	9.74	448	72	6.21	676	106	6.38
1980	1 871	339	5.51	796	186	4.29	1 037	158	6.57
1990	1 755	246	7.14	968	235	4.13	1 285	178	7.23
2000	2 163	282	7.66	1 288	276	4.67	2 532	240	10.53
2006	2 698	354	7.62	1 849	346	5.35	3 135	260	12.07
2007	2 747	383	7.17	1 972	368	5.37	3 265	292	11.19
2008	2 732	408	6.70	2 079	391	5.32	3 399	319	10.66
2009	2 649	418	6.33	2 102	418	5.02	3 090	355	8.71

Source: Calculated by the UNCTAD secretariat, based on UNCTAD data on seaborne trade (in tons), and IHS Fairplay data on the world fleet (in dwt).

[a] The residual fleet refers to general cargo, container ships and other vessels included in annex III (b).

Figure 3.1. Tons carried per deadweight ton (dwt) of the world fleet, selected years



Source: UNCTAD calculations.

with only 22 per cent for transatlantic services, which use smaller vessels.

For each vessel, the service on which it is deployed is identified (387 services in total), and from comments on their history, if this service is under slow steaming. In total, 42.9 per cent of vessels and 34.8 per cent of services were under slow steaming in January 2010. The proportion increases with vessel size, reaching 75 per cent for ships of 8,000 TEU and above (table 3.3).

Calculating the impact on the productivity of the deployed fleet, it is estimated that services under slow steaming in 2010 have been stretched by one week

Table 3.3. Impact[a] of slow steaming (2008–2010) on ton-miles per deadweight ton (dwt), by size of container ship

Vessel size ranges in TEU	% of services under slow steaming in 2010	Number of vessels in 2010	Days at sea in 2008	Days at sea in 2010	Miles performed in year (% change)	Capacity deployed in dwt (% change)	Thousands of ton-miles per dwt in 2008	Thousands of ton-miles per dwt in 2010	% change in ton-miles per dwt
1000–2000	11.60%	278	241	266	-10.40%	4.10%	19.0	14.7	-22.50%
2000–3000	15.90%	398	247	268	-8.50%	2.80%	20.9	16.7	-19.90%
3000–5000	33.30%	677	250	276	-10.40%	5.80%	23.3	17.8	-23.80%
5000–8000	59.70%	432	251	292	-16.30%	10.20%	25.3	17.3	-31.70%
8000+	80.00%	266	259	298	-15.10%	15.70%	25.1	16.6	-33.90%
Total	34.80%	2051	250	280	-12.00%	7.00%	22.8	16.9	-26.00%

Source: Cariou, P. (2010) Is slow steaming a sustainable means of reducing liner shipping CO2 emissions? Euromed Management Mare Forum, 14 September 2010, Marseilles.

[a] Assuming a 10 per cent decrease in demand (tons carried) for all vessels.

since 2008, and that, on average, one vessel was added per service under slow steaming. This means that 134 vessels were added to the services operating on slow steaming, corresponding to a 7 per cent increase in capacity. In order to estimate the changes in average miles performed, the days at sea in 2008, as reported in Buhaug et al. (2009: 195), are taken, and then the average days at sea are calculated with one additional week by rotation for services under slow steaming.[5] The average number of days at sea increases from 250 to 280 days, meaning that each vessel performs fewer rotations and port calls in a year. The final impact in ton-miles per dwt, from an initial value in 2008 of around 22.8 tons carried per dwt (Buhaug et al. 2009: 175), is down to 16.9 thousand ton-miles, equivalent to a reduction of 26 per cent. An even higher reduction in productivity applies to larger vessels (-33.9 per cent) (table 3.3).

"Normal" slow steaming has container ships move at around 20 to 22 knots, instead of the standard service speeds of around 25 knots. Speeds have been further reduced in recent months with the introduction of extra slow steaming, i.e. ships operating at speeds of around 17 to 19 knots, and sometimes even less. At the end of May 2010, extra slow steaming absorbed 554,000 TEUs, very similar to the magnitude of the currently laid-up capacity.[6]

Slow steaming is an alternative measure that has helped carriers to reduce the need to lay off ships, in order to prevent freight rates from falling further. Slow steaming also helps to reduce CO2 emissions, even considering the emissions from the additional vessels; generally, a 10 per cent reduction in speed for all vessels will reduce emissions by approximately 19 per cent per ton-mile. On the negative side, however, slow steaming not only means longer delivery times for shippers, but also less reliable service schedules. During the last quarter of 2009, only 53 per cent of vessels tracked on major East–West routes were reported to have arrived on time, compared to 60 per cent or above in the previous nine months.[7] In the medium term, vessel technology and shippers' requirements can be expected to encourage service providers to resume higher speeds, to increase the reliability of their vessels' schedules, and to restore productivity to pre-crisis levels.

B. SUPPLY AND DEMAND IN WORLD SHIPPING

The idle fleet, by main vessel types

The combined idle tonnage of large tankers, dry bulk carriers and conventional general cargo ships at the end of 2009 (data for 1 December 2009) stood at 12 million dwt, or 1.3 per cent of the total world merchant fleet (table 3.4). During the first months of 2010 the situation worsened somewhat, reaching 14.4 million dwt on 1 April 2010, corresponding to a 1.5 per cent surplus. The year-on-year development has been positive, as the resumed growth in trade (see chapter 1) has helped to put vessels back into business, in spite of the continued growth in the world fleet.

The tonnage supply of tankers (oil and other tankers of 10,000 dwt and above) increased by 21 million dwt in 2009, to 435 million dwt, as the newbuildings that were delivered outweighed the tonnage that was scrapped, laid up or lost (see table 3.5 and fig. 3.2). The idle tanker fleet in April 2010 stood at 2.2

Table 3.4. Tonnage oversupply in the world merchant fleet, selected years *(end-of-year figures)*

	1990	2000	2004	2005	2006	2007	2008	2009	1 Apr. 2010
					Million dwt				
Merchant fleet, three main vessel types[a]	558.5	586.4	667.0	697.9	773.9	830.7	876.2	930.3	937.5
Idle fleet[b]	62.4	18.4	6.2	7.2	10.1	12.1	19.0	12.0	14.4
Active fleet	496.1	568.0	660.8	690.7	763.7	818.6	857.2	918.3	923.1
					Percentages				
Idle fleet as a percentage of the merchant fleet	11.2	3.1	0.9	1.0	1.3	1.5	2.2	1.3	1.5

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by *Lloyd's Shipping Economist*, various issues.

[a] Tankers and dry bulk carriers of 10,000 dwt and above, and conventional general cargo vessels of 5,000 dwt and above.

[b] Surplus tonnage is defined as tonnage that is not fully utilized because of slow steaming or lay-up status, or because it is lying idle for other reasons.

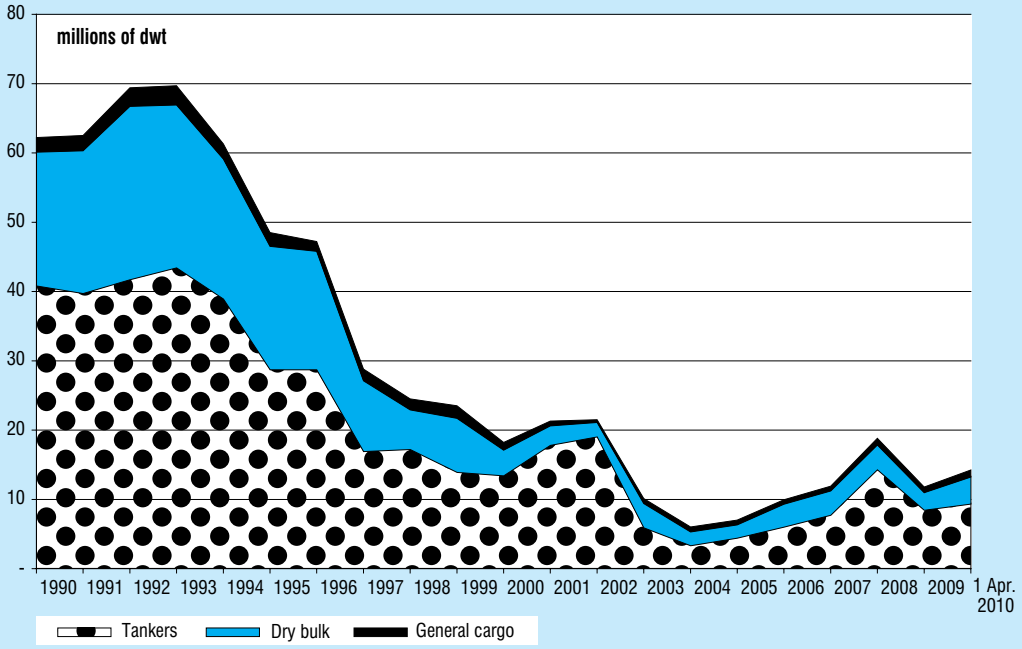
Table 3.5. Analysis of tonnage surplus, by main type of vessel, selected years[a] *(in millions of dwt or millions of cubic meters)*

	1990	2000	2004	2005	2006	2007	2008	2009	1. Apr. 2010
World tanker fleet (dwt)	266.2	279.4	298.3	312.9	367.4	393.5	414.04	435.25	438.33
Idle tanker fleet (dwt)	40.9	13.5	3.4	4.5	6.1	7.8	14.35	8.51	9.42
Share of idle fleet in tanker fleet (%)	15.4	4.8	1.1	1.4	1.7	2.0	3.47	1.96	2.15
World dry bulk fleet (dwt)	228.7	247.7	325.1	340.0	361.8	393.5	417.62	452.52	458.63
Idle dry bulk fleet (dwt)	19.4	3.8	2.1	2.0	3.4	3.6	3.68	2.64	4.00
Share of idle fleet in dry bulk fleet (%)	8.5	1.5	0.6	0.6	0.9	0.9	0.88	0.58	0.87
World conventional general cargo fleet (dwt)	63.6	59.3	43.6	45.0	44.7	43.8	44.54	42.53	40.54
Idle conventional general cargo fleet (dwt)	2.1	1.1	0.7	0.7	0.6	0.7	0.97	0.83	1.01
Share of idle fleet in general cargo fleet (%)	3.3	1.9	1.6	1.6	1.4	1.6	2.18	1.95	2.49
World ro-ro fleet (dwt)	..	..	..	..	..	..	11.37	10.93	10.21
Idle ro-ro fleet (dwt)	..	..	..	..	..	..	0.89	0.73	0.67
Share of idle fleet in ro-ro fleet (%)	..	..	..	..	..	..	7.83	6.68	6.56
World vehicle carrier fleet (dwt)	..	..	..	..	..	..	11.27	11.20	10.72
Idle vehicle carrier fleet (dwt)	..	..	..	..	..	..	0.24	0.55	0.42
Share of idle fleet in vehicle carrier fleet (%)	..	..	..	..	..	..	2.13	4.91	3.92
World LNG carrier fleet (m^3)	..	..	..	..	..	..	44.43	46.90	49.29
Idle LNG carrier fleet (m^3)	..	..	..	..	..	..	5.87	1.29	0.77
Share of idle fleet in LNG fleet (%)	..	..	..	..	..	..	13.21	2.75	1.56
World LPG carrier fleet (m^3)	..	..	..	..	..	..	11.56	18.50	19.05
Idle LPG carrier fleet (m^3)	..	..	..	..	..	..	0.94	0.10	0.13
Share of idle fleet in LNG fleet (%)	..	..	..	..	..	..	8.13	0.54	0.68

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Lloyd's Shipping Economist*, various issues.

[a] End-of-year figures, except for 1990 and 2000, which are annual averages. This table excludes tankers and dry bulk carriers of less than 10,000 dwt and conventional general cargo/unitized vessels of less than 5,000 dwt.

Figure 3.2. Trends in surplus capacity, by main vessel types, selected years



Source: Compiled by the UNCTAD secretariat, on the basis of data from *Lloyd's Shipping Economist,* various issues.

per cent of total capacity. The supply of large dry bulk vessels increased by 35 million dwt to 453 million dwt by December 2009, then reaching 459 million dwt by April 2010. The overtonnage for this type of vessel was only 4 million dwt in April 2010, equivalent to 0.9 per cent of the dry bulk fleet.

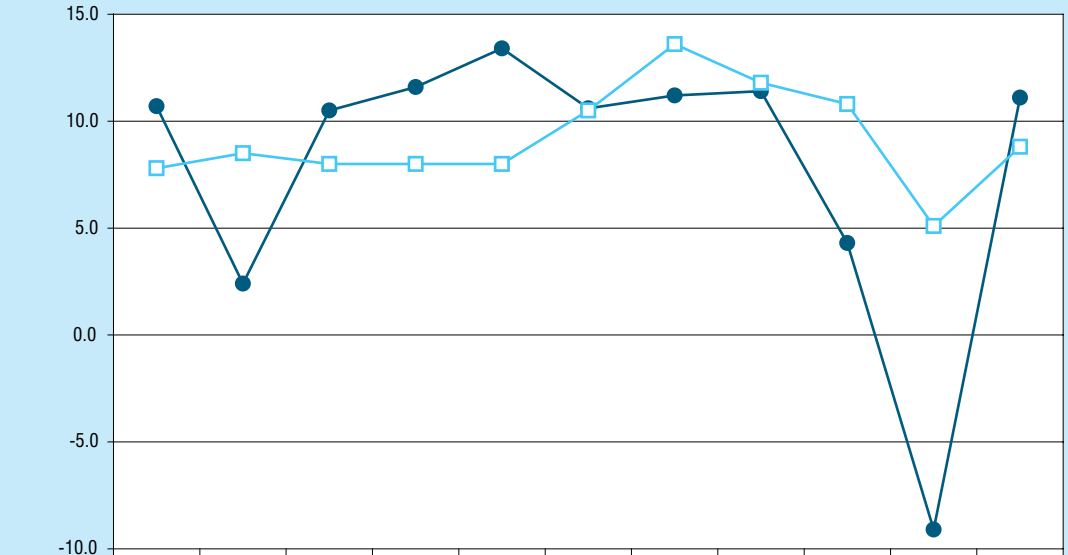
For the conventional general cargo fleet of vessels of 5,000 dwt and above, overcapacity reached 2.5 per cent of the world fleet of this sector in April 2010. The idle fleet of ro-ro vessels stood at 6.6 per cent, and the idle fleet of vehicle carriers stood at 3.9 per cent. Gas carriers (carrying LNG and LPG) have seen a significant improvement in their idle fleet situation since 2008. Demand for transport increased in 2009, for example because of production by new gas fields, however there were fewer new deliveries than in 2008 (table 3.5).

Demand and supply in container shipping

The resumption of manufacturing activity and global trade in containerized goods led to a recovery of demand for liner shipping services in early 2010 (see also chapter 1). In 2009, however, the market was particularly bad for container shipping, as demand plummeted by 9 per cent while supply grew by 5.1 per cent (fig. 3.3), the difference between these two figures being a staggering 14.1 percentage points. For the first time since 2005, demand is now forecast to grow faster than supply (in 2010).

A market segment of particular interest to many developing countries is containerized trade in refrigerated cargo, such as fruit, vegetables, meat and fish. Until the mid-1990s, the majority of this trade was transported in specialized reefer vessels. Since then, the entire growth in this market has been taken over by container shipping, installing slots for reefer containers on new container ships. At the beginning of 2010, the capacity to carry reefer cargo in containers stood at 2,898 million cubic feet, which was 9.5 times greater than the capacity on specialized reefer ships.[8] The export of refrigerated cargo by container benefits from the global liner shipping networks and better door-to-door transport services. At the same time, it obliges ports and exporters to invest in the necessary equipment. Over the last decade, exporters have benefited from the increased competition between containerized and specialized reefer transport providers. As the reefer fleet is getting older and vessels are being phased out, this market segment will become almost fully containerized.

Figure 3.3. Growth of demand and supply in container shipping, 2000–2010[a] *(annual growth rates)*



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010a
Demand	10.7	2.4	10.5	11.6	13.4	10.6	11.2	11.4	4.3	-9.1	11.1
Supply	7.8	8.5	8.0	8.0	8.0	10.5	13.6	11.8	10.8	5.1	8.8

Source: Compiled by the UNCTAD secretariat, on the basis of data from *Clarkson Container Intelligence Monthly*, various issues.

[a] Total container-carrying fleet, including multi-purpose vessels and other vessels with some container-carrying capacity. The data for 2010 are forecasted figures.

C. COMPARISON OF INTERNATIONAL TRADE AND FLEETS

In 2009, China overtook Germany as the second-largest trading nation (measured in United States dollars, imports plus exports), accounting for 8.83 per cent of world trade. China has also overtaken Germany as the third-largest owner of shipping tonnage, with 8.96 per cent of dwt in January 2010 (see chapter 2). It is arguable whether or not these two developments are linked. Both countries are important traders in manufactured goods, and both countries have large-scale shipowners, but the fleets of these shipowners do not only carry German or Chinese exports and imports, indeed they mostly carry trade between third countries (table 3.6).

The world's largest trader continues to be the United States, which generated 10.65 per cent of world trade in 2009 while owning only 3.54 per cent of world tonnage; 1.0 per cent of the world's cargo-carrying tonnage used the flag of the United States. Japan is the fourth-largest trading nation (4.53 per cent), and the country has an even more important share in the controlled fleet (15.73 per cent), but only a minor proportion of its controlled fleet flies the national flag.

France, Italy, the Netherlands and the United Kingdom each account for a similar share of world trade (between 3.2 and 4.2 per cent each), however their shares in the control or registration of ships vary widely: 2.9 per cent of the world's tonnage is registered in the United Kingdom (including the Isle of Man) compared to only 0.57 per cent registered in the Netherlands, and owners from the United Kingdom control 2.7 per cent of the world's tonnage compared to only 0.63 per cent controlled by owners from France. Two Latin American countries are among the major trading nations, namely Mexico and Brazil, with a 1.9 and 1.15 per cent share of world trade respectively. Of these two countries, only Brazil figures among the major shipowning countries. Mexico trades mostly by land with its northern neighbours, which may be one of the explanations for why, historically, it has had a relatively smaller nationally owned fleet.

Table 3.6. Maritime engagement of 25 major trading nations, 2009 data (trade) and beginning of 2010 data (fleet)

Country/territory	Percentage share of world merchandise trade, in terms of value			Percentage share of world fleet (flag), in terms of dwt			Percentage share of world fleet (ownership), in terms of dwt		
	2008	2009	Change, in percentage points	1 Jan. 2009	1 Jan. 2010	Change, in percentage points	1 Jan. 2009	1 Jan. 2010	Change, in percentage points
United States	10.68	10.65	-0.04	1.00	1.00	-0.00	3.62	3.54	-0.07
China	7.91	8.83	0.92	3.35	3.54	0.18	8.40	8.96	0.56
Germany	8.22	8.18	-0.04	1.51	1.38	-0.13	9.50	8.91	-0.59
Japan	4.78	4.53	-0.25	1.29	1.39	0.09	15.68	15.73	0.04
France	4.04	4.10	0.06	0.66	0.69	0.03	0.59	0.63	0.04
Netherlands	3.72	3.76	0.04	0.57	0.57	-0.00	0.76	0.76	-0.00
United Kingdom	3.36	3.32	-0.04	2.73	2.89	0.16	2.80	2.66	-0.14
Italy	3.37	3.25	-0.12	1.21	1.35	0.14	1.79	1.93	0.14
Belgium	2.91	2.88	-0.04	0.56	0.52	-0.04	1.22	1.08	-0.14
Republic of Korea	2.64	2.74	0.09	1.90	1.63	-0.26	4.22	3.85	-0.37
China, Hong Kong	2.32	2.66	0.35	5.38	5.84	0.46	3.05	2.95	-0.10
Canada	2.70	2.58	-0.11	0.29	0.27	-0.02	1.55	1.57	0.01
Singapore	2.03	2.06	0.03	5.10	4.83	-0.27	2.55	2.80	0.24
Russian Federation	2.61	2.06	-0.55	0.60	0.57	-0.03	1.66	1.67	0.01
Spain	2.06	2.02	-0.05	0.23	0.20	-0.03	0.40	0.45	0.05
Mexico	1.85	1.90	0.05	0.14	0.14	0.00	..	..	..
India	1.45	1.61	0.16	1.28	1.17	-0.11	1.56	1.47	-0.09
China, Taiwan Province of	1.53	1.51	-0.02	0.36	0.31	-0.05	2.70	2.53	-0.17
Switzerland	1.19	1.31	0.13	0.08	0.08	-0.00	0.35	0.34	-0.01
Australia	1.19	1.28	0.08	0.18	0.17	-0.01	..	..	..
Saudi Arabia	1.27	1.27	0.00	0.14	0.18	0.04	1.35	1.13	-0.22
Thailand	1.08	1.15	0.07	0.35	0.29	-0.06	0.37	0.33	-0.04
Brazil	1.14	1.15	0.01	0.29	0.27	-0.02	0.43	0.66	0.24
Malaysia	1.15	1.13	-0.03	0.79	0.80	0.01	1.05	1.07	0.02
Poland	1.15	1.12	-0.03	0.01	0.01	-0.00	..	..	..
Total	76.37	77.05	0.68	30.00	30.09	0.09	65.58	65.01	-0.57

Source: Compiled by the UNCTAD secretariat, on the basis of data supplied by the *UNCTAD Handbook of Statistics* (trade) and IHS Fairplay (fleet registration and ownership).

Note: ThE United Kingdom fleet in this table includes Isle of Man.

ENDNOTES

1 The figures on the productivity of the world fleet are indicative estimates only. While the data on the world fleet include ships that are employed in cabotage trades, the UNCTAD estimates of seaborne trade do not include cabotage. It is not always possible to assign the specific vessel type to a given traded commodity.

2 This section is based on Cariou, P. (2010) Is slow steaming a sustainable means of reducing liner shipping CO2 emissions? Euromed Management Mare Forum, 14 September 2010, Marseilles.

3 Alphaliner (2010). See http://www.alphaliner.com.

4 ibid.

5 Buhaug O, Corbett J, Endresen O, Eyring V, Faber J, Hanayama S, Lee D, Lindstad H, Mjelde A., Palsson C, Wanquing W, Winebrake J and Yoshida K (2009). *Second IMO Greenhouse Gas Study*. International Maritime Organization. London.

6 Dynamar (2010). *DynaLiners:* 11. 4 June. Source of data: AXS Marine (2010). *Alphaliner.*

7 International Association of Ports and Harbours (2010). *Ports and Harbours*. May. Source of data: Drewry Shipping Consultants.

8 Clarkson Research Services (2010). *Container Intelligence Monthly*. April.

4

FREIGHT RATES

CHAPTER 4

2009 was a bleak year for freight rates in the tanker, major dry bulk and liner sectors. The deepening of the global financial crisis severely affected demand for commodities and goods. By the end of 2009, rates in all sectors had recovered from their earlier lows, despite remaining significantly beneath 2008 levels. Freight rates for 2010 and beyond remain uncertain, as recovery from the global economic crisis is surrounded by doubts. In the tanker and liner sectors, freight rates were boosted by means of a series of countermeasures adopted by shipowners in response to falling demand. In the bulk sector, much of the recovery was attributed to an increase in demand from China, whose importers took advantage of the low commodity prices and freight rates to increase their stockpiles of raw materials. The oversupply of vessels, combined with the weak operating results for 2009, could mean that shipowners in 2011 will consolidate through mergers and acquisitions.

This chapter covers freight rates in the tanker market, the major dry bulk cargo markets and the liner shipping market. Each section contains information on recent developments in that area, followed by an analysis of how freight rates have performed over the course of 2009 and into 2010.

Introduction to freight rates

The amount that the carrier (e.g. shipowner or charterer) charges for transporting cargo overseas is known as the freight rate. In addition to the freight rate, a carrier may levy other charges, such as BAF, CAF and THC,[1] war risk premiums, piracy surcharges, a container sealing fee, an electronic release of cargo fee, and late fees (e.g. for late collection of a bill of lading, or late issuance of shipping instructions).[2, 3] Freight rates can be obtained through an agent or a shipbroker. In some cases, such as in the liner sector, notice of freight rates has traditionally been published in newspapers. Today, the internet is the preferred medium. Some shipbrokers also calculate, maintain and publish indices together with historical data to give an indication of how the market is performing. Each segment of the market (e.g. tanker, bulk, containers etc.) has it own characteristics and is influenced by different factors. In the bulk cargo market, vessels are usually chartered for a specific period of time or for a particular voyage. Rates for time charters will be different from voyage charters, with the former more focused on the long-term trend. In general, freight rates are affected by the supply of vessels and by the demand for the goods being carried. Thus, transport services are a derived demand (that is to say, it is not the transport service per se that is demanded, but the good that is being moved). The number of competitors, the availability of alternative transport modes, and short-term fluctuations in demand and supply will also have an effect on prices. Most manufactured goods are shipped by container vessels, and competition for transport is high. When there is no demand for manufactured goods, these vessels may sometimes carry alternative cargoes, such as scrap goods for recycling. However, oil can only be shipped in tankers (pipelines excepted), and therefore wild fluctuations in freight rates can occur. Other markets, such as the liquefied natural gas (LNG) market, are so specialized that freight rates are negotiated under contracts of affreightment[4] or long-term time charters.

A. THE TANKER MARKET[5]

Introduction

The tanker market is mainly concerned with the transportation of crude oil and petroleum products, which, taken together, represent approximately one third of world seaborne trade by volume. Crude oil and petroleum products provide energy to the transport mode and the manufacturing process. In addition, crude oil and petroleum products provide essential inputs for the production of manufactured goods. Declining refinery usage as a result of weak demand and overflowing stocks helped keep freight rates low in 2009. This situation was exacerbated by the supply of new tankers delivered in 2009. Oil tankers make up about 35 per cent of the world fleet in volume terms. During 2009, new tankers totalling 31.9 million dwt were delivered, while 8.4 million dwt were demolished.[6] The tanker fleet experienced a net gain of 23.5 million dwt in 2009 – a 5.2 per cent expansion in the fleet. Shipowners attempted to absorb some of this extra supply by using tankers as floating storage tanks; in October 2009, there were some 143 million barrels of oil stored on 129 tankers.[7]

1. Tanker freight rates for all vessel sizes

2009 was a particularly bleak year for tanker freight rates. Rates started the year in a gentle decline which continued until the middle of the year, after which they began to curve upwards. By the end of the year, tanker freight rates were at much the same level as at the beginning of the year. For most other sectors, freight rates were more positive, and the end-of-year data showed signs of a possible recovery in the global economy. This sentiment was, however, built on shaky ground, and freight rates for 2010 have continued to fluctuate. In the first quarter of 2010, freight rates for all vessel types increased by around 50 per cent compared to the same period in 2009. When comparing average freight rates for the first quarter of 2010 with those of two years before (the year 2008 represented a peak year for tanker freight rates), a decline of only around 20 per cent is evident. See table 4.1 and figure 4.1 for monthly tanker freight indices in 2009.

Table 4.2 illustrates average freight rates measured in Worldscale (WS) – a unified measure for establishing spot rates on specific major tanker routes for various sizes of vessel. The table focuses on traditional benchmark routes, and is not intended to be exhaustive – for example, it does not cover the growing West Africa to China route. The main loading areas indicated in the table are the Persian Gulf, West Africa, the Mediterranean, the Caribbean and Singapore, while the main unloading areas are East Asia, Southern Africa, North-West Europe, the Mediterranean, the Caribbean, and the East Coast of North America. When regard to comparisons between monthly freight

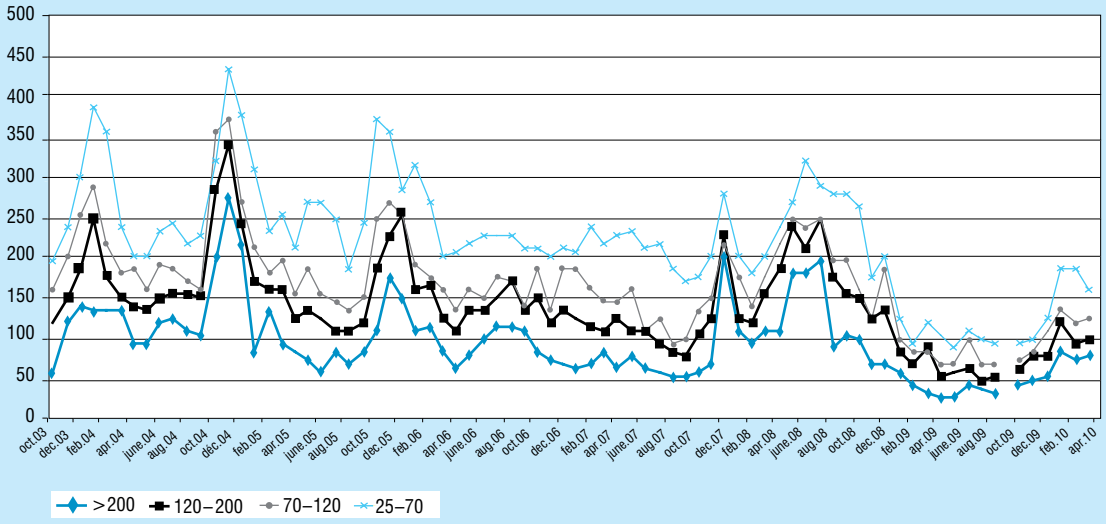
Table 4.1. Tanker freight indices, 2008–2010 *(monthly figures)*

	Lloyd's Shipping Economist					Baltic Tanker	
2008	**>200**	**120–200**	**70–120**	**25–70**	**Clean**	**Dirty Index**	**Clean Index**
October	99	149	165	263	239	1 508	1 367
November	67	121	124	175	198	1 246	1 039
December	71	139	191	206	182	1 124	880
Average	**79**	**136**	**160**	**215**	**206**	**1 293**	**1 095**
2009							
January	54	84	100	125	130	849	623
February	44	65	84	95	126	597	600
March	33	90	82	120	105	626	543
April	29	52	67	105	72	524	371
May	30	58	66	90	103	476	424
June	43	63	102	112	98	482	479
July	36	50	66	100	94	623	463
August	35	52	67	91	96	474	467
September	..	..	..	..	..	487	442
October	41	62	76	96	89	557	515
November	47	78	81	100	94	588	439
December	53	77	111	121	124	671	528
Average	**40**	**66**	**82**	**105**	**103**	**580**	**491**
2010							
January	82	120	133	185	189	1 024	817
February	75	94	117	187	175	1 047	884
March	77	100	128	159	159	889	761
April	83	105	122	168	151	949	703
May	74	118	150	169	144	995	730
June	84	105	115	150	138	938	669

Source: UNCTAD secretariat, based upon information in *Lloyd's Shipping Economist* (a trade journal that specializes in maritime-related market data and reports), several issues; and in *Baltic Tanker* (an index produced by the Baltic Exchange in London), in which indices are reported for the first working day of the month. Ship sizes are expressed in deadweight capacity.

Note: The numbers in the second row from the top refer to vessel size expressed in dwt.

Figure 4.1. Tanker freight market summary: various vessel sizes, 2003–2010
(X = monthly figures; Y = indices)



Source: UNCTAD secretariat, based on information in *Lloyd's Shipping Economist*, several issues. The *Baltic Tanker* indices are reported for the first working day of the month. Ship sizes are expressed in deadweight capacity.

Note: No data available for September 2009

indices for 2008 and those for 2009, table 4.2 confirms that freight rates on all routes declined. The following sections describe developments by tanker type, in greater detail.

Very large and ultra-large crude carriers

Very large crude carriers (VLCCs) and ultra-large crude carriers (ULCCs), at sizes of over 200,000 and 350,000 dwt, represent some of the world's largest ships, and offer the best economies of scale for the transportation of oil where pipelines are non-existent. Consequently, they form the backbone to international trade, as they feed industrial centres with the energy that is vital for them to produce goods which other vessels can then export. By March 2010, the world fleet of VLCCs stood at 543 vessels, accounting for 162.9 million dwt. An additional 18 million dwt is expected to be delivered over the next few years. Of the present tanker fleet, approximately 22.6 million dwt relates to single-hulled tankers. The bulk of these are expected to be scrapped, due to ever-increasing trade restrictions related to environmental protection. A few, however, will be upgraded to double-hull, or will be converted to other uses.[8] The size of the VLCC fleet over the next few years is not expected to increase significantly.

Earnings for VLCCs declined by around 60 per cent in the first quarter of 2009 compared with the same period in 2008. The decline, which began in July 2008, continued virtually unabated until May 2009, when it reached its lowest point. Freight rates then embarked on a gradual recovery, ending 2009 marginally higher than they were at the beginning of the year. VLCCs in the first quarter of 2010 experienced an 80 per cent improvement in freight rates, compared to 2009 levels. Yet, despite this improvement, freight rates were still around 25 per cent down compared to the same period in 2008. The improvement was partly due to an increase in the price of crude oil, which doubled over the course of 2009 (to reach around $85 per barrel by year's end) on the back of strong demand from Asia. Part of this increased demand for oil, and the corresponding derived demand for transport, was due to the spate of cold weather in northern Europe and China in March 2010, as well as increased optimism about the recovery of the global economy. The rising oil price also tempted many shipowners with VLCCs, who had been using their vessels as floating storage tanks, to bring them back onto the market. Unfortunately, there was not enough demand, and freight rates fell back. Average freight rates for VLCCs

Table 4.2. Tanker market summary: clean and dirty spot rates, 2008–2010 *(Worldscale)*

Vessel type	Route	2008	2009												% change 2008/ 2009	2010					
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun
VLCC/ULCC (200,000 dwt+)																					
	Persian Gulf–Japan	66	51	44	41	27	27	46	42	40	33	43	44	56	-15.2%	104	71	84	90	72	95
	Persian Gulf–Republic of Korea	61	53	42	36	27	27	41	33	35	34	40	43	53	-13.1%	88	76	76	91	68	81
	Persian Gulf–Europe	..	..	35	30	..	..	28	27	27	..	29	31	34	..	70	..	57	66	52	58
	Persian Gulf–Caribbean/East Coast of North America	54	44	34	30	21	20	32	25	26	25	27	28	35	-35.2%	65	52	56	58	53	63
	Persian Gulf–South Africa	..	..	55	..	35	..	38	..	..	..	..	..	..	..	..	..				
Suezmax (100,000–160,000 dwt)																					
	West Africa–North–West Europe	140	84	68	68	53	52	64	50	45	55	63	79	77	-45.0%	127	100	104	114	125	110
	West Africa–Caribbean/East Coast of North America	139	86	71	77	53	50	61	46	49	55	58	75	73	-47.5%	114	97	98	112	118	103
	Mediterranean–Mediterranean	121	90	70	73	58	62	78	63	54	64	76	84	83	-31.4%	127	103	115	110	129	102
Aframax (70,000–100,000 dwt)																					
	North West Europe–North West Europe	165	99	80	81	72	66	80	73	69	69	76	96	115	-30.3%	137	113	126	116	141	100
	North West Europe–Caribbean/ East Coast of North America	185	105	92	97	82	85	79	56	..	50	68	..	100	-45.9%	135	117	110	..	153	104
	Caribbean–Caribbean/East Coast of North America	258	105	78	112	59	73	77	67	67	71	70	94	112	-56.6%	173	146	127	123	167	131
	Mediterranean–Mediterranean	212	107	86	74	62	68	103	66	68	73	85	91	117	-44.8%	124	95	135	114	160	110
	Mediterranean–North West Europe	173	106	90	71	59	69	90	70	61	67	85	82	108	-37.6%	121	92	119	110	151	102
	Indonesia– East Asia	153	81	69	67	58	54	54	61	61	63	64	71	95	-37.9%	136	118	116	99	127	114
Handysize (less than 50,000 dwt)																					
	Mediterranean–Mediterranean	200	118	100	109	87	80	109	108	87	81	..	102	120	-40.0%	..	164	130	158	173	..
	Mediterranean–Caribbean/East Coast of North America	175	110	96	112	72	80	101	75	70	78	86	90	111	-36.6%	171	183	139	145	161	145
	Caribbean–East Coast of North America/Gulf of Mexico	243	131	80	108	70	83	106	72	74	85	89	87	116	-52.3%	176	181	151	146	163	129
All clean tankers																					
70,000–80,000 dwt	Persian Gulf–Japan	145	84	106	62	55	56	78	79	81	103	..	95	111	-23.4%	140	123	118	106	124	112
50,000–60,000 dwt	Persian Gulf–Japan	156	85	118	79	52	63	85	87	94	104	131	100	121	-22.4%	151	139	124	126	143	123
35,000–50,000 dwt	Caribbean–East Coast of North America/Gulf of Mexico	166	130	116	93	72	106	96	81	84	85	83	76	99	-40.4%	149	139	159	137	119	127
25,000–35,000 dwt	Singapore–East Asia	236	105	131	98	82	77	..	110	127	120	163	..	158	-33.1%	145	155	144	143	215	240

Source: UNCTAD secretariat, based upon *Shipping Insight* from Drewry Publishing, various issues.

Note: Two dots (..) means that no rate was reported. The classification of ship size in this table reflects the source used, and may vary when compared to other parts of this publication.

in 2009 equated to approximately $38,533 per day, down from $74,663 in 2008. Correspondingly, the price of a five-year-old VLCC in February 2010 declined to around $79 million, compared to annual average prices of $84.2 million in 2009 and $144.7 million in 2008.

Suezmax tankers

Suezmax ships are the maximum-sized tankers able to transit the Suez Canal, and, in general, are between 125,000 and 200,000 dwt. However, just as ships have grown in size and capacity over the years, so has the Suez Canal. Recent dredging works have seen the depth of the canal increase to 20 metres, allowing it to cater for vessels of up to 240,000 dwt, which, technically, is a "small" VLCC. Suezmax ships, however, are still generally considered to be around the 125,000 to 200,000 dwt size, and are obviously capable of operating on many other routes. For example, Suezmax vessels play an important role in trade from West Africa to North-West Europe, and to the Caribbean/East Coast of North America, as well as across the Mediterranean. When comparing year-on-year figures for all tanker sectors, the Suezmax sector fared worse than any other sector, with rates in December 2009 down by around one third over December 2008. While rates in 2009 generally followed the trend mentioned earlier for VLCC vessels, namely a gentle downward slope followed by a gentle rise, the main exception was on the Mediterranean route, which spiked in June, only to fall back again and then rose again. Freight rates on West African routes slumped to a 10-year low of WS46 in July 2009, down approximately 80 per cent from the highs of mid-2008, as a dearth of cargoes limited activity.

As far as income was concerned, average daily revenues received by Suezmax shipowners decreased from $46,917 in 2008 to $27,825 in 2009. However, on some routes, the decline proved to be more dramatic – for example, the West Africa to the Caribbean/East Coast of North America route declined from $42,300 per day (at WS86) in January 2009 to $6,800 per day (at WS46) in July 2009. A major cause for this decline was low demand, which helped to increase the United States' reserve stocks of gasoline and distillates. In July 2009, United States stocks of gasoline and distillates reached a record high of 376 million barrels. As a consequence of low demand and high stocks, the price of oil dropped to below $60 per barrel. The introduction of favourable tax regimes in some former Soviet countries helped increase demand for Suezmax vessels in that region.[9] Coupled with declining freight rates, vessel prices also decreased. A five-year-old Suezmax vessel, which cost on average $95.3 million in 2008, declined by 38 per cent in 2009 to $59.3 million.

Aframax tankers

Aframax[10] tankers – of around 80,000 to 125,000 dwt – combine a large carrying capacity with flexibility and lower overheads than those of VLCCs or Suezmax vessels. They are often deployed for trading within and between the following regions: North-West Europe, the Caribbean, the East Coast of North America, the Mediterranean, Indonesia and East Asia. In 2009, around 10.6 million dwt of new tonnage (or 13 per cent of the existing fleet) were added to this sector, pushing the total fleet capacity to 88.7 million dwt by March 2010. The total number of vessels in this category was 845 on 1 March 2010. The fleet is expected to grow by a further 5 per cent in 2010 and 6.7 per cent in 2011 to reach 98.4 million dwt. These additions to the fleet are expected to dampen freight rates on what has already been a quiet year. However, future demand for oil is likely to have the biggest impact on how this market performs in the coming years. The global economic crisis and the use of alternative energy sources, coupled with falling North Sea oil production, could help push rates lower. However, other sources of oil production – for example, from Central Asian countries – could take up much of the slack in capacity.

In general, freight rates for all Aframax vessels declined in 2009, before regaining some lost ground towards the end of the year. The Caribbean to the East Coast of North America route fared better than other routes in this sector, despite freight rates falling from WS258 in January 2009 to WS59 in April 2009, recovering to WS173 in January 2010. While January 2010 witnessed significant growth in freight rates, the December 2009 rate was less than half the January 2009 rate – signally a rollercoaster ride for shipowners. This volatility was also reflected in the second-hand values of ships, with the price of a five-year-old Aframax in October 2009 valued at $39 million, compared to an annual average of $41.9 million in 2009 and $71.4 million in 2008.

In January 2010, average shipowners' earnings stood at around $29,750 per day, compared with $5,500 in August 2009. Extensive maintenance schedules at refineries in the Mediterranean towards the end of the year, as well as weak refining margins, dampened demand for Aframax in the region. However, increased OPEC production from North Africa in the last quarter of 2009 helped provide alternative uses and increased freight rates for Aframax vessels.

Handysize tankers

Handysize tankers are those of less than 50,000 dwt that have a draft of around 10 metres. These vessels are most suitable for calling at destinations with depth and length constraints. Table 4.2 shows the freight rates for these types of ships deployed intra-Mediterranean and from the Mediterranean to the Caribbean and the East Coast of North America, plus trades from the Caribbean to the Gulf of Mexico and the East Coast of North America. Freight rates on all three routes declined by between 37 and 52 per cent in 2009, with the Caribbean–East Coast of North America/Gulf of Mexico route declining the most. The lowest point in the year occurred in April on the Caribbean to the East Coast of North America/Gulf of Mexico route, and in August on the Mediterranean–Caribbean and East Coast of North America route. A five-year-old 45,000 dwt Handysize vessel cost on average $51 million in 2008; by 2009, the corresponding price had declined by 40 per cent to $30.2 million. In early 2010, the same type of vessel was valued at $25.5 million.

All clean tankers

Product tankers are specialized cargo-carrying vessels which can carry – for example – naphtha, clean condensate, jet fuel, kerosene, gasoline, gas oil, diesel, cycle oil and fuel oil. Unlike the other tanker markets listed above, which primarily transport cargo from its origin to the point of refinery, this sector handles the processed cargo that leaves the refinery destined for its point of consumption. The chemical tanker fleet is divided into three classifications, known as IMO type specifications. The largest sector, with some two thirds of the fleet, trades primarily in pure chemical cargoes such as styrene, xylene and easychems, and is known as IMO 2. Around one third of chemical tankers are classified as IMO 3, or double-hull product tankers, trading only in chemicals and vegetable oils. Less than 3 per cent of vessels have the IMO 1 specification, to trade in the most hazardous cargoes such as chlorosulphonic acid and trichlorobenzene.[11]

Freight rates on all four routes shown in table 4.2 declined by between 22 and 40 per cent in 2009, with the Caribbean to the East Coast of North America/Gulf of Mexico route declining the most. The lowest point in the year occurred in April for both tanker sizes on the Persian Gulf to Japan route. Thereafter, on the Persian Gulf to Japan route, freight rates increased exponentially from May 2009 until January 2010.

In 2009, average earnings for product tankers continued their downward slide. Whereas average time charter equivalent earnings on the Caribbean–East Coast of North America/Gulf of Mexico route had been $17,567 per day in 2008, in 2009 the rate was $9,467 per day. The low point was reached in October 2009, when the rate on this route declined to a mere $5,800 per day. However, by February 2010, rates had recovered to $11,000, which offered some respite to concerned shipowners.

Liquefied natural gas tankers

Liquefying natural gas reduces its volume by around 600 times when it is cooled to –162°C, making it easier to transport large volumes by vessel. The typical LNG tanker carries 145,000–155,000 cubic metres of natural gas on a single voyage. When vaporized, this expands to between 89 million and 95 million cubic metres.[12] The liquefaction and regasification processes are the most expensive elements in the LNG train,[13] and costing upwards of $2 billion, represent the highest portion of costs for any LNG project. Given the high costs and long build times, LNG projects often fall behind their building schedules, as the economic conditions (e.g. energy prices) that brought about the need for the project change. New developments on the LNG regasification side have addressed some of the problems associated with cost and building time at the delivery end. Floating storage and regasification units anchored offshore can receive LNG cargoes, regasify and pump ashore the gas in a national network. LNG regasification vessels have been developed, which transport and offload the cargo in gas form at the receiving end. The costs involved are the price of the vessel, plus $90 million for conversion costs and $160 million for mooring, gas pipeline and shore facilities.[14]

The LNG fleet at the beginning of 2010 numbered around 337 vessels with a cubic metre (cbm) capacity of 48,352. This compared to around 302 vessels and a cbm capacity of 42,028 a year earlier. The order book for new vessels to be delivered in 2010 equates to 23 vessels with a joint capacity of 4,036 cbm. The order book for 2011 is around half this, at 11 vessels with a cbm of 1,797, and for 2012, the figures are 3 and 507 respectively. LNG carriers are mainly produced by shipyards located in the Republic of Korea, and to a lesser extent in China and Japan. The largest LNG carriers – Q-Max vessels with a capacity of 266,000 cbm – operate mainly from Qatar. Qatar is the single largest LNG

exporter, with an expected market share of 27 per cent by 2011.15 The scheduled increase in the supply of new LNG vessels over the next few years, combined with delays in the building of new shoreside facilities, is expected to dampen freight rates in the medium term. The average price of a new 160,000 cbm LNG carrier was $226 million in 2009, up from $222 million in 2008. Spare capacity in shipyards, and the difficulties of raising finance as a result of the global economic crisis, had helped push the price of a similar newbuilding down to $210 million by early 2010.

A reduction in the demand for gas in the major consumer countries such as Japan and the Republic of Korea, combined with increased capacity from the Middle East and the Russian Federation, has led to a global oversupply in LNG vessels. Freight rates for LNG tankers are not widely published, and the rates that are published tend to focus on niche markets.[16] Most LNG vessels are in stable long-term contracts and thus do not suffer from the widely varying spot market prices that affect other sectors.[17] Because LNG vessels are among the most expensive vessels to build, they tend to be built to order for specific projects. This is where the long-term contacts come into play; they are both the reason for the build and the means by which finance can be secured. Daily charter rates towards the end of 2009 were around $50,000, and by the end of the first quarter of 2010 they had declined to $33,000.[18] In an attempt to rectify the dearth of data on the market for LNG, an investor relations advisory firm called Capital Link launched a series of indices in 2009 to follow the performance of certain maritime companies. The Capital Link LNG/LPG Index (CLLG) tracks the performance of major United States–listed shipping companies (e.g. Golar LNG, StealthGas Inc. and Teekay LNG) involved in the LNG/LPG sector. The CLLG increased from 1,190.75 points at the start of 2009 to 2,028.74 points at the end of 2009. In June 2010, the index stood at 2,247.27 points, showing that companies in this sector were performing well.

In Qatar in early 2010, the RasGas Train-7 became operational. RasGas, jointly owned by Qatar Petroleum (70 per cent) and by United States oil and gas company Exxon Mobil (30 per cent) has a capacity of 7.8 million tons per year. Also in 2010, Japanese shipping company Mitsui OSK Lines announced that it had signed long-term charters for two of its 177,000 cubic metre capacity LNG carriers for the PNG LNG project in Papua New Guinea, and will build a further four LNG vessels at Chinese shipyards under separate deals with PNG LNG and the Gorgon processing plant on Barrow Island, Western Australia.[19] The $15 billion PNG LNG project is expected to produce up to 6.3 million tons per year from two trains, the first of which is expected on stream in 2013 or 2014. The Gorgon project is expected to have three trains producing 15 million tons per year and to commence in 2014. At the end of 2009, in Yemen, a second train at the Balhaf LNG plant began production, pushing total LNG production capacity to 6.7 million tons per year. The three main buyers include the project operator Total, GDF Suez, and Kogas, under separate twenty-year supply agreements. Since the start-up of the first train, 18 cargos have already been delivered – to the Republic of Korea, the United States, China, Spain and Mexico. The $4.5 billion project is jointly owned by Yemen LNG (39.62 per cent), alongside the state-owned Yemen Gas Company (16.73 per cent), Hunt Oil Company (17.22 per cent), SK Energy (9.55 per cent), the Korea Gas Corporation (6 per cent), Hyundai Corporation (5.88 per cent), and Yemen's General Authority for Social Security and Pensions (5 per cent).[20]

Tanker period charter

The tanker period charter gives a good indication of how cargo owners and shipowners are perceiving the market for over the next few years. When rates are low, charterers prefer long charters, and shipowners the opposite. When rates are high, shipowners prefer long charters, and charterers the opposite. In 2009, total chartering activity increased by just over a million dwt, to 28.064 million dwt. March 2009 was the month of least activity, with less than 1 million dwt being chartered, while June was the most active chartering period, with 4.864 million dwt chartered. About 34 per cent of total chartering activity in 2009 was made up of long-term charters of 24 months or more, down from 36 per cent in 2008 and 46 per cent in 2007. This shows that charterers and shipowners are less inclined to engaging in longer contracts, a sign that the market is at a low point. The next most active sector for time chartering was for the period of less than six months (27 per cent), and then for the period of between one and two years (25 per cent). Estimated tanker one-year time charter rates for a five-year-old ship of 280,000 dwt went from $55,000 per day in January 2009 to $29,300 per day by November 2009. There was little change at the beginning of 2010, with February's rate standing at $31,700 per day.

In summary, the global financial crisis has brought severe disruption to the tanker market, as reduced demand for transport services has combined with the increased supply of newly built vessels and pushed freight rates even lower. In June 2010, one tanker owner signalled its intention to reduce the speed of its vessels from 16.5 knots to 11 knots.[21] Slow steaming avoids the need to enter ships into a more permanent lay-up position which can be costly to position and maintain, and to restart when conditions improve.

B. THE MAJOR DRY BULK SHIPPING MARKET[22]

Introduction

The major dry bulk shipping market consists principally of the five cargo types: iron ore, grain, coal, bauxite/alumina and phosphate. These commodities are primary raw ingredients that form manufactured goods. The dry bulk sector accounts for just over one quarter of the total volume of cargo transported by sea.

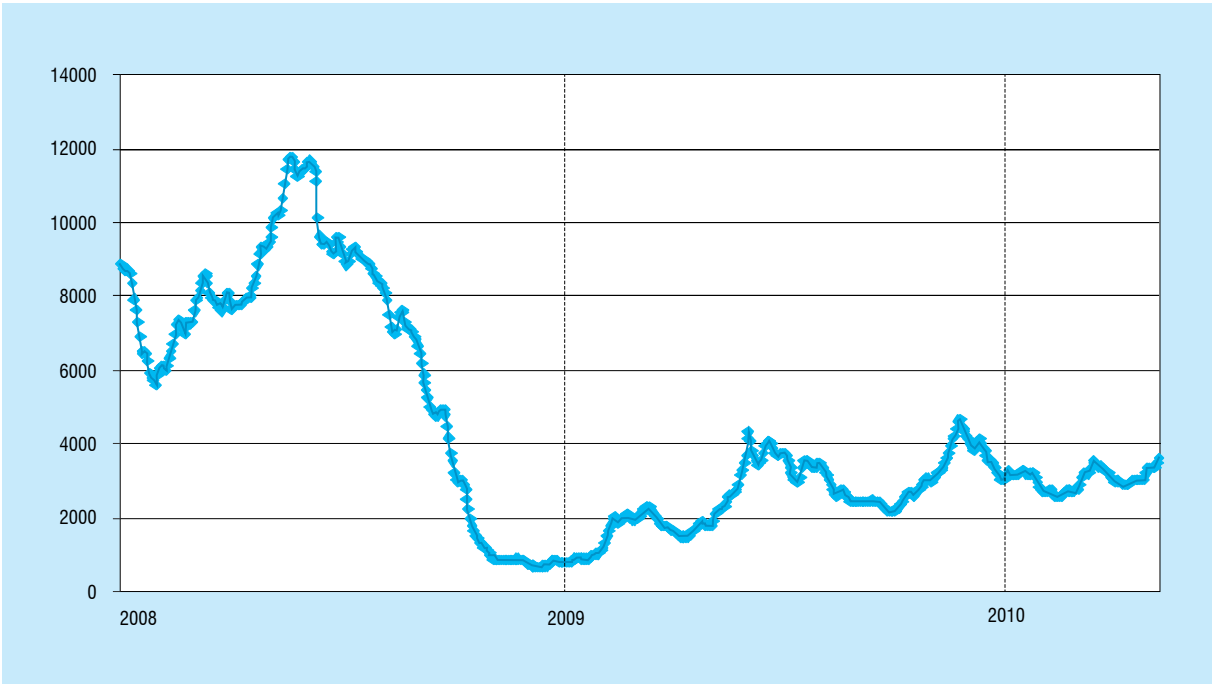
1. Developments in the dry bulk trade

The dry bulk market, which collapsed spectacularly at the end of 2008, improved in 2009 (see fig. 4.2). The Baltic Exchange Dry Index (BDI), which measures freight rates for dry bulk transported by sea, started 2009 at 773 points and ended the year at 3,005 points. In 2008, the peak of 11,771 points was reached on 21 May, and the low of 663 points occurred on 5 December. In 2009, the high point of the year was in November, with the BDI reaching 4,661 points. Rates maintained most of their 2009 gains, fluctuating in the 2,500 to 4,500 point range for the first half of 2010. The current world fleet of dry bulk carriers amounts to approximately 457 million dwt, with a further 258.3 million, or 54 per cent of the fleet, on order. The following sections describe some of the recent developments in each of the five main bulk trades.

Iron ore[23]

Iron ore is an important commodity, as it forms the basic ingredient for the production of steel, which in itself is a major component of heavy industrial production.[24] Australia and Brazil account for two thirds of the world's exports of iron ore. The two biggest iron ore companies are the Brazilian company Vale, and the British/Australian Rio Tinto (see chapter 1 for more details on iron ore). China accounts for almost half of the world's imports, followed by Japan with almost one fifth. It was the demand by China for iron ore imports that helped bring about a revival in the fortunes of dry bulk shipowners in 2009. Such imports

Figure 4.2. Baltic Exchange Dry Bulk Index, 2008–2010 ***(index base year 1985, 1000 points)***



Source: Baltic Exchange.

amounted to 32,594,000 tons in January 2009, and doubled to 64,546,000 tons in September 2009. This helped push the daily earnings of Capesize vessels from $16,000 and Panamax vessels from $7,000 at the start of 2009 to $80,000 and $27,000 respectively by November 2009.[25]

Iron ore imports by the European Union,[26] Japan, the Republic of Korea, and Taiwan Province of China rose on average by 14 per cent in 2009. However, this figure masks the fact that the total iron ore imported by China almost doubled in 2009, to 628 million tons, while, also in 2009, imports of iron ore by the EU[27] halved, to 79 million tons.

Coal

In addition to being an important ingredient in steel production, coal (coking) is used to make many products, and is also used to create energy (thermal coal) to fuel industry. The demand for coal imports in Europe[28] continued its downward trend in 2009, decreasing to 116 million tons (down from 141 million tons in 2008). In 2009, global coal imports declined in most other major importing countries, with the exception of the Republic of Korea where they increased modestly from 93.5 million in 2008 to 95.7 million in 2009, and in China, where coal imports rose by 40 million tons to 127 million tons.[29]

Grain

The single largest exporter of grain in the world is the United States, followed by Argentina, Canada, the European Union, and Australia. Grain exports from the United States decreased in 2009 to 73.7 million tons – down from 90.4 million tons in 2008 and 98.2 million tons in 2007. Similarly, Argentinean exports declined from 26.4 million tons in 2008 to 16.1 million tons in 2009, whereas exports from Australia increased from 13.1 million tons to 20 million tons following the decision by the Australian Government to scrap its monopoly export system and open up the market.[30] The outlook for 2010 and 2011 remains depressed, with excess supplies of wheat on the market and global stockpiles at an eight-year high of 195.8 million tons – about 30 percent of total demand – and the highest stockpile since 2004. One estimate puts the f.o.b. price of wheat from Black Sea countries at $160 per ton, compared to $205 for Australian wheat. With increasing competition for market share in Asia, Australia's proximity and consequent lower transport costs may not be enough to overcome its 20 per cent price premium.

Bauxite/alumina

Maritime transport is often used (particularly dry bulk carriers) to ship raw bauxite material from the mine to the refinery where alumina is produced. Alumina, in powdered form, can then be transported by dry bulk carrier from the refinery to the primary aluminium smelter to produce aluminium metal. The aluminium metal in ingot or slab form is then transported to the point of manufacture (e.g. a car factory) to be converted into its commercial product (e.g. a car's bonnet).[31] A healthy scrap market also exists, which sees that the majority of aluminium is recycled back into the production process. Aluminium metal itself is used mainly in the transportation (e.g. car body parts), construction (e.g. window frames) and packaging (e.g. perishable foodstuffs) industries.[32] World mine production of bauxite decreased by an estimated 2 per cent in 2009, to approximately 201 million tons. China accounts for about one third of both world production and world consumption of primary aluminium. After China, the most important producing countries are the Russian Federation (home to UC Rusal – the world's largest alumina and aluminium producer), Canada, the United States, Australia, Brazil, Norway and India, which account for about three quarters of the world output of primary aluminium. The leading bauxite-producing countries, which together account for three quarters of total world production, in decreasing order of tonnage mined, are: Australia, Brazil, China, Guinea and Jamaica.

The London Metal Exchange (LME) average cash price for high-grade aluminium fell from a record high of $3,070 per ton in July 2008 to $1,329 per ton in February 2009, before recovering to $2,103 per ton in May 2010.

Phosphates[33]

Phosphorus is an essential element for plant nutrition (e.g. liquid and solid fertilizers) and for animal nutrition (e.g. livestock and poultry feed). Phosphate rock minerals are the only significant global resources of phosphorus. With more than 95 per cent of world phosphate rock consumption going to the agricultural industry, the remainder is used in industrial applications such as anti-corrosion agents, cosmetics, fungicides, ceramics, water treatment and metallurgy. Maritime transport – using dry bulk carriers – transports the raw phosphate rock and the refined phosphorus.

The world's largest complexes for phosphate rock are located in the Khibiny (Russian Federation) and the

Kara Tau (Kazakhstan), although Morocco remains the world's major exporter, and the United States is the world's major importer. Morocco's exports accounted for nearly half of world shipments, totalling 32 million tons, the bulk of which was exported to Europe and the Americas. Shipments by smaller-scale exporters in other African countries and the Middle East accounted for 40 per cent of world exports. Large phosphate resources have been identified on the continental shelves, and on seamounts in the Atlantic Ocean and the Pacific Ocean.

2. Dry bulk freight rates

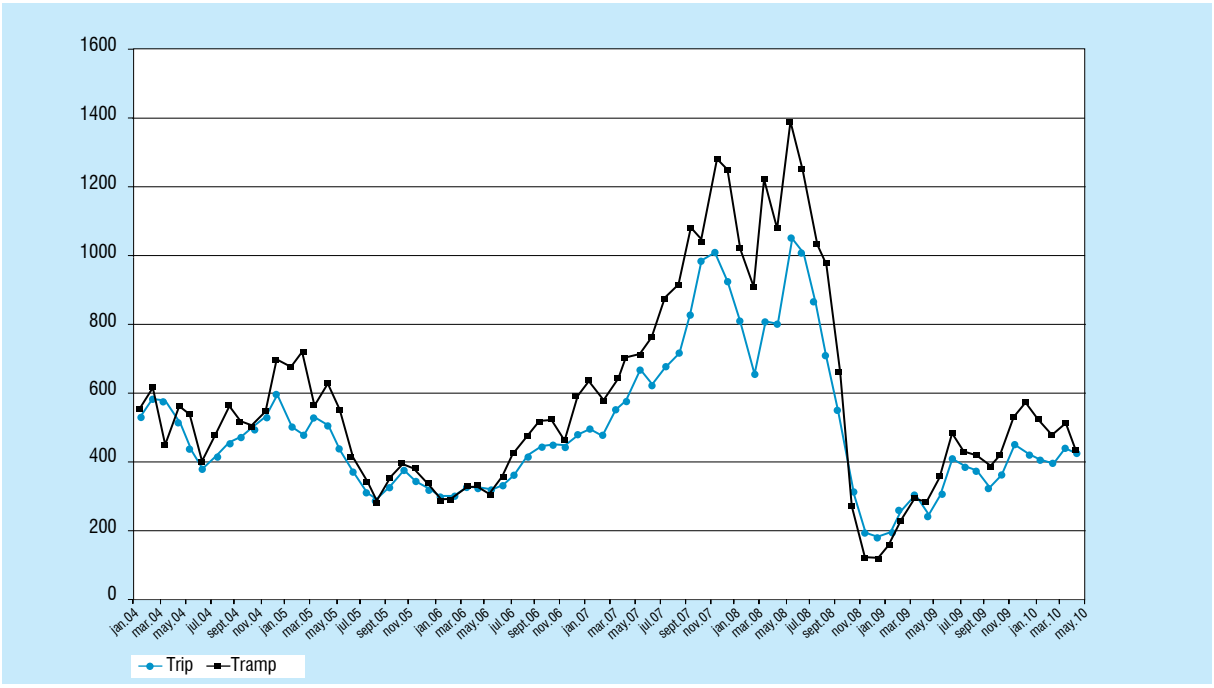
Freight rates for dry bulk vessels doubled over the course of 2009 (see fig. 4.3 and table 4.3). Despite this, rates ended the year at about 40 per cent below the peak reached in 2008. The first half of the year showed the most gains in freight rates, much to the relief of shipowners. While freight rates in the third quarter of 2009 slackened, the last quarter witnessed the year's highs. In January 2009, the average earnings for a modern Capesize were $22,000 per day, and by December 2009, the monthly average had risen to $42,000 per day. Comparing year on year, the average daily hire rate in 2009 equated to $35,300 per day, as opposed to $116,175 per day in 2008. While 2009 may have been a disappointment for shipowners when compared to 2008, it was, however, a more stable year that did not offer the exceptional highs and lows that some vessels experienced in 2008 with rates surpassing $300,000 per day only to later dip well below $10,000 per day. The declining earnings market naturally affected the price of vessels. A five-year-old Capesize vessel cost, on average, $123.2 million in 2008, and $47.3 million in 2009. By February 2010, the price had lifted slightly, to $52 million.

In 2009, freight rates for Capesize tonnage chartered for transatlantic round trips recovered from their rollercoaster ride in 2008. Whereas rates for 2008 were at $220,385 per day in May and then dropped to $3,070 in November, the rates in 2009 started out at $14,280 and then climbed to $76,843 by November. The rollercoaster ride continued, and then in February 2010 rates fell back to $33,810.

Dry bulk time charter (periods)

Estimates of rates for 12-month period charters (prompt delivery) rose steadily during 2009, albeit on the back of the significant declines experienced towards the end of 2008. Capesize ships of 200,000 dwt aged five years fetched $19,700 per day at the start of 2009

Figure 4.3. Dry cargo freight indices, 2004–2010



Source: UNCTAD secretariat, based on various issues of *Shipping Statistics and Market Review,* produced by the Institute of Shipping Economics and Logistics.

Table 4.3. Dry cargo freight indices, 2007–2010

Period	Dry cargo tramp time charter (1972 = 100)				Dry cargo tramp trip charter (1985 = 100)			
	2007	2008	2009	2010	2007	2008	2009	2010
January	491	812	193	408	632	1 018	154	523
February	480	657	259	398	577	908	227	476
March	550	810	305	447	644	1 221	296	514
April	576	795	254	430	707	1 080	277	430
May	671	1 055	306	463	712	1 544	358	568
June	626	1 009	410	415	759	1 250	479	503
July	673	868	388		875	1 036	426	
August	718	716	377		920	976	413	
September	828	550	325		1 078	657	385	
October	985	313	357		1 044	267	416	
November	1 013	192	457		1 280	117	529	
December	926	181	423		1 251	121	575	
Annual average	711	663	338	427	873	850	378	502

Source: UNCTAD secretariat, based on various issues of *Shipping Statistics and Market Review* produced by the Institute of Shipping Economics and Logistics.

Note: All indices have been rounded to the nearest whole number.

(against $125,000 for the same period in 2008) and had doubled by the end of the year. Freight rates for Capesize ships of 170,000 dwt aged five years started at $18,500 per day in January 2009, down from $57,000 in January 2008, and ended 2009 at $34,500 per day. The best-performing sector, however, was Panamax vessels of 75,000 dwt aged between one and five years, which experienced a 143 per cent increase in rates for the period from December 2008 to December 2009. Freight rates for Handymax ships of 28,000 dwt aged 10 years increased from $6,500 per day in January 2009 to $13,500 per day by December 2009.

Dry bulk trip charter

Iron ore freight rates from Brazil to China started 2009 at $13.90 per ton – a significant decline from the $64.05 per ton the previous year. The turmoil in prices can be seen by comparing the rate for May 2008, which was $101.80 per ton, with the rate for December 2008, when it was a mere $8.35 per ton. The year 2009 revealed some recovery in prices, with June witnessing a rate of $43.45 per ton. By early 2010, the rate had slipped back to the mid twenties, as concern grew about the ability of the world economy to bounce back from the global economic downturn, and about the increasing stockpile of iron ore in Chinese ports and refineries.

C. LINER SHIPPING MARKET[34]

Introduction

Liner services operate between fixed ports on a strict timetable. Liner services can be operated by one company, or by a group of companies in what is known as an alliance or consortium. Costs and revenues are shared in accordance with each company's contribution. Liner shipping companies primarily operate container ships, which carry containerized cargo. Most items can be transported in containers, including cargoes previously transported in bulk, and also components of products, although containers mostly carry finished products ready for consumption. The share of containerized trade, as part of the world's total dry cargo, increased from 5.1 per cent in 1980 to 24.3 per cent in 2009 (chapter 1). In 2009, total world containerized trade was estimated at 1.19 billion tons – a decrease of around 9 per cent over the previous year.

Measured in twenty-foot equivalent units (TEUs), container trade volumes amounted to an estimated 124 million TEUs in 2009, down from 137 million TEUs recorded in 2008. Approximately 15 per cent of world seaborne trade in volume terms (tons) is transported in containers. The following sections examine developments in the liner shipping market and freight rates.

The rapid growth in containerisation over the last 20 years is the result of a combination of factors that includes dedicated purpose-built container vessels, larger vessels capable of achieving increased economies of scale, improved handling facilities in ports, and also the increasing amount of raw materials being carried in containers. In 2009, the French liner company CMA CGM added to its fleet the 13,300 TEU Christophe Colomb, which was delivered in November from the DSME shipyard in the Republic of Korea.[35] Although shorter and narrower than the Emma Maersk and her sister ships, this vessel is one of the world's largest container ships currently afloat. The world fleet of container ships increased by 7.1 million dwt in 2009, by just over 4 per cent, to reach 169 million dwt, which is approximately 13.3 per cent of the total world fleet. At the beginning of 2010, there were 4,677 container ships, with a total capacity of 12.8 million TEUs.

1. Developments in the liner trade

General developments

There has been an increase in the number of container ships delivered over the last few years, in the expectation that world trade would also grow. However, the amount of cargo needing to be transported has dropped, owing to the global economic crisis. Over the course of 2009, several shipping lines cut the size of their fleet by returning unwanted chartered tonnage to shipowners, sending some ships to demolition, and laying up others. In June 2009, Evergreen Line was reported to have planned the scrapping of 31 vessels with a capacity of between 2,728 and 3,428 TEUs. By November 2009, the total number of vessels lying idle for more than 20 days was reported at 551, with a combined capacity of 1.18 million TEUs. Those vessels that carriers could not get rid of were added to existing liner services, and all ships were made to sail at lower speeds to absorb capacity. All of these measures together helped to stabilize freight rates.

2. Container freight rates

German shipowners dominate global liner capacity, with Hamburg brokers controlling about 75 per cent of the container ship charter tonnage. Their ships, in many cases, are chartered by the large liner companies, which, together with their own fleets of vessels, operate an extended service (see chapter two for more details on liner shipping companies). For example, CMA CGM's fleet consisted of about 67 per cent chartered-in tonnage in 2009, and APL's percentage was 71 per cent, while the average for the top 20 liner companies in 2009 was around 48.5 per cent.[36] Since 1998, the Hamburg Shipbrokers' Association (VHSS) has published the Hamburg Index, which provides a market analysis of container ship time charter rates of a minimum duration of three months. Table 4.4 shows the average yearly rates since the year 2000, a well as monthly charter rates for container ships for 2009, as published by VHSS. More recently, VHSS has launched a new index called the New ConTex, which is a daily charter rate index of fixtures complied by a panel of international brokers.[37] The index consists of six different container vessel types, and is depicted in figure 4.4 as a combined rate. The index shows the dramatic decline in container charter rates from the middle of 2008 to April 2009, when it levelled off, before embarking on an upward trajectory at the start of 2010. While charter rates for 2010 have rebounded from the 75 per cent declines seen in 2009, rates are at only around half their 2008 levels. The signs of recovery mentioned in chapter 1 can be seen in this index. Given this rise in the index, and the increased supply of new container vessels delivered in 2009 (see chapter 2), the outlook for liner shipping in 2010 and 2011 looks positive. The real test is whether the increased freight rates are a result of increased demand, or are a consequence of the tightening of supply by carriers.

Average yearly charter rates for all of the 10 vessel types shown in table 4.4 fell in 2009; prices for vessels of between 2,000 and 2,299 TEUs declined by 72.9 per cent compared to 2008, and vessels of between 1,600 and 1,999 TEUs declined by 71.3 per cent. Geared/gearless vessels of between 200 and 299 TEUs proved to be the most resilient container vessel type, although average charter rates for 2009 were at only half of their 2008 average. One possible explanation may be that these vessels tend to be employed in areas where competition for container traffic is weak.

Freight rates on main routes

Table 4.5 and figure 4.5 show the all-inclusive freight rates on the three main containerized routes (Pacific, Asia–Europe, and transatlantic). In 2009, freight rates continued a downward path that had begun in the fourth quarter of 2008. In early 2009, some container shipping lines lowered their Asia–Europe freight rates to zero and shippers paid only surcharges as a contribution to the carriers' operating costs. An improvement was first seen on the Asia–Europe route in the third quarter of 2009, and then on the other routes in the last quarter. Figures published by the European Liner Affairs Association show that container volumes on the Asia–Europe trade fell by around 14.8 per cent over the course of 2009. A year-on-year comparison between 2009 and 2008 shows that for each quarter rates were lower, except for United States–Asia in the first quarter and United States–Europe in the first half. In fact, the United States–Europe route proved to be the sturdiest over 2009, while rates from Asia to the United States suffered the biggest falls. Liner shippers attempted to push freight rates up, by slow steaming and by laying up vessels. The sailing time from some northern European ports to Asia increased to a record high of over 40 days.[38] This helped push base freight rates from Asia to Europe from $600 in October 2009 to $900–$1000 by the end of the year.[39]

Table 4.4. Container ship time charter rates *(dollars per 14-ton slot/day)*

Ship type	Yearly averages										
(TEUs)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Gearless											
200–299	15.7	15.7	16.9	19.6	25.0	31.7	26.7	27.2	26.0	12.5	11.5
300–500	14.5	14.7	15.1	17.5	21.7	28.3	21.7	22.3	20.0	8.8	9.0
Geared/Gearless											
2 000–2 299	10.7	8.0	4.9	9.8	13.8	16.4	10.5	11.7	10.0	2.7	3.6
2 300–3 400[a]			6.0	9.3	13.2	13.0	10.2	10.7	10.7	4.9	4.7
Geared/Gearless											
200–299	17.8	17.8	17.0	18.9	27.0	35.4	28.0	29.8	32.1	16.7	16.9
300–500	14.6	14.9	13.4	15.6	22.2	28.8	22.0	21.3	21.4	9.8	10.2
600–799[b]			9.3	12.3	19.6	23.7	16.6	16.1	15.6	6.6	7.7
700–999[c]			9.1	12.1	18.4	22.0	16.7	16.9	15.4	6.0	7.2
800–999[d]										4.9	6.3
1 000–1 260	11.9	8.8	6.9	11.6	19.1	22.6	14.3	13.7	12.2	4.0	4.8
1 261–1 350[e]										3.7	4.3
1 600–1 999	10.4	8.0	5.7	10.0	16.1	15.8	11.8	12.8	10.8	3.1	4.0

Ship type	Monthly averages for 2009											
(TEUs)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gearless												
200–299	15.5	12.5	13.2	11.8	10.6	13.5	13.5	10.7	12.0	11.8	10.9	13.5
300–500	10.9	9.6	9.1	8.5	8.9	8.8	8.8	8.1	8.9	8.1	7.8	8.6
Geared/Gearless												
2 000–2 299	4.6	3.2	3.2	2.4	2.4	2.5	2.5	2.5	2.5	2.3	2.1	2.1
2 300–3 400[a]	9.5	9.5	2.8	2.6	2.5	2.3						
Geared/Gearless												
200–299	20.8	18.2	17.2	17.2	15.7	15.3	16.9	15.6	16.8	14.0	15.6	16.6
300–500	12.5	10.7	9.4	9.5	8.7	11.0	10.0	9.8	10.0	8.8	8.9	8.6
600–799[b]	12.1	7.2	6.2	6.3	6.2	6.4	5.6	6.0	5.7	5.6	6.0	5.8
700–799[c]	7.5	6.9	5.9	6.0	6.0	5.9	5.7	6.0	5.8	5.7	5.5	5.5
800–999[d]												
1 000–1 260	5.0	4.9	4.5	4.1	3.8	3.8	3.7	3.7	3.7	3.7	3.8	3.6
1 261–1 350[e]												
1 600–1 999	4.7	3.7	3.5	3.2	2.8	2.8	2.7	2.6	2.7	2.6	2.6	3.1

Table 4.4. Container ship time charter rates *(dollars per 14-ton slot/day)* (concluded)

Ship type (TEUs)	Monthly averages for 2010					
	Jan	Feb	Mar	Apr	May	Jun
Gearless						
200–299	10.44	11.72	12.95	10.39	12.68	11.90
300–500	9.07	8.13	8.30	8.45	9.25	9.63
Geared/Gearless						
2 000–2 299	2.63	2.42	2.50	2.79	3.15	5.17
2 300–3 400[a]	2.08	2.57	2.95	5.19	5.49	7.16
Geared/Gearless						
200–299	16.61	15.24	15.63	15.63	17.38	20.23
300–500	8.78	9.42	9.69	11.58	9.65	9.84
600–799[b]	6.07	5.91	7.41	6.23	7.22	8.54
700–999[c]	6.66	6.21	6.26	6.64	6.91	8.24
800–999[d]	6.38	6.05	5.22	5.30	6.10	6.99
1 000–1 260	3.97	3.78	4.03	4.27	4.84	6.19
1 261–1 350[e]	3.32	3.43	3.57	3.76	4.16	5.30
1 600–1 999	2.96	3.31	3.02	4.49	3.40	4.99

Source: Compiled by the UNCTAD secretariat, from the Hamburg Index produced by the Hamburg Shipbrokers' Association, available at http://www.vhss.de; and from *Shipping Statistics and Market Review,* vol. 52, no. 1/2 2010: 54–55, produced by the Institute of Shipping Economics and Logistics.

[a] This category was created in 2002. The data for the first half of the year correspond to cellular ships in the 2,300–3,900 TEU range, sailing at 22 knots minimum.

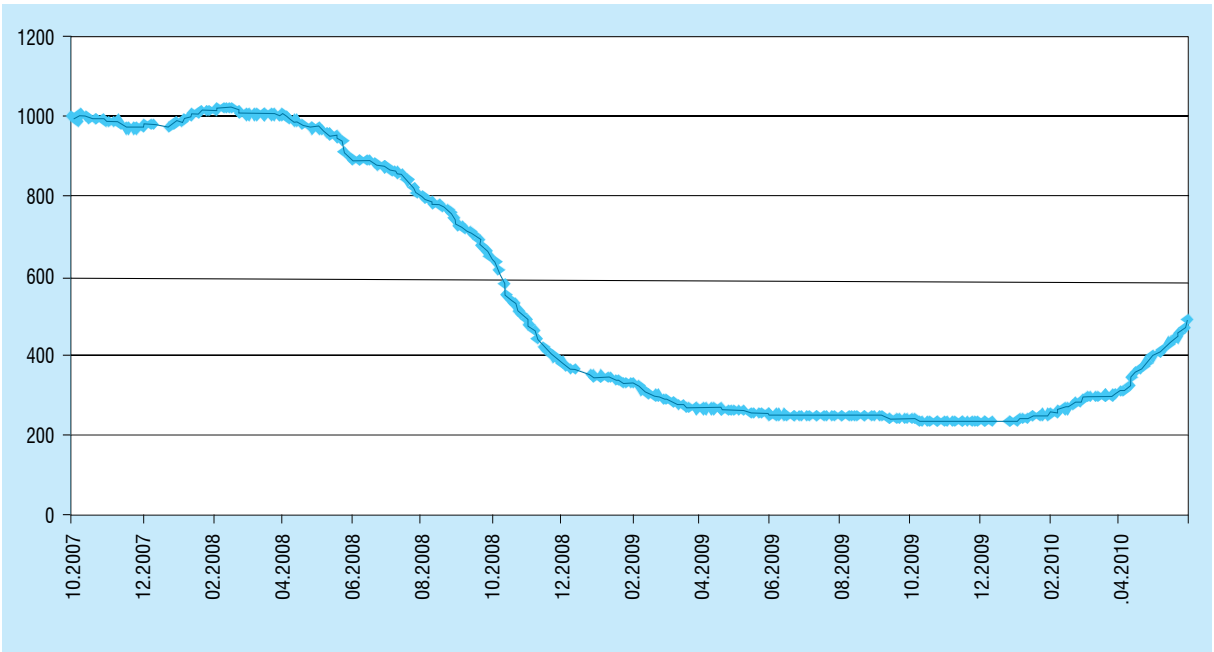
[b] Sailings at 17–17.9 knots.

[c] Sailings at 18 knots minimum.

[d] This category was created in 2009 by splitting the 700–999 category.

[e] This category was created in 2009 by splitting the 1,000–1,350 category.

Figure 4.4. New ConTex 2007–2010 *(indices base: 1,000–October 2007)*



Source: Compiled by the UNCTAD secretariat, using the ConTex Index produced by the Hamburg Shipbrokers' Association which is available at http://www.vhss.de.

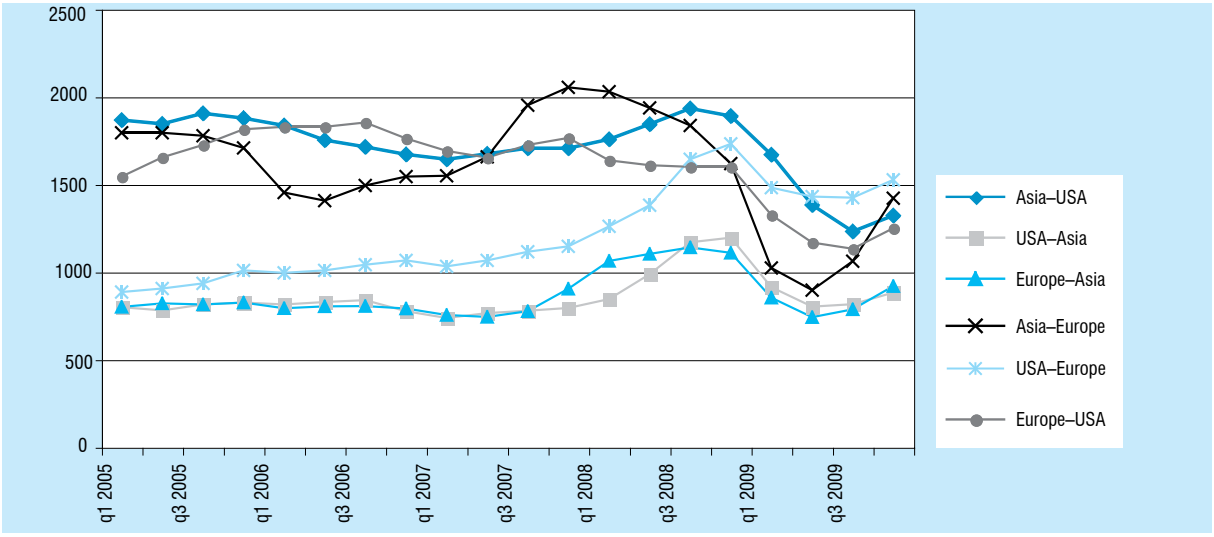
Table 4.5. Freight rates (market averages) per TEU on the three major liner trade routes
(in dollars per TEU and percentage change)

	Trans-Pacific		Europe–Asia		Transatlantic	
	Asia–United States	United States–Asia	Europe–Asia	Asia–Europe	United States–Europe	Europe–United States
2008						
First quarter	1 757	845	1 064	2 030	1 261	1 637
Percentage Change	3	6	18	- 1	10	- 7
Second quarter	1 844	987	1 104	1 937	1 381	1 610
Percentage Change	5	17	4	- 5	10	- 2
Third quarter	1 934	1 170	1 141	1 837	1 644	1 600
Percentage Change	5	19	3	- 5	19	- 1
Fourth quarter	1 890	1 196	1 109	1 619	1 731	1 600
Percentage Change	- 2	2	- 3	- 12	5	0
2009						
First quarter	1 670	913	853	1 023	1 481	1 325
Percentage Change	- 12	- 24	- 23	- 37	- 14	- 17
Second quarter	1 383	802	742	897	1 431	1 168
Percentage Change)	- 21	- 12	- 13	- 12	- 3	- 12
Third quarter	1 232	817	787	1 061	1 424	1 133
Percentage Change	- 11	2	6	18	- 0	- 3
Fourth quarter	1 322	883	920	1 422	1 527	1 250
Percentage Change	7	8	17	34	7	10

Source: UNCTAD secretariat, based upon *Containerisation International Online* which is available at http://www.ci-online.co.uk.

Notes: The freight rates shown are "all in", that is to say, they include currency adjustment factors and bunker adjustment factors, plus terminal handling charges where gate/gate rates have been agreed, and inland haulage where container yard/container yard rates have been agreed. All rates are average rates of all commodities carried by major carriers. Rates to and from the United States refer to the average for all three coasts.

Figure 4.5. Freight rates (market averages) per TEU on the three major liner trade routes (both directions)
(in dollars per TEU)



Source: UNCTAD secretariat, based upon *Containerisation International Online,* available at http://www.ci-online.co.uk. .

2009 proved to be an extremely difficult year for container freight rates. Individual carriers attempted to "talk up" freight rates by publishing in the press numerous notices of rate increases. Once a notice had been issued by one carrier, other carriers followed suit. These notices did not prevent shippers from bargaining hard, and the average freight rates received by APL and OOCL in the second quarter of 2009 were down by 29 per cent compared to the same period in 2008.

Table 4.6 shows the development of liner freight rates on cargoes loaded or discharged by German-owned container vessels for the period 2007–2009. The average overall index for 2009 decreased by 26 points from the 2008 level, to reach 64 points (the base year of 100 points is 1995). The monthly figures indicate a depressed start to 2009, following by a gradual decline before some ground is gained in the second half of the year. In the outbound trade, the average level in 2008 declined to 54 points – a reduction of 23 points – with the low of 48 recorded in June 2009 signifying a sharp drop in trade from Europe to Asia. The average homebound index decreased by 30 points to 76 over the year, with the month of May 2009 representing the low point.

Maritime transport is not the only transport mode available to shippers on the Asia–Europe route. Increasingly, the Trans-Siberian Railroad (TSR) has become a viable alternative, with journey times that are typically one third to one half of journey times by sea. In line with the decreasing maritime freight rates, towards the end of 2009 the TSR announced a 20 per cent reduction in rates for transit cargo. Freight rates for moving a forty-foot equivalent unit (FEU) from Asia to the Polish border in late 2009 using the TSR were $2,820 from Yokohama, $2,474 from Shanghai and $2,154 from Busan.[40] Maritime freight rates from East Asian ports to Northern Europe were around $1,400, and journey times were around 40 days. The complaints from shippers using the TSR route are that despite the freight rate reductions, the route is still too expensive and the reductions made in 2009 came too late.

Container leasing

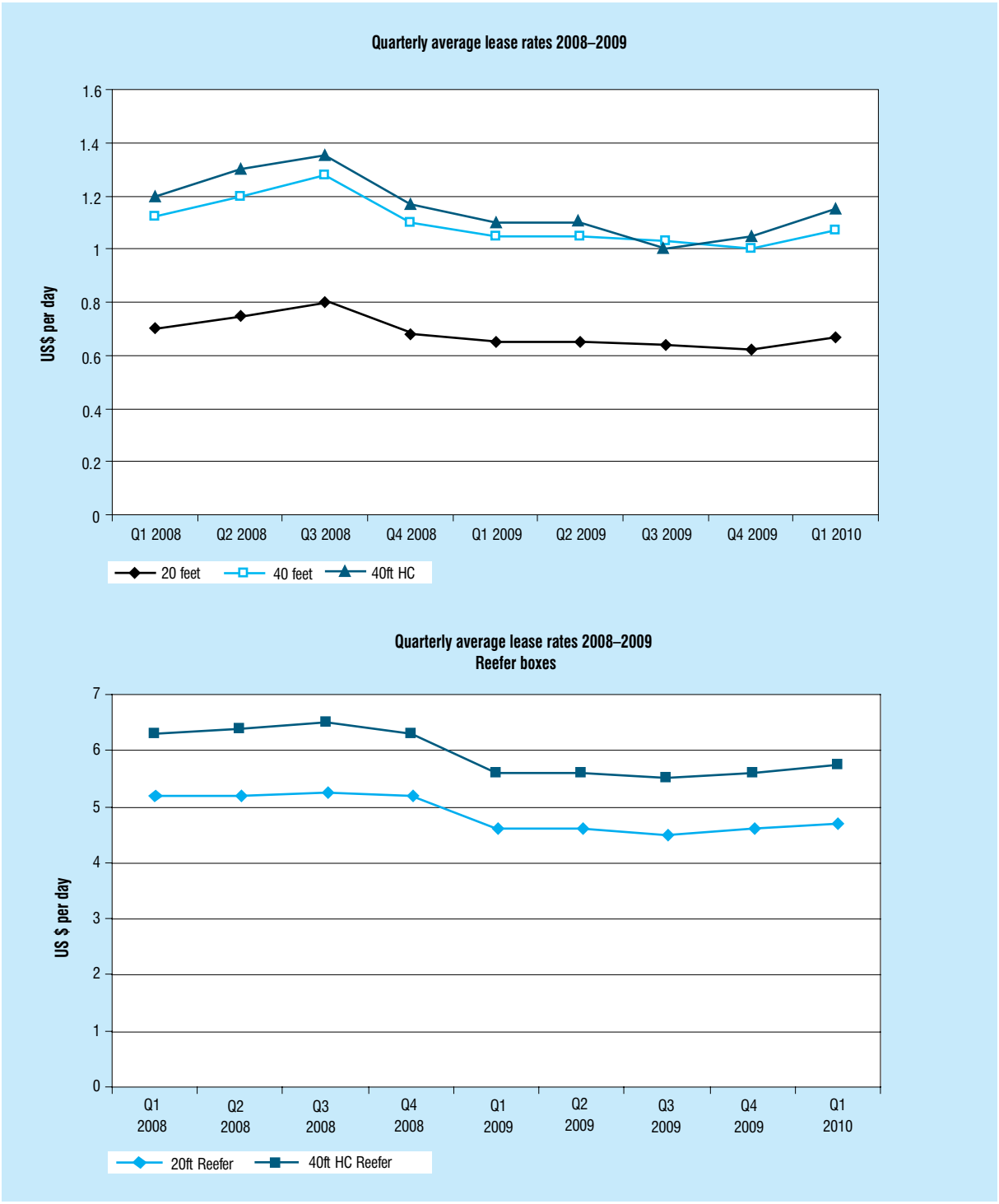
Unlike other maritime transport sectors, where the unit of carriage is included in the packaged product (e.g. a pallet of rice), container cargo also creates a derived demand for containers, about 40 per cent of which are leased from dedicated container leasing companies (lessors). Container leasing rates fell sharply at the end of 2008, and continued to decline throughout 2009. At the start of 2009, the daily hire rate for a five-year option on a standard TEU was $0.65 and by the end of the year this had declined to $0.62. The daily rate for a forty-foot equivalent unit (FEU) high-cube unit experienced a similar decline, starting the year at $1.10 and falling to $1.05 by the fourth quarter (see fig. 4.6).

Table 4.6. Liner freight indices, 2007–2010 ***(monthly figures: 1995 = 100)***

Month	Overall index				Homebound index				Outbound index			
	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
January	89	98	62	98	98	116	68	138	81	83	58	65
February	88	95	59	104	98	114	64	149	80	80	55	67
March	86	92	57	111	96	110	60	163	78	77	55	68
April	87	88	56	115	100	106	61	161	77	74	52	77
May	88	89	53	119	101	107	58	166	76	75	49	82
June	92	89	53	124	105	106	59	170	81	75	48	88
July	94	89	60		114	104	71		80	76	51	
August	95	93	65		118	107	80		81	81	53	
September	98	97	69		121	113	87		84	85	54	
October	97	90	75		119	105	98		84	77	57	
November	97	86	75		115	101	97		86	74	56	
December	100	73	84		118	83	111		88	65	63	
Annual average	93	90	64	112	109	106	76	158	81	77	54	75

Source: Compiled by the UNCTAD secretariat, on the basis of information in *Shipping Statistics and Market Review*, vol. 53, no. 3, March 2010: 61–62, published by the Institute of Shipping Economics and Logistics.

Figure 4.6. Quarterly average lease rates 2008–2009



Source: UNCTAD secretariat, based upon *Containerisation International*, various issues.

The average cash investment return in 2009 remained at 11.5 per cent for standard twenty-foot containers and 12.5 per cent for forty-foot high-cube units. Demand for rental equipment gradually improved over 2009, perhaps helped by the credit crisis as bank lending constraints placed a greater emphasis on the need for companies to curtail spending.

The world container fleet, comprising 10.2 million TEUs owned by lessors and 16.9 million TEUs owned by sea carriers (table 4.7), contracted in 2009 by more than 5 per cent compared to its 2008 level, registering 27.1 million TEUs in 2009.

In summary, 2009 was a bleak year for freight rates in the tanker, major dry bulk and liner sectors. The deepening of the global financial crisis severely affected demand for all types of commodities and goods. All sectors experienced a tumultuous year, with freight rates for many ships at around one quarter of the previous year's rates. Although some signs of recovery were seen towards the end of 2009, freight rates for 2010 and beyond remain uncertain as doubts surround the ability of industry and governments to sustain a recovery on the back of excess tonnage ordered at the peak of the market. Shipowners adopted a number of measures that included slow steaming, vessel lay-ups and ship demolition to combat the decline in demand and to turn their fortunes around. The ship demolition market also collapsed in 2009. The sum offered to shipowners for demolishing ships remained low, with the price of steel in the Far East at around $185 per light displacement ton (ldt) in March 2009, compared to more than $700 in the previous year. However, rates gently climbed to $400 in early 2010. Demolition rates in South Asia (Pakistan and India) tended to hover at approximately $20–$60 more per ldt than those in the Far East. Reduced demand, increased supply and unfavourable demolition prices, coupled with the operational losses incurred in 2009 and 2010 by many shipowners, may mean that consolidation in the shipping industry could be forthcoming in 2011.

Table 4.7. World Container fleet *(in thousands of TEUs)*

	Global	Lessor	Sea carrier fleet
2005	21 415	9 380	12 035
2006	23 335	9 850	13 485
2007	26 235	10 680	15 555
2008	28 685	11 525	17 160
2009	27 100	10 200	16 900

Source: *Containerisation International Online*, "Key Numbers", 1 May 2010 edition.

ENDNOTES

1 BAF = Bunker Adjustment Factor; CAF = Currency Adjustment Factor; THC = Terminal Handling Charges.

2 In February 2009, the United Arab Shipping Company introduced a $22 piracy surcharge for containers moving through the port of Aden, Yemen. See http://www.seatradeasia-online.com/News/3728.html (accessed 14 June 2010).

3 As freight rates are rarely all-inclusive, it is often difficult for shippers to estimate the final transport cost, and therefore there is growing pressure to change the billing process. In 2008, the European Union repealed the block exemption previously given to liner conferences to collectively set freight rates; this meant that from then on, liner companies had to set prices independently. A study of the cost of THCs in some 44 ports across Europe showed that level of THC increased after the ending of liner conferences, and that there was a high degree of averaging of charges applied. This has led to complaints from shippers that THC are (a) not a reflection of the actual costs incurred by terminal operators; and (b) used as a mechanism to compensate for lower freight rates. See: European Commission Competition (2009). *Terminal Handling Charges During and After the Liner Conference Era*. ISBN 978-92-79-14547-6. October.

4 A contract of affreightment is an agreement to carry a certain quantity of cargo over a specific period.

5 UNCTAD secretariat, based on *Shipping Insight* by Drewry Shipping Consultants, various issues; and on *Shipping Review and Outlook* by Clarkson Research Services, 2009 and 2010.

6 604 according to *Tanker Shipping and Trade*, February/March 2010.

7 http://www.audicapital.com/HomepageNews/Documents/NSCSA%20-%2019%20March%202010.pdf.

8 Lloyd's Shipping Economist (2009). May: 17.

9 Clarkson Research Services (2010). *Shipping Review and Outlook*. Spring: 32.

10 An archaic term derived from the maximum-sized vessel permitted under the Average Freight Rate Assessment procedure for adjusting long-term oil freight contract rates.

11 *Lloyd's List.* About the fleet. 1 April 2009.

12 *Lloyd's List*. About the fleet. 1 April 2009.

13 An LNG train is the term used to describe the liquefaction and purification facilities in a liquefied natural gas plant.

14 International Association of Ports and Harbours (2010). Down the pipeline. *Ports and Harbours*. Vol. 55, no. 3: 16–17.

15 Lloyd's List (2010). LNG spot market rates linger at rock bottom. 22 June. Available at http://www.lloydslist.com/ll/sector/tankers/article171778.ece (accessed 22 June 2010).

16 In early 2010, a company called Platts (http://www.platts.com) launched a subscription-based daily index of LNG freight rates.

17 Approximately 15 per cent of LNG vessels are on the spot market. Source: Lloyd's List (2010). LNG spot market rates linger at rock bottom. 22 June. Available at http://www.lloydslist.com/ll/sector/tankers/article171778.ece (accessed 22 June 2010).

18 http://www.hellenicshippingnews.com/index.php?option=com_content&task=view&id=92719&Itemid=79 (accessed 31 May 2010). Also: Platts (2010). LNG Daily. 31 March.

19 http://www.upstreamonline.com/live/article207798.ece

20 http://www.zawya.com/Story.cfm/sidv53n15-3NC28/Yemen%20LNG%20s%20Second%20Train%20Goes%20On%20Stream

21 http://www.lloydslist.com/ll/sector/tankers/article43391.ece

22 UNCTAD secretariat, based on *Shipping Insight* by Drewry Shipping Consultants, various issues; *Fearnleys Review* (2006); *Shipping Review and Outlook* by Clarkson Research Services (2006 and 2007); and *Dry Bulk Trade Outlook* by Clarkson Research Services (May and June 2007).

23 UNCTAD produces annually a report entitled *The Iron Ore Market*, which can be purchased at http://www.unctad.org/infocomm/Iron/covmar08.htm.

24 Around 98 per cent of iron ore goes into iron and steel production, with the remainder used in applications such as coal washeries and cement manufacturing.

25 In the first five-and-a-half months of 2010, BHP Billiton, Rio Tinto and Vale (the world's three largest iron ore producers) accounted for 33 per cent of Capesize spot fixtures, or 180 out of 540 fixtures, according to data from Clarksons. This is down from 55 per cent in the same period in 2009, when the "big three" accounted for 345 out of 625 spot fixtures. See: *Lloyd's List* (2010). 21 June. Major iron ore producers lose bulk carrier spot market share. Available at http://www.lloydslist.com/ll/sector/dry-cargo/article171688.ece(accessed 22 June 2010).

26 The European Union's membership has grown over time, and this reference relates to when its membership consisted of 15 countries.

27 ibid.

28 ibid.

29 Clarkson Research Services (2010). *Shipping Review and Outlook*. Spring.

30 The bulk of Australian wheat exports come from Western Australian ports, including Fremantle, Albany, Geraldton and Esperance, and the increased export of wheat has put pressure on port efficiency.

31 In order to keep costs down, distances between the mine, the refinery, the smelter and the consumer are best kept to a minimum. In general, the more a product is refined, the shorter the distance to market should be, as by this stage, greater capital is tied up in the goods. However, the electrolysis process (Hall-Héroult) of converting alumina in a primary metal uses a large amount of electricity (between 100,000 and 320,000 amps), and therefore a dedicated, uninterrupted and cheap source of electricity is often the most important factor in choosing the location for an alumina refinery. Consequently, aluminium refineries tend to be located close to hydro, nuclear or coal-fired power stations, and more often than not they are located in developed countries. On average, it takes 4 tons of dried bauxite to produce 2 tons of alumina, which, in turn, provides 1 ton of primary aluminium metal.

32 http://us-cdn.creamermedia.co.za/assets/articles/attachments/21659_roskill.pdf

33 Phosphate rock is a non-renewable natural resource that can be found in both sedimentary and igneous deposits. The largest sedimentary deposits, which account for around 80 per cent of phosphate production, are found in North Africa, China, the Middle East and the United States. Igneous deposits, which tend to be of a lower grade than sedimentary deposits, are found in Brazil, Canada, the Russian Federation and South Africa.

34 UNCTAD secretariat, based on *Drewry Shipping Insight*, various issues; *Containerisation International,* various issues; *Containerisation International Online* (http://www.ci-online.co.uk); *Container Intelligence Monthly*, various issues; *Shipping Review and Outlook* (2009 and 2010); *Dynaliners Trades Review* (2010); *Lloyd's Shipping Economist*, various issues; and *Fairplay*, various issues.

35 Established in 1973, Daewoo Shipbuilding and Marine Engineering Ltd. is located at Okpo Bay, Geoje Island, at the south-eastern tip of the Republic of Korea.

36 *Containerisation International* (2009): 41. November.

37 While other container indices exist, for example the New Shanghai Containerized Freight Index and the Howe Robinson Container Index, obtaining current and/or historical data is arduous.

38 *Fairplay* (2009). The rise and rise of box freight. 17 December.

39 *Containerisation International* (2009). November. Page 41.

40 *Containerisation International* (2009). December. Page 27.

5

PORT AND MULTIMODAL TRANSPORT DEVELOPMENTS

CHAPTER 5

World container port throughput declined by an estimated 9.7 per cent to 465.7 million TEUs in 2009. Chinese mainland ports accounted for approximately 23.3 per cent of the total world container port throughput. UNCTAD's Liner Shipping Connectivity Index revealed that between 2004 and 2009, the ranking of the Least Developed Countries (LDCs) improved by 3 points. The LDCs' average ranking in 2009 was 109, compared to 76 for other developing countries and 68 for developed countries. In 2009, there were 15 LDCs that had only one to four service providers. This was almost a doubling compared to 2004, when there were only 8 LDCs with only one to four service providers.

The global trucking sector registered a compound annual growth rate in revenue of 7.8 per cent between 2004 and 2008. In the rail sector, freight and passenger services achieved a compound annual growth rate in revenue of 6.3 per cent during the period 2003–2007. Inland water transportation continues to remain underutilized in many economies.

This chapter covers some of the major port development projects under way in developing countries, container throughput, liner shipping connectivity, improvements in port performance, and multimodal transportation in the areas of road, rail, and inland waterways.

A. PORT DEVELOPMENTS

Container port throughput

Since 1990, there has been a more than fivefold increase in containerized cargo. As a consequence, the world's fleet of container ships has grown, by around seven times. More recently, over the course of 2009, the carrying capacity of the world's container fleet increased by 7 million dwt or 5.6 per cent (chapter 2). However, because of the global economic crisis and corresponding decline in trade, the situation now facing some ports is a glut of container ships lying idle. The deepening of the global financial crisis towards the end of 2008 has also had an effect on port throughput volumes and on port revenue.

Despite the global downturn in liner traffic, world container port throughput in 2008 showed an increase of approximately 4.5 per cent, to reach 508.4 million TEU moves. This was largely attributable to gains made earlier in the year when world trade was booming. The declines in throughput experienced in the fourth quarter did much to dilute the earlier gains, as contagion spread and concerns about the global economy increased. Preliminary figures for world container port throughput for 2009 (measured in twenty-foot equivalent units (TEUs)) show a decrease of around 10 per cent, down to 465.7 million TEUs, as the global financial crisis dampened demand for goods.[1]

Table 5.1 shows the latest figures available on world container port traffic for 65 developing economies with an annual national throughput of over 100,000 TEUs. In 2008, the container throughput growth rate for developing economies was 8.2 per cent, with a throughput of 347.2 million TEUs; this accounted for approximately 68 per cent of total world throughput, up from around 66 per cent the previous year.

In 2008, out of all the 65 developing economies listed, 29 experienced double-digit growth in port throughput compared to the preceding year. The 10 countries registering the highest growth were the Libyan Arab Jamahiriya (43.2 per cent), Jordan (40.7 per cent), Madagascar (27.5 per cent), Panama (27.5 per cent), Cameroon (24 per cent), the Dominican Republic (23.6 per cent), Peru (22.4 per cent), Côte d'Ivoire (20.9 per cent) and Oman (19.2 per cent). The Dominican Republic has been on the list of ports with double-digit growth for the last three years. The country with the largest share of container throughput continues to be China.

Chinese ports (excluding Hong Kong SAR) grew on average by 11.6 per cent in 2008 over the previous year to reach 115 million TEUs. Preliminary figures for 2009 showed a decline for Chinese port throughput of around 6.1 per cent, to 108 million TEUs. Terminals in the Bohai Bay area declined by 11.8 per cent, against 8.5 per cent along the Yangtze Delta, and 7.6 per cent in the Pearl River Delta and on the South-East Coast.[2] Ports in the Bohai Bay area (North-East China), where large numbers of factories are located, fared slightly worse than those in the south of the country, where the opposite could be expected due to the strong presence of transit ports in the region. Most of this decline was attributable to the terminal in the port of Dalian, where throughput declined by almost 9 per cent. Elsewhere in China, substantial declines were seen at several terminals in Shanghai, which, together, declined by about 18 per cent. The port of Yangzhou, located on the Yangtze upstream from Shanghai, suffered the largest decline in port throughput, at around 27 per cent. Container throughput at the port of Yangzhou declined by 17.5 per cent. COSCO Pacific's newly opened terminal in the port of Jinjiang was successful in attracting new business, with throughput growing by a staggering 41.6 per cent to 274,390 TEUs in 2009.

Table 5.2 shows the world's 20 leading container ports for 2009. This list includes 15 ports from developing economies, all of which are in Asia (see chapter 7); the remaining 5 ports are from developed countries (of which three are located in Europe and two are located in the United States). Of the 15 ports located in developing economies, 8 are in China (including Hong Kong SAR). The other ports are located in the Republic of Korea, Malaysia (two ports), Singapore, Taiwan Province of China, Thailand, and the United Arab Emirates. Container throughput in these ports reached 220.9 million TEUs in 2009 – a fall of 10.5 per cent compared to 2008. The majority of the ports listed remained in the same position for the third consecutive year, although the ports further down the league were subject to considerable shifting of fortunes and jostling for position. The top five ports all retained their respective positions in 2009, with Singapore retaining its lead as the world's busiest container port, followed by Shanghai, Hong Kong, Shenzhen and Busan (table 5.2). The gap between Singapore and Shanghai shortened considerably in 2009 to 864,400 TEUs, from 1.9 million TEUs in the previous year.

Table 5.1. Container port traffic for 65 developing economies: 2007, 2008 and 2009 *(in TEUs)*

Name of country or territory	2007	2008	Preliminary figures for 2009	Percentage change 2008–2007	Percentage change 2009–2008
China	103 823 024	115 934 578	108 860 631	11.67	-6.10
Singapore[a]	28 767 500	30 891 200	26 592 800	7.38	-13.91
China, Hong Kong	23 998 449	24 494 229	20 983 000	2.07	-14.33
Republic of Korea	17 086 133	17 417 723	15 749 676	1.94	-9.58
Malaysia	14 828 836	15 813 769	15 458 980	6.64	-2.24
United Arab Emirates	13 182 412	14 756 127	14 437 588	11.94	-2.16
China, Taiwan Province of	13 720 013	12 971 224	11 352 097	-5.46	-12.48
India	7 376 733	7 660 705	7 849 982	3.85	2.47
Indonesia	6 582 910	7 062 872	6 568 791	7.29	-7.00
Brazil	6 464 724	6 904 260	6 271 332	6.80	-9.17
Egypt	5 194 676	6 114 629	6 172 637	17.71	0.95
Thailand	6 339 261	6 726 237	5 981 737	6.10	-11.07
Panama	4 022 513	5 129 499	4 597 112	27.52	-10.38
Viet Nam	4 009 066	4 393 699	4 533 606	9.59	3.18
Turkey	4 678 872	5 193 730	4 491 206	11.00	-13.53
Saudi Arabia	4 208 854	4 652 022	4 430 676	10.53	-4.76
Philippines	4 338 993	4 465 582	4 170 389	2.92	-6.61
Oman	2 876 969	3 427 990	3 813 991	19.15	11.26
South Africa	3 712 090	3 900 319	3 510 240	5.07	-10.00
Sri Lanka	3 687 338	3 687 465	3 464 297	0.00	-6.05
Mexico	1 661 208	3 310 192	2 869 571	99.26	-13.31
Chile	2 725 218	3 150 020	2 776 562	15.59	-11.86
Russian Federation	2 962 385	3 371 559	2 478 136	13.81	-26.50
Iran (Islamic Republic of)	1 722 513	2 000 230	2 206 476	16.12	10.31
Colombia	2 076 760	1 955 685	2 017 924	-5.83	3.18
Pakistan	1 935 882	1 938 001	1 877 052	0.11	-3.14
Jamaica	2 016 792	1 915 943	1 689 670	-5.00	-11.81
Argentina	1 874 259	1 997 146	1 611 678	6.56	-19.30
Bahamas	1 632 000	1 702 000	1 323 000	4.29	-22.27
Peru	1 233 547	1 509 507	1 301 426	22.37	-13.78
Venezuela (Bolivarian Republic of)	1 331 711	1 325 194	1 239 508	-0.49	-6.47
Bangladesh	978 007	1 091 719	1 179 548	11.63	8.05
Ecuador	674 837	670 831	1 000 895	-0.59	49.20
Lebanon	947 625	945 105	992 559	-0.27	5.02
Guatemala	870 288	937 642	906 326	7.74	-3.34
Costa Rica	976 621	1 004 971	875 687	2.90	-12.86
Dominican Republic	883 785	1 092 430	716 078	23.61	-34.45
Côte d'Ivoire	590 306	713 625	677 029	20.89	-5.13

Table 5.1. Container port traffic for 65 developing economies: 2007, 2008 and 2009 *(in TEUs)* (concluded)

Name of country or territory	2007	2008	Preliminary figures for 2009	Percentage change 2008–2007	Percentage change 2009–2008
Jordan	414 000	582 515	674 525	40.70	15.80
Yemen	773 016	772 792	634 876	-0.03	-17.85
Kenya	585 367	615 733	618 816	5.19	0.50
Uruguay	596 487	675 273	588 410	13.21	-12.86
Syrian Arab Republic	538 525	610 607	575 299	13.39	-5.78
Honduras	636 435	669 802	571 756	5.24	-14.64
Trinidad and Tobago	514 557	554 093	567 183	7.68	2.36
Ghana	544 294	612 362	551 126	12.51	-10.00
Ukraine	990 201	1 123 268	522 364	13.44	-53.50
Sudan	342 152	391 139	431 232	14.32	10.25
Mauritius	412 896	454 433	420 055	10.06	-7.57
United Republic of Tanzania	350 991	363 310	343 851	3.51	-5.36
Senegal	424 457	347 483	331 076	-18.13	-4.72
Cuba	319 857	319 000	287 100	-0.27	-10.00
Papua New Guinea	282 356	254 592	262 209	-9.83	2.99
Algeria	200 050	225 140	249 073	12.54	10.63
Tunisia	420 501	424 780	243 995	1.02	-42.56
Cameroon	217 681	270 000	243 000	24.03	-10.00
Bahrain	238 624	269 331	242 398	12.87	-10.00
Cambodia	253 271	258 775	232 898	2.17	-10.00
Georgia	184 792	209 614	188 653	13.43	-10.00
Namibia	148 234	183 605	165 245	23.86	-10.00
Libyan Arab Jamahiriya	122 122	174 827	157 344	43.16	-10.00
Croatia	145 040	168 761	151 885	16.35	-10.00
Guam	165 427	167 784	151 006	1.42	-10.00
Madagascar	112 427	143 371	132 278	27.52	-7.74
El Salvador	144 458	156 323	126 369	8.21	-19.16
Subtotal	317 479 388	343 228 373	316 693 913	8.11	7.73
Other reported[b]	621 116	715 048	594 822	15.12	-17.11
Total reported[c]	316 692 444	345 345 013	317 288 735	9.05	-7.81
World total	488 916 538	515 762 923	465 597 537	5.49	-9.73

Source: UNCTAD secretariat, derived from information contained in Containerization International Online (June 2010), from various Dynamar B.V. publications, and from information obtained by the UNCTAD secretariat directly from terminal and port authorities.

[a] Singapore, in this table, includes the port of Jurong.

[b] Comprises developing economies where fewer than 100,000 TEUs per year were reported or where a substantial lack of data was noted.

[c] Certain ports did not respond to the background survey. While they were not among the largest ports, the total omissions can be estimated at 5 to 10 per cent.

[d] While every effort is made to obtain up-to-date data, the figures for 2009 are, in some cases, estimates. Port throughput figures tend not to be disclosed by ports until a considerable time after the end of the calendar year. In some cases, this is due to the publication of annual accounts at the close of the financial year. Country totals may conceal the fact that minor ports may not be included; therefore, in some cases, the actual figures may be higher than those given. The figures for 2008 are generally regarded as more reliable, and are therefore more often quoted in the accompanying text.

Table 5.2. Top 20 container terminals and their throughput for 2007, 2008 and 2009 *(in TEUs and percentage change)*

Port name	2007	2008	2009	Percentage change 2007–2008	Percentage change 2008–2009
Singapore[a]	27 935 500	29 918 200	25 866 400	7.10	-13.54
Shanghai	26 150 000	27 980 000	25 002 000	7.00	-10.64
Hong Kong	23 998 449	24 248 000	20 983 000	1.04	-13.47
Shenzhen	21 099 169	21 413 888	18 250 100	1.49	-14.77
Busan	13 261 000	13 425 000	11 954 861	1.24	-10.95
Guangzhou	9 200 000	11 001 300	11 190 000	19.58	1.72
Dubai	10 653 026	11 827 299	11 124 082	11.02	-5.95
Ningbo	9 360 000	11 226 000	10 502 800	19.94	-6.44
Qingdao	9 462 000	10 320 000	10 260 000	9.07	-0.58
Rotterdam	10 790 604	10 800 000	9 743 290	0.09	-9.78
Tianjin	7 103 000	8 500 000	8 700 000	19.67	2.35
Kaohsiung	10 256 829	9 676 554	8 581 273	-5.66	-11.32
Port Klang	7 118 714	7 970 000	7 309 779	11.96	-8.28
Antwerp	8 175 952	8 663 736	7 309 639	5.97	-15.63
Hamburg	9 900 000	9 700 000	7 010 000	-2.02	-27.73
Los Angeles	8 355 039	7 849 985	6 748 994	-6.04	-14.03
Tanjung Pelepas	5 500 000	5 600 000	6 000 000	1.82	7.14
Long Beach	7 312 465	6 487 816	5 067 597	-11.28	-21.89
Xiamen	4 627 000	5 034 600	4 680 355	8.81	-7.04
Laem Chabang	4 641 914	5 133 930	4 621 635	10.60	-9.98
Total Top 20	234 900 661	246 776 308	220 905 805	5.06	-10.48

Source: UNCTAD secretariat and *Containerisation International Online (*May 2010).

[a] Singapore, in this table, does not include the port of Jurong.

Container port networks

Traditional ports are known as "gateway" ports, because they act as a gate through which imports and exports must pass in order to be traded internationally. However, increasingly, ports also function as transhipment ports (most especially, in the liner trade, by taking containers off one ship and placing them on another ship bound for a different destination). To measure containerized trade, UNCTAD has developed the Liner Shipping Connectivity Index (LSCI), which is described below in greater detail.

Liner shipping connectivity

Most international trade in manufactured goods is transported by containerized liner shipping services. These liner services form a global maritime transport network, through which practically all coastal countries are connected to one another. The level of "connectivity" of countries to this global network varies, and UNCTAD's annual LSCI aims at capturing trends and differences in countries' liner shipping connectivity. The LSCI has been produced since 2004. It covers 162 coastal countries, and consists of five components, namely (a) the number of ships; (b) their container-carrying capacity; (c) the number of companies; (d) the number of services provided; and (e) the size of the largest vessels that provide services from and to each country's seaports.[3]

Most LDCs are also among the least connected countries. The average ranking of LDCs in 2010 was 111, compared to an average ranking of 78 for other developing countries and 64 for developed countries (table 5.3).[4] Container shipping companies are less likely to provide services to and from the seaports of LDCs, because (a) national trade volumes tend to be lower; and (b) a lower level of development will often make ports less attractive for transhipment and transit cargo.

Table 5.3. Average LSCI rankings of country groups, 2010

	Developed economies	Economies in transition	Developing economies	LDCs	Total
Africa			72	105	90
Asia	22	134	51	121	61
Europe	64	89			68
Latin America and the Caribbean	79		92	101	92
North America	87				87
Oceania	50		114	134	109
Total	64	97	78	111	82

Source: UNCTAD calculations, based on data provided by *Containerisation International Online*.

Starting from a low base, and catching up with port infrastructure investment and the introduction of private sector operations, seaports in several LDCs managed to become more attractive as ports of call for international liner shipping companies during the six years from 2004 to 2010. Among the LDCs that moved up significantly in the global LSCI ranking during this period are Djibouti (+43 points), the Democratic Republic of the Congo (+23 points), the Solomon Islands (+19 points), Bangladesh (+14 points), and Sao Tome and Principe (+11 points). Djibouti is the best-connected LDC, benefiting both from its geographical position near major liner shipping routes and from private sector investments. Other LDCs saw their ranking worsen during the 2004–2010 period, including Yemen (-37 points), Maldives (-32 points), Eritrea (-23 points), Comoros (-12 points), Vanuatu (-10 points) and Madagascar (-7 points).

Looking at some of the components of the LSCI, additional trends for LDCs can be seen (tables 5.4 and 5.5). On average, the largest container ships that call at LDC seaports are 60 per cent smaller than those providing services to other developing countries. This is as much a reflection of lower traded volumes as it is a consequence of less developed seaport infrastructure. Larger container ships require more dredging, as well as specialized cranes which are less likely to be found in the ports of LDCs. Between 2004 and 2010, the average maximum size container ship servicing all countries increased by 66 per cent – from 2,763 TEUs to 4,590 TEUs. During the same period, the maximum size container ship servicing LDCs increased on average by only 33 per cent, to 1,959 TEUs.

While vessel sizes have increased, the number of liner shipping companies has continued to decline. Both developments are part of the same long-term trend towards industry concentration and seeking economies of scale. The average number of container shipping companies providing services to and from the ports of LDCs is only one third of the global average. This means that importers and exporters from LDCs have fewer choices when contracting containerized maritime transport. Empirically, a lower level of competition is closely correlated with higher freight rates – that is to say, LDCs will be confronted with higher transaction costs for their foreign trade.[5] The global trend of mergers and acquisitions has not only affected the supply of services to LDCs (table 5.5). In fact, the decline in the number of companies servicing developed countries has been even more marked than for LDCs. However, on average, there are still 28 container carriers that deploy vessels on routes from and to developed countries, which is usually more than sufficient to ensure an adequate level of competition to avoid monopolistic pricing practices. For many LDCs, however, the further reduction of supply from already low levels may raise concerns with national competition authorities. By 2010, there were six LDCs with only one or two service providers, compared to the year 2004 when there were only three LDCs with such low levels of competition.

A similar trend is found when analysing the number of countries with direct liner service connections. The data available for 2006 and 2009 show that the global average of direct connections per country remained stable during this three-year period, while the number of direct connections per LDC declined by 20 per cent. As shipping services connect with each other in larger ports that have more captive cargo and employ bigger vessels, countries with lower volumes and less efficient ports are more likely to be served by so-called feeder services that link their container transport services to global networks through hub ports.

Table 5.4. Average of maximum vessel sizes, by country grouping, in 2010
(in TEUs; the change between 2004 and 2010 is shown in italics)

	Developed economies	Economies in transition	Developing economies	LDCs	Total
Africa			4 494	2 125	3 185
			2 187	*592*	*1 285*
Asia	9 650	1 022	7 578	1 669	6 690
	3 270	*46*	*3 335*	*-268*	*2 673*
Europe	6 962	3 447			6 413
	3 589	*1 458*			*3 219*
Latin America and the Caribbean	2 556		3 417	2 127	3 359
	-710		*1 067*	*1 176*	*1 023*
North America	5 289				5 289
	1 889				*1 889*
Oceania	4 606		1 810	1 224	2 065
	494		*-5*	*327*	*250*
Total	6 672	3 043	4 736	1 959	4 590
	3 022	*1 256*	*1 847*	*482*	*1 827*

Source: UNCTAD calculations, based on data provided by *Containerisation International Online.*

Table 5.5. Average number of companies providing services per country, in 2010
(change between 2004 and 2010 is shown in italics)

	Developed economies	Economies in transition	Developing economies	LDCs	Total
Africa			16	7	11
			-1	*1*	*-1*
Asia	39	6	31	5	27
	1	*2*	*-9*	*-2*	*-8*
Europe	27	9			24
	-8	*-3*			*-8*
Latin America and the Caribbean	14		12	7	12
	-5		*-2*	*-4*	*-2*
North America	29				29
	3				*3*
Oceania	32		6	4	9
	-7		*-2*	*-1*	*-2*
Total	28	9	18	6	18
	-6	*-2*	*-5*	*0*	*-4*

Source: UNCTAD calculations, based on data provided by *Containerisation International On-line.*

Improvements in port performance

Cargo handling within ports is an area where increased efficiency could assist the international flow of goods. As ships have grown bigger in recent decades, cargo handling methods have tended only to increase by incremental amounts. The following section gives a snapshot of improvements in port performance from around the world.

In the Caribbean, Jamaica's port of Kingston achieved a productivity record of 36 moves per hour during the loading/unloading of the 10,062 TEU capacity *M/V Zim Antwerp*.[6] In all, some 9,200 moves were made in April 2010, enabling the vessel to turn around within five days of arriving in port.

In Africa, the Apapa Container Terminal in Nigeria, which is operated by APM Terminals, performed 2,249 moves in 47.3 hours loading and unloading the 2,890 TEU *M/V Maersk Pembroke*. A new terminal record of 47.26 moves per hour was set in June 2009. Previously, it would have taken six days to complete the loading and unloading of a vessel of this size.[7] The record was made possible by the addition of new cargo handling equipment, including 34 new trucks, four rubber-tyred gantries (RTG) and four Post Panamax cranes.

In the Middle East, Khalifa Bin Salman Port, Bahrain, set a new berth productivity record of 62.1 moves per hour in 2009, which was an 82.1 per cent increase over the average berth productivity recorded during its first year of operation.[8] In the United Arab Emirates, Khorfakkan Container Terminal performed 8,816 moves on the *CMA CGM Aquila* during the vessel's recent call at the terminal – a record number of moves during a single vessel call. The moves were achieved at a productivity rate of 295 container moves per hour, and the *CMA CGM Aquila*, which arrived at Khorfakkan Container Terminal on a Thursday evening, and was able to depart on the Saturday morning.[9]

In India, Cochin Port achieved a productivity record during October 2009 by unloading 10,024 tons of industrial salt in bulk from the *M/V Luxury SW*. This is the highest quantity of industrial salt to be handled in one day by the port. Another productivity record was achieved soon after, when urea was unloaded from the *M/V World Trader* at an average daily output of over 5,000 tons.[10]

In Bangladesh, Chittagong Port Authority has increased from two to three shifts per day, allowing for round-the-clock operation – 24 hours a day and 363 days a year (with the two Eid holidays off). The outcome is that vessel turnaround time has been reduced from 11 days to 3.6 days, and container dwell time has reduced from 26 days to 18.3 days.[11]

At Malaysia's Port Klang, a new crane productivity record of 734 moves in a single hour of operations (or 940 TEUs), which is a world record, using nine cranes, was achieved in March 2010 while loading and unloading the *M/V CSCL Pusan*, a 9,600 TEU vessel. A total of 5,244 moves were made on this vessel.[12]

Recent port developments

This section provides a brief overview of some of the port developments occurring around the world, while chapter 7 contains a section on developments specifically in Asia. Both sections are intended to be informative rather than exhaustive, and pertain to developing economies and to countries with economies in transition. Many port development projects under way in 2009 experienced a slowdown in activity, due to uncertainty about the effects of the global economic crisis and a fear of creating ports without customers, or so-called "white elephants". One of the difficulties in analysing port developments is that any slowing down of construction work or hiatus in building plans is rarely as well publicized as new projects which are expected to create new jobs and boost trading opportunities.

Latin America is currently undertaking some of the world's most sizable port development projects, with much of the finance coming from other developing countries both inside and outside the region. Brazil has continued with its plans to double the capacity of the port of Santos through the Barnabé Bagres project, which will see container capacity increase to between 8 and 10 million TEUs by 2015. Elsewhere in Brazil, a 63.5 million BRL ($35.5 million) tender for dredging at Fortaleza port was launched. The Brazilian Government hopes to attract some $20 billion of private sector investment over the next five years for various port projects. Rio de Janeiro should receive 300 million BRL ($172 million) of the total 700 million BRL to be invested in seven cities. Meanwhile, the Special Secretariat of Ports has signed a contract with a consortium formed by the JDN (Jan de Nul) and Dratec, for carrying out dredging works to deepen the ports of Aratu and Salvador (in Bahia) to 15 meters. The Brazilian port authority, Codesa, has announced the development of Superporto, a $300 million deepwater port project outside the port of Tubarão. Apparently the deepwater project has attracted the interest of a number of leading players, including Japan's NYK

Line. Also in Brazil, plans for the Porto Brasil project in Peruíbe, 50 kilometres south of Santos, were shelved in 2008 and then revived in 2009 as the effects of the global economy were analysed. The port is expected to have a container capacity of 3.2 million TEUs, plus bulk and liquid facilities. In the first half of 2009, container throughput in Brazilian ports was down by around 19 per cent, with Santos suffering a 24 per cent decline.

In Costa Rica in 2009, a tender was launched for the development of a new terminal as part of the port complex development in Limón-Moín. The new terminal is located 10 kilometres away from the existing Moín and Limón port terminals. The new port will have the capacity to handle Panamax vessels of up to 65,000 dwt, and is expected to be operating by 2016. Firms from Brazil, Colombia, France and the United States are reportedly studying the bidding rules for the $812 million port concession.

The expansion of the Panama Canal has prompted Cuba to fund the expansion and modernization of its three main ports in collaboration with China and the Bolivarian Republic of Venezuela. Dredging will deepen draught in Havana, Cienfuegos and Santiago, which handle 80 per cent of Cuba's international trade. No major dredging work has been undertaken at these ports for at least 30 years, and the available draught has declined as a consequence. This is one of the main reasons why cargo volumes have shrunk from 12 million tons in 1982 to around 3 million tons. Havana handles no more than 700,000 tons annually, despite having a capacity of 1.2 million tons. It will have its quayside infrastructure upgraded, and four of its seven cranes modernized. Most of the port modernization will be financed by China. Plans are also afoot to develop the port of Mariel, to the west of the capital, using $300 million of Brazilian finance.

In Peru, investments in the main port of Callao are expected to reach $3 billion over the next four years, as demand rises for shipments of metals, natural gas and coffee. Companies including the Dubai-based DP World Ltd., Brazil's Vale SA, and a unit of Mota-Engil SGPS SA (which is based in Porto, Portugal) are investing $1.45 billion to expand facilities in Callao, with an additional $1.55 billion planned. The port expansions are part of the Government's drive to secure up to $60 billion in infrastructure investments to modernize its aging ports and cut shipping costs. Peru's exports, which totalled $31 billion in 2008, have jumped fourfold since 2001. Other Peruvian port projects being developed include DP World's $460 million upgrade of Callao port, a $600 million expansion of the Muelle Norte pier at Callao, and a $900 million project to expand the ports of Marcona in the south and Bayóvar in the north.

In Uruguay, a $20 million loan to help advance the country's plan to upgrade the port in Montevideo has been approved by the Inter-American Development Bank. The project will expand the port and boost its efficiency, contributing to a reduction in maritime and river transportation costs by building a multi-purpose wharf and deepening the access channel in order to allow access by larger vessels.

In Africa, port development projects are progressing through financing from other developing countries – an example of South–South cooperation. For instance, in Sudan, a new container terminal will be built at the port of Digna by the China Harbour Engineering Company. Development of Sudan's infrastructure has accelerated in recent years, with China as one of the main providers of equipment and labour. The terminal will reportedly be built with two container berths able to accommodate ships of up to 100,000 tons in size. The total cost of the project is expected to be more than $100 million, and it is expected to take about three years to complete.

In Kenya, plans have been announced to build a second port to Mombasa at the coastal town of Lamu. The port, together with a rail and road corridor, will link the coast with Isiolo. The project will be financed by investment from China. Meanwhile, plans for the construction of a second 1.2 million TEU container terminal at Mombasa are under way. The first phase will be financed by a Japan International Cooperation Agency loan and should be operational in 2013.

In Madagsacar, Ehoala Port, near Fort Dauphin on the southern tip of the island, opened in 2009. Ehoala Port has been financed and developed jointly by the Rio Tinto mining group ($240 million) and the Malagasy State ($35 million), through a World Bank–funded project aimed at developing the Anosy region of southern Madagascar. Ehoala Port is a deepwater port with a maximum draught of 15.75 metres and is protected by a 625-metre-long breakwater. The single quay has three berths – a 275-metre-long primary berth dredged to 15.75 metres, a 150-metre-long secondary berth dredged to 8 metres, and a 75-metre-long third berth. The port has a secure yard for storing containers and breakbulk cargo, including power points for reefer containers, a large limonite

ore storage shed, two warehouses for general cargo storage, and an adjacent 400-hectare industrial zone with ample supplies of water and electricity. The port management company is a wholly owned subsidiary of Rio Tinto.

In Senegal, a €47.5 million loan to upgrade the container terminal at the port of Dakar has been signed between the African Development Bank (AfDB) Group and DP World Dakar. The port of Dakar is one the busiest in West Africa, handling 90 per cent of the total value of Senegal's foreign trade. Its geographical location is at the crossroads between Europe, North America, South America and sub-Saharan Africa. The project comprises (a) equipment upgrades; (b) operation, management, and maintenance of the existing container terminal in the northern zone of the port; and (c) improving other infrastructure such as rail installations, electricity, roads, and port buildings.

In Cameroon, work has begun on construction of the Kribi Deep Sea Port project, south of the capital Douala. The port – which has no completion date – will cater mainly for the container, timber, hydrocarbon and cereals industries.

In Namibia, Namport, which operates the ports of Walvis Bay and Luderitz, will take delivery in 2010 of six rubber-tyred gantry cranes. These new RTGs will make more effective use of space thanks to an increased stacking density, and will increase the port's terminal capacity by 42 per cent. The RTGs will be fitted with twin lift spreaders, which provide a capacity of 50 tons, to further increase handling efficiency. Furthermore, the RTGs will be among the first in Africa to be equipped with an automatic steering and container verification system. Moreover, with a variable speed generator, the engine will run at lower revolutions per minute when idling and the engine speed will be automatically adjusted according to the power required, resulting in lower fuel consumption.

In 2010, work began on the dredging of South Africa's port at Durban. The end result will be a deepening of the port from 12.8 metres to 19 metres in the outer channel and 17 metres in the inner port, and a widening of the entrance channel from 120 meters to 220 meters. As a result, container vessels of up to 9,400 TEUs and other vessels of a similar size will be able to call at the port of Durban. In 2009, not far from Durban, the port of Ngqura opened for business (see the *Review of Maritime Transport 2009*). Ngqura is South Africa's third-deepest port, and was built to help relieve congestion at Durban. However, the opening of the port, in the fourth quarter of 2009, came just as global container volumes were declining and nations were shifting their focus away from transport congestion. The second phase of development was expected to increase throughput from 800,000 to 2 million TEUs.

In Europe, the number of new port projects has decreased. In Albania, plans to develop a new deepwater container terminal at the port of Vlore have progressed, with the signing of a 35-year concession agreement with Swiss-based Zumax AG. The project is planned to include a 3 million TEU capacity container terminal adjacent to a free trade zone, and could be operational by 2011.

In Ukraine, a number of court rulings between Uktranscontainer and the state-run Sea Commercial Port of Illichivsk have left uncertainty as to the future management of the container terminal. In May 2007, the port of Illichivsk was among the first container terminals in CIS countries and the Baltic to accommodate a container ship with a capacity of over 5,000 TEUs, and Maersk Line included the port as part of a regular service between Ukraine and China.

The number of port development projects has also been reduced in Asia, compared to recent years (see chapter 7 for details of port developments since 2007). In India, legal issues have forced a delay to new terminal facilities at Jawaharlal Nehru and Tuticorn. Both projects were intended to extend capacity by 600,000 TEUs, however, due to concerns over competition, both projects are expected to be delayed by a period of up to a year.

In the Republic of Korea, Busan New Port implemented the world's first "horizontal terminal" at the Hanjin New Port Company. It is anticipated that this will be able to achieve an 80 per cent reduction in yard operating costs and a 30 per cent increase in terminal productivity. Also in Busan, the port authority has announced an incentive payment plan for regular customers that could allow them to defer payment of entry, dockage and anchorage fees for a year. This effort is seen as a novel approach to help the beleaguered shipping lines to combat the economic downturn.

In Turkey, Yilport Container Terminal and Port Operators Inc. is implementing container automation solutions at its facility in Gebze. Being the first container terminal in the world to have integrated Automated Gate System (AGS), Crane Optical Character Recognition (OCR) and

MatchMaker RTG within the Zebra SPARCS solution, it plans to achieve 20-minute truck turnaround times and an average of 30 moves per crane per hour.

B. MULTIMODAL TRANSPORT DEVELOPMENTS

Approximately 80 per cent of international trade is transported by sea. Of the remaining 20 per cent, a significant portion is transported by road, rail, and inland waterways. The following sections look at some of the major developments in these areas.

Road transport

This section provides an overview of trends in road freight transport. In particular, it summarizes recent trends in the sector's value and in the road networks, and provides future projections at the regional and country level.

Road freight shows varying trends, for those countries with available data. In mid-2010, freight volumes were at depressed levels compared with 2009, and the slowdown is expected to continue until 2013.

Sector value

The global trucking sector[13] registered total revenues of $2,308.3 billion in 2008 and a compound annual growth rate of 7.8 per cent for 2004–2008. The freight sector generated a total revenue of $1,809.5 billion, equivalent to 78.4 per cent of the sector's overall value. Until 2008, the sector experienced strong growth, and then the global economic downturn began to affect the market in 2009. The share by value in 2008 was as follows – the Americas 49.20 per cent; Europe 26.50 per cent; and Asia-Pacific 24.20 per cent. From 2008 up to 2013, growth in this sector is forecast to slow to an annual rate of 5.1 per cent, generating revenues of $2,965.7 billion by the end of 2013. The Asia-Pacific sector, in particular, is expected to grow at a higher level (9.4 per cent) during the same period, to reach a value of $877.3 billion by 2013.[14]

Road networks

Road is the most dominant form of inland transport. The most extensive road networks in 2008 were found in the United States, followed by India, China, Brazil, Japan and Canada. The proportion of paved roads in the total road network varies widely, with a rate of nearly 100 per cent paved roads in several European countries (table 5.6). Figures 5.1, 5.2 and 5.3 show some of the main international road networks in Europe, Asia and Africa.

Regional and country projections[15]

The following section shows the trends in selected countries for which data are available. In 2007, the European Union (EU-27) transported 16,522 million tons of freight cargo by road. The highest amount was transported by Germany, with 2,848 million tons; when compared to Germany's figures for 2003, this represents an increase of 9 per cent. The next highest amount was transported by Spain, with 2,345 million tons (a 30 per cent increase); then France, with 2,191 million tons (a 15 per cent increase); and the United Kingdom, with 1,893 million tons (an 11 per cent increase). The highest growth rate in the 2003–2007 period was experienced by Greece (see fig. 5.4).[16]

Projections show that in Germany and France, road haulage will grow by 1.2 per cent and 1.4 per cent respectively in 2010. In the same year, road haulage is projected to grow by 1.8 per cent in Spain, but only by 0.3 per cent in the United Kingdom as a result of the unfavourable economic conditions.

In the United States, the amount of freight transported by road grew consistently from 2002 to 2008. Estimates indicate that truck cargo traffic will grow at an annual rate of 1.6 per cent until 2014, compared to a growth rate of 2.4 per cent in the rail sector, indicating a possible shift from road to rail. In China, road haulage is expected to increase at a rate of 8.5 per cent, compared to growth rates for rail and shipping estimated at 8.3 per cent and 5.4 per cent respectively. Forecasts for Taiwan Province of China show a moderate growth in road freight traffic of 3.1 per cent in 2010.

In the Russian Federation, the impact of the global economic crisis and the lack of new highway capacity are expected to restrict the growth of cargo traffic to 5 per cent in 2010. The predictions for Thailand show a low growth estimate of 4.3 per cent, in spite of expanding road capacity associated with the new highway links across the Mekong Delta which have opened up new export routes. In India, several road construction projects are in progress, and predictions are that road freight will grow at a high average rate of 11.7 per cent per year from 2010 until 2014.

With regard to South America, road freight in Brazil will grow at a slower pace than rail freight – at an average rate of 5.1 per cent for the year 2010. Brazil, Chile and the Plurinational State of Bolivia have recently announced construction of a highway linking Brazil's Atlantic port of Santos with Chile's Pacific coast ports of Iquique and Arica. The project will build about 3,700 kilometres of

Table 5.6. Road transportation systems of the world's top 25 economies, 2008

Rank in 2008 [a]	Country	Total roadways			Paved roadways	
		Population density (number of people per square kilometre)	Kilometres per capita (1 000 persons)	Roadway kilometres per square kilometre of land area	Kilometre per capita (1 000 persons)	Kilometres of roadway per square kilometre of land area
1	United States	34	21	0.71	13.7	0.46
2	Japan	349	9.4	3.28	7.5	2.6
3	China	140	1.4	0.2	1.2	0.16
4	Germany	236	7.8	1.85	7.8	1.85
5	France	116	14.9	1.73	14.9	1.73
6	United Kingdom	253	6.5	1.65	6.5	1.65
7	Italy	198	8.4	1.66	8.4	1.66
8	Russian Federation	9	6.7	0.06	5.4	0.05
9	Spain	81	16.8	1.37	16.8	1.37
10	Brazil	23	8.8	0.21	0.5	0.01
11	Canada	4	31.1	0.11	12.4	0.05
12	India	392	2.8	1.12	1.3	0.51
13	Mexico	57	3.2	0.18	1.6	0.09
14	Australia	0.4	105.8	0.04	44.4	0.02
15	Republic of Korea	501	2.1	1.06	1.7	0.83
16	Netherlands	493	8.1	4	6.8	3.33
17	Turkey	100	5.6	0.55	2.3	0.23
18	Poland	126	11	1.39	7.7	0.97
19	Indonesia	133	1.6	0.22	0.9	0.12
20	Belgium	344	14.6	5.03	11.4	3.93
21	Switzerland	190	9.4	1.78	9.4	1.78
22	Sweden	22	46.9	1.04	15.4	0.34
23	Saudi Arabia	13	7.7	0.1	1.7	0.02
24	Norway	15	19.9	0.31	15.5	0.24
25	Austria	100	13.1	1.3	13.1	1.3

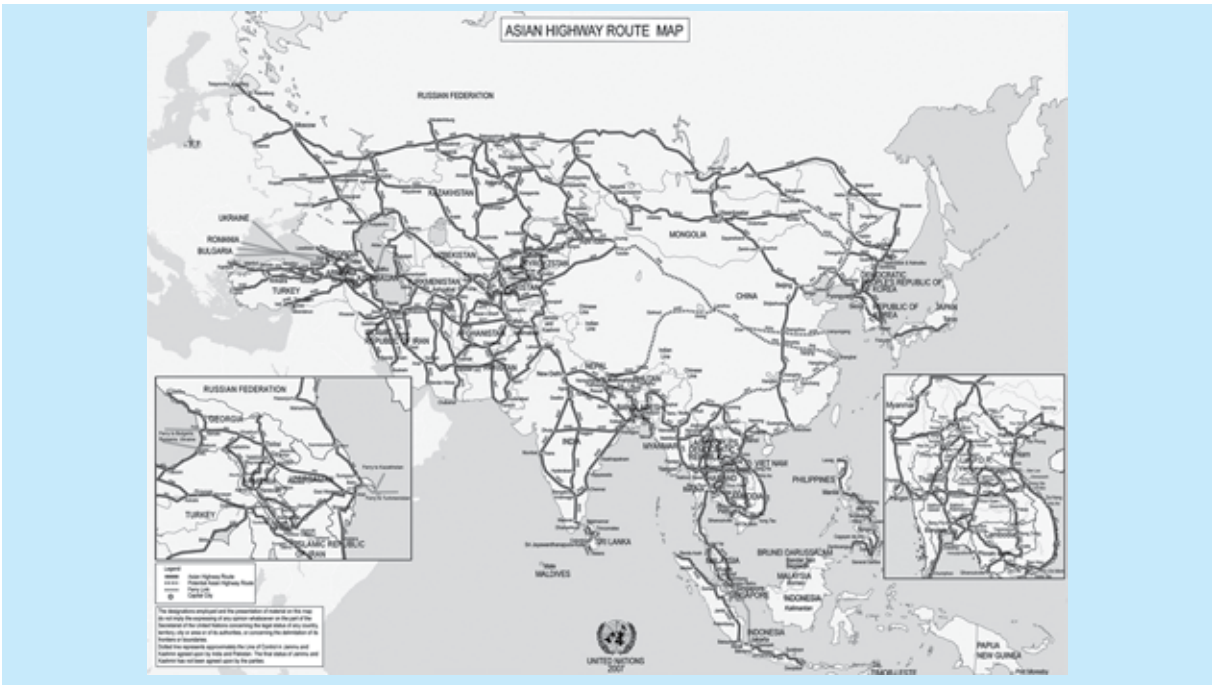
Source: UNCTAD secretariat, based on United States Department of Transportation (2010). Freight transportation: Global highlights 2010.

[a] World's leading economies ranked by GDP.

Figure 5.1. Trans-European transport network

Source: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Trans-European_networks_in_transport_(TEN-T)

Figure 5.2. Map of Asian highways

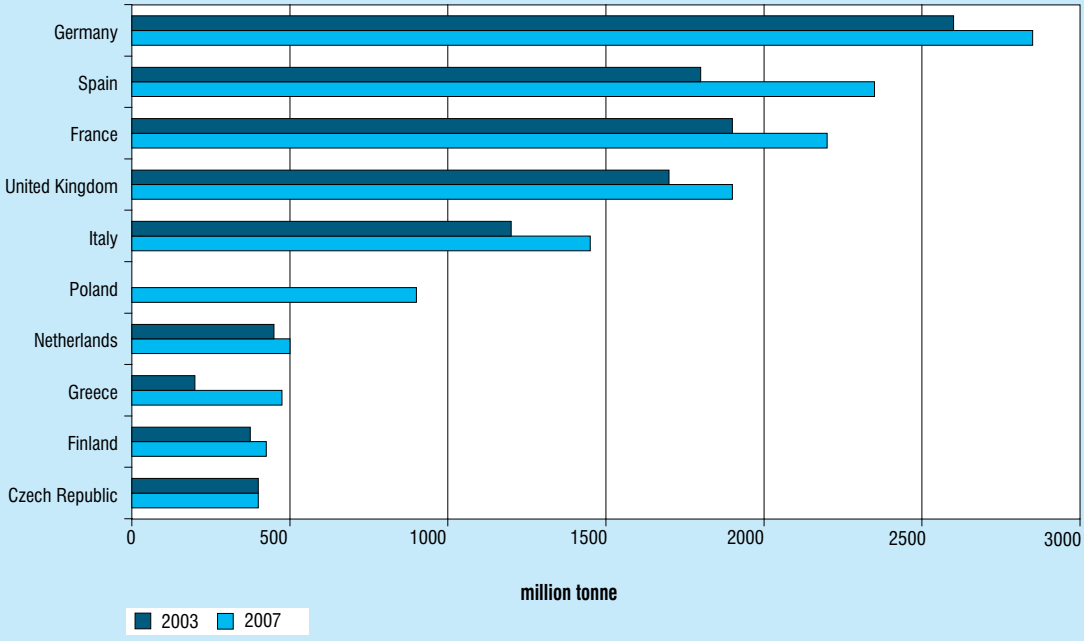


Source: ESCAP. Map available at http://www.unescap.org/ttdw/common/TIS/AH/maps/AHMapApr04.gif.

Figure 5.3. Trans-African highway network

Source: Wikipedia. Map available at http://en.wikipedia.org/wiki/Trans-African_Highway_network.

Figure 5.4. Transport of goods by road, *EU-27 (the top 10 countries in 2007)*



Source: UNCTAD secretariat, based on Energy, Transport and Environment Indicators, Eurostat 2009.

paved roads, of which 1,800 kilometres will be in the Plurinational State of Bolivia, with 1,500 kilometres in Brazil and 400 kilometres in Chile. Once the roads are in operation, road freight volumes are expected to rise.

Rail transport

This section provides an overview of trends in rail freight transport. In particular, it summarizes recent trends in the sector's revenues, the net tons transported, gauges, average haul distances, and the modal split.

Rail freight transport improved in the last quarter of 2009, according to preliminary reports.[17] However, the figures show that recovery in rail freight is a distant prospect. Both road and rail freight volumes, in all countries for which data are available, were below their pre-crisis levels in the fourth quarter of 2009, especially when using seasonally adjusted quarterly estimations. Preliminary data for the year 2009 as a whole indicate a 23 per cent drop in rail ton-kilometres and more than a 21 per cent drop in road ton-kilometres in the European Union in 2009, compared to 2008. Rail freight data for the United States and the Russian Federation show declines of almost 14 per cent and 12 per cent respectively for the whole of 2009.[18]

Revenues

The railroad sector overall, including the transport of both goods and passengers, generated revenues of $472.1 billion in 2007. This represented a compound annual growth rate of 6.3 per cent for the period 2003–2007. [19] The rail freight sector generated $192.6 billion, equivalent to 40.8 per cent of the sector's overall value. The Asia-Pacific region generated almost half of the sector's value, at 44.5 per cent, while Europe generated 35.7 per cent and the Americas 19.1 per cent.

Net tons transported and growth

Table 5.7 shows the compound growth rates for rail freight and for total freight transported. With the exception of the United States, annual rates of growth have been accelerating in recent years (2000–2007). The EU-10 and Japan both showed signs of slow growth in rail freight transport for the period 2000–2007. The United States showed growth rates for rail surpassing the growth rates for overall freight transport (1.8 per cent compared to 1.1 per cent) in 2000–2007. China, India and the Russian Federation showed strong growth rates for 2007–2007, above 6 per cent annually.

Table 5.8 shows the number of tons of freight transported per country, the gauge type, the total length of railway track, and average lengths of haul.[20]

Railway track gauges are a measurement of the space between the inner sides of the two load-bearing parallel rails that together make up a single railway. The type of gauge is an indication of the competitiveness of a rail system, as, firstly, the wider the spacing of the rails is, the greater the railway's load capacity, and secondly, the less the gauges vary in the same network, the easier (and less costly) it is to exchange traffic by rail. Some countries, such as Argentina, Brazil and Japan, have a variety of gauges in the same network. The majority of the freight in the world (89 per cent of total ton-kilometres) is transported using either standard gauge (1435 mm) or the Russian broad gauge (1520 mm). However, many countries, especially in Africa and South America, use narrower gauges on their networks, representing a competitive disadvantage for them vis-à-vis other countries. By way of example, table 5.9 illustrates gauge breaks in the Trans-Asian Railway.

Table 5.7. Compound growth rates in transport *(percentages)*

	Rail freight transport (in millions of ton-kilometres)			Total freight transport (in millions of ton-kilometres)		
	1970 to 2007	1990 to 2007	2000 to 2007	1970 to 2007	1990 to 2007	2000 to 2007
China	5.30	4.90	8.00	8.60	7.90	11.60
EU-10	-1.50	-3.40	0.80	1.10	1.10	5.50
EU-15	0.50	0.70	1.90	2.60	2.40	2.50
India	5.50	4.80	7.60	6.80	5.30	8.90
Japan	-2.60	-0.90	0.80	1.70	1.30	1.70
Russian Federation	0.60	-1.10	6.20	1.30	-1.10	6.00
United States	2.20	3.00	1.80	2.20	2.00	1.10

Source: UNCTAD secretariat, based on Thompson L (2010). *A Vision for Railways in 2050*. International Transport Forum.

Table 5.8. Major world railway systems *(2005 or latest available year)*

	Gauge [a]	Year	Total Route km	Freight Tones (000 000)	Freight Tone-km (000 000)	Average Length of haul Freight (km)
China	Std	2005	62 200	2 309.20	1 934 612	838
Russian Federation	RB	2005	85 245	1 281.30	1 858.10	1 450
India		2007	63 273	727.7	480 993	661
Bulgaria	Std	2005	4 154	20.3	5 164	254
Czech Republic	Std	2005	9 513	75.8	14 385	190
Estonia	RB	2005	959	44.8	10 311	230
Hungary	Std	2005	7 730	44.0	8 537	194
Latvia	RB	2005	2 375	54.9	17 921	326
Lithuania	RB	2005	1 772	49.3	12 457	253
Poland	Std	2005	19 507	155.1	45 438	293
Romania	Std	2005	10 781	67.5	16 032	238
Slovakia	Std	2005	3 659	47.7	9 326	196
Slovenia	Std	2005	1 228	16.3	3 245	199
EU 10 Total			61 678	575.7	142 816	248
Austria	Std	2005	5 690	81.7	17 036	209
Belgium	Std	2005	3 542	61.0	8 130	133
Denmark	Std	2005	2 212			
Finland	Std	2005	5 732	40.7	9 706	238
France	Std	2005	29 286	129.7	41 898	323
Germany	Std	2005	34 218	274.6	88 022	321
Greece	Std	2005	2 576	3.0	613	204
Ireland	Std	2005	1 919	1.5	303	202
Italy	Std	2005	16 225	68.7	20 131	293
Netherlands	Std	2005	2 813	..	..	..
Portugal	B	2005	2 839	9.6	2 422	252
Spain	B	2005	14 484	29.7	11 586	390
Sweden	Std	2005	9 867	..	13 120	..
United Kingdom	Std	2005	15 810	103.9	22 110	213
EU 14 total			147 231	804.1	235 077	253
Canada: Canadian National	Std	2005	31 894	212.6	262 589	1 235
Canada: Canadian Pacific	Std	2005	21 962	120.4	183 100	1 520
Canada: Via Rail	Std	2005				
Mexico	Std	2005	15 747	59.6	72 159	1 210
United States: All class I railways	Std	2005	153 787	1 723.00	2 478 914	1 439
United States: Amtrak	Std	2005	1 100			
North America Total			224 490	2 115.70	2 996 762	1 416
JP conventional railways	C	2007	9 830	36.2	23 166	640
JP Shinkansen	Std	2007	2 387			
Japan Total			12 217	36.2	23 166	640

Table 5.8. Major world railway systems (2005 or latest available year) (continued)

	Gauge [a]	Year	Total Route km	Freight Tones (000 000)	Freight Tone-km (000 000)	Average Length of haul Freight (km)
Algeria	C	2005	3 572	8.3	1 471	177
Argentina						
AR FEPSA	B	2007	2 560	4.1	1 765	428
AR Ferrosur Roca	B	2007	2 650	5.5	2 076	376
AR NCA	B	2007	3 254	8.6	4 257	495
AR BAP (now ALL)	B	2007	3 000	4.4	3 140	720
AR All BG pax concessions	B	2007	687	..	..	..
AR Belgrano	M	2007	4 940	0.8	739	..
AR Mesopotàmico	Std	2007	2 100	1 571.00	906	..
Armenia	RB	2005	711	2.6	654	250
Azerbaijan	RB	2005	2 122	26.5	10 067	379
Bangladesh	B	2005	2 855	3.2	817	255
Belarus	RB	2005	5 498	125.1	43 559	348
Brazil						
BR Tereza Christina	M	2007	235	2.6	200	..
BR EFVM Vitoria Minas	M	2007	6 303	136.8	75 500	..
BR MRS	B	2007	4 138	114.1	52 600	461
BR Bandeirantes	B	2007	899	3.5	1 900	543
BR EFC Carajas	B	2007	5 008	100.3	83 300	831
BR Ferronorte	B	2007	1 413	6.9	9 400	1 362
BR Centro Atlantico (FCA)	M	2007	5 940	19.0	14 400	..
BR Novoeste	M	2007	879	2.7	1 200	..
BR Nordeste	M	2007	1 755	1.8	1 000	..
BR ALL (old FSA)	M	2007	5 200	27.3	17 500	..
Cameroon	M	1998	1 006	1.9	1 076	581
Chile and the Plurinational State of Bolivia	B	2005	2 700	9.8	1 671	170
Antofagasta & Bolivia	M	1989	750	1.7	432	261
Bolivia-Andina Network	M	1995	2 274	0.6	314	493
Bolivia-Oriental Network	M	1995	1 424	0.8	464	595
Colombia	N	1996	3 154	1.6	471	296
Congo (CFCO)	Std	2005	795	0.6	231	385
Côte d'Ivoire	M	1995	639	0.5	312	645
Croatia	Std	2005	2 726	14.3	2 835	198
Cuba	Std	1998	4 667	4.4	732	166
Democratic Republic of the Congo	C	2005	3 641	1.2	444	370
Egypt	Std	2005	5 150	10.1	3 917	388
Gabon	Std	2004	731	3.5	1 949	557
Georgia	RB	2005	1 515	19.0	6 127	322
Ghana	C	2004	977	1.9	242	129

Table 5.8. Major world railway systems *(2005 or latest available year)* (concluded)

	Gauge [a]	Year	Total Route km	Freight Tones (000 000)	Freight Tone-km (000 000)	Average Length of haul Freight (km)
Indonesia	C	2000	8 500	18.0	4 698	261
Iran (Islamic Republic of)	Std	2005	7 131	30.3	19 127	631
Israel	Std	2005	899	7.5	1 149	153
Jordan	M+	2005	293	2.9	1 024	353
Kazakhstan	RB	2005	14 204	215.5	171 855	797
Kenya	M	2002	2 634	2.2	1 538	691
Malaysia	M	2005	1 667	4	1 178	295
Mali	M	2000	734	0.8	279	349
Mongolia	RB	2005	1 810	14.1	8 857	628
Myanmar	M	1991	3 336	1.8	449	256
New Zealand	C	1999	3 913	12.9	3 671	285
Nigeria	M	2000	3 557	0.1	105	827
Pakistan	B	2005	7 791	6.4	5 013	782
Peru	M	1996	1 691	1.5	453	296
Republic of Korea	Std	2005	3 392	44.5	10 108	227
Saudi Arabia	Std	2005	1 020	2.6	1 192	458
Senegal	M	2000	906	1.7	371	218
South Africa	C	2005	20 247	182.2	109 721	602
Sri Lanka	B	2005	1 200	1.5	135	90
Sudan	M	2005	5 478	1.3	766	589
Switzerland	Std	2005	3 011	56.2	8 571	153
Syrian Arab Republic	Std	2002	2 450	5.9	1 812	306
Thailand	M	2004	4 044	13.8	4 085	296
Tunisia	Std	2005	1 909	10.8	2 067	192
Turkey	Std	2005	8 697	18.9	9 078	479
Uganda	M	2004	259	0.9	218	241
Ukraine	RB	2005	22 001	462.4	223 980	484
United Republic of Tanzania (TRC)	M	2006	2 722	1.7	1 970	1 152
Uruguay	Std	2005	3 003	1.3	331	251
Uzbekistan	RB	2005	4 014	53.8	18 007	335
Viet Nam	M	2005	2 671	8.7	2 928	337
Zambia	C	1999	1 273	1.6	554	339
Zimbabwe	C	1997	2 759	12.0	4 871	406
World total			**917 638**	**11 360.50**	**8 845 153**	**779**

Source: UNCTAD secretariat, based on Thompson L (2010). *A Vision for Railways in 2050*. International Transport Forum.

[a]

Gauges	
Narrow (N)	914 mm
Metre (M)	1000 mm
Cape [C]	1067 mm
Standard (Std)	1435 mm
Russian Broad (RB)	1520 mm
Broad (B)	1676 mm

Table 5.9. Gauge breaks on the Trans-Asian Railway

	Break of Gauge	Gauge transition
Armenia	>> Turkey	1 520 mm <=> 1 435 mm
Azerbaijan	>> Iran (Islamic Republic of)	1 520 mm <=> 1 435 mm
China	>> Viet Nam	1 435 mm <=> 1 000 mm
China	>> Russian Federation	1 435 mm <=> 1 520 mm
China	>> Kazakhstan	1 435 mm <=> 1 520 mm
China	>> Mongolia	1 435 mm <=> 1 520 mm
Russian Federation	>> Democratic People's Republic of Korea	1 520 mm <=> 1 435 mm
Turkmenistan	>> Iran (Islamic Republic of)	1 520 mm <=> 1 435 mm

Source: UNCTAD secretariat, based on ESCAP's Review of Developments in Transport in Asia and the Pacific 2009.

Heavy concentration of rail traffic

Table 5.10 shows an important feature of the world's railways: high concentration. The top four railways of North America, China, the Russian Federation and India carry 82 per cent of the world's ton-kilometres. EU-10 and EU-15 account for a further 4.4 per cent share of total world rail freight traffic. In contrast, African railways carry only 1 per cent of the total ton-kilometres transported by rail worldwide (see fig. 5.5). While approximately 1 million kilometres of railways exist in the world, spread over more than 120 countries, the vast majority of operating activity is to be found in only a few countries.

Average haul distances

Average freight haul distances are shown in table 5.8. The size of the country influences the average haul, therefore countries with large expanses of land will register a longer average haul. It is widely considered that 300 kilometres is the minimum distance at which sufficient revenue is generated to offset the fixed costs associated with rail transportation. In table 5.8, it can be seen that out of 115 systems, 34 have an average haul of less than 300 kilometres. Particularly long average hauls are found in the Russian Federation (1,450 kilometres), Mexico (1,210 kilometres), Canada (1,235 and 1,520 kilometres) and the United States (1,439 kilometres).

Modal split

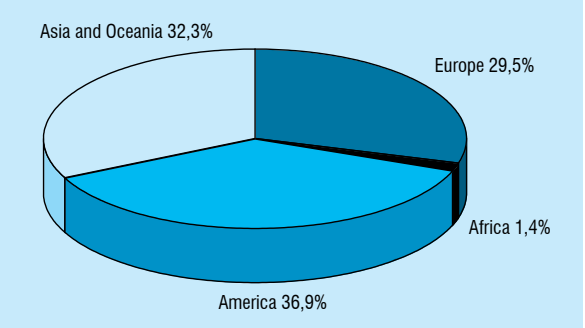
Table 5.11 shows the modal split between rail and other forms of transport (inland waterways and roads). In 2007, the share of freight carried by rail varied from single digits in eight European countries and Japan, to almost 60 per cent in the Russian Federation. The share of freight carried by rail is strongly influenced by geography, with some exceptions. Countries with large expanses of land tend to rely more heavily on rail systems than smaller countries do, especially as the topography of small countries is often interrupted by internal geographical barriers such as mountains or lakes.

Table 5.10. Rail transport as a portion of total national transport, in several economies *(percentages)*

	1970	1990	2000	2006	2007
China	76.6	40.5	31.3	24.7	24.8
EU-10	77.3	63.0	40.5	31.0	29.3
EU-15	31.5	19.7	15.4	15.0	14.8
India	71.1	63.0	40.0	34.0	35.0
Japan	31.7	9.0	6.6	6.3	6.2
Russian Federation	76.2	59.0	58.6	57.5	59.3
United States	43.6	38.2	42.7	44.8	44.8

Source: UNCTAD secretariat, based on Thompson L (2010). *A Vision for Railways in 2050*. International Transport Forum.

Figure 5.5. Freight traffic trends around the world *(in billions of ton-kilometres)*



Source: UNCTAD secretariat, based on the 2008 annual report of the International Union of Railways.

Table 5.11. Modal split of inland freight transport: the share of rail, road and inland waterway transport in total inland transport *(as a percentage of total ton-kilometres)*

	2002				2007			
	Rail	Road	Inland water way	Total	Rail	Road	Inland water way	Total
EU-27	18	75	6	100	18	77	6	100
Austria	29	66	5	100	35	61	4	100
Belgium	11	78	12	100	13	71	16	100
Bulgaria	33	63	4	100	25	70	5	100
Croatia	23	76	1	100	25	74	1	100
Cyprus		100		100		100		100
Czech Republic	27	73	0	100	25	75	0	100
Denmark	8	92		100	8	92		100
Estonia	70	30		100	57	43		100
Finland	23	77	0	100	26	74	0	100
France	19	78	3	100	*15*	*81*	*3*	100
Germany	19	66	15	100	22	66	12	100
Greece	..	..	..	100	3	97		100
Hungary	28	66	6	100	21	74	5	100
Iceland		100		100		100		100
Ireland	3	97		100	1	99		100
Italy	*10*	*90*	0	100	*12*	*88*	0	100
Latvia	71	29		100	58	42		100
Liechtenstein	..	..	..	100	..	..	..	100
Lithuania	48	52	0	100	42	59	0	100
Luxembourg	6	91	4	100	4	93	3	100
Malta		100		100		100		100
Netherlands	3	63	33	100	6	61	33	100
Norway	15	85		100	15	85		100
Poland	37	62	1	100	26	74	0	100
Portugal	7	93		100	5	95		100
Romania	34	57	8	100	19	71	10	100
Slovakia	41	59	0	100	26	72	3	100
Slovenia	30	70		100	21	79		100
Spain	6	94		100	*4*	96		100
Sweden	34	66		100	36	64		100
Switzerland [a]	..	..	..	100	54	45	1	100
Turkey [b]	5	95		100	5	95		100
United Kingdom	10	90	0	100	13	87	0	100

Source: UNCTAD secretariat calculations, based on Eurostat, the Directorate-General for Energy and Transport (European Commission), the International Transport Forum, and national statistical estimates.

Note: Italic = estimates

[a] The road transport data cover only haulage by Swiss vehicles on Swiss territory. Data taken from the Directorate-General for Energy and Transport.

[b] In the case of road transport only, national transport data have been used.

A general trend observed since the 1970s is that the share of freight carried by rail has been consistently declining for all countries, with one exception – the United States – perhaps owing to the positive effect that transport deregulation has had on the rail sector.[21]

Inland waterways

This section provides an overview of trends in inland waterway transport, where data could be obtained. Inland waterways continue to account for a small portion of total goods transported internationally. Table 5.12 shows the breakdown between 2002 and 2007 for European countries. Based on their ton-kilometres,[22] little change has been observed in the inland modal split since 2002. Inland waterways still account for around 6 per cent of total inland freight transport, whereas road transport accounts for over 75 per cent, and rail 19 per cent. Some notable exceptions can be found in the cases of Belgium (16 per cent), Germany (12 per cent), the Netherlands (33 per cent) and Romania (10 per cent), where the share of freight carried by inland waterway is significantly higher than the average.

Inland waterway networks for the top six countries (sorted by network length) are represented in table 5.13 and figure 5.6. China has the largest inland waterway system, with more than 5,600 navigable rivers, 2,000 inland ports, and 110,000 kilometres of navigable waters. In China, inland waterway developments are concentrated in five major areas: (a) the Yangtze River; (b) the Pearl River; (c) the Beijing–Hangzhou Grand Canal; (d) the Yangtze River Delta; and (e) the Pearl River Delta. The major investments are generally aimed at deepening waterways throughout the systems, and by-passing ship locking systems.[23] After China, the world's second largest network is in the Russian Federation, which has 102,000 kilometres of waterways. Brazil and the United States follow, with 50,000 and 41,000 kilometres of waterways respectively. Indonesia comes in fifth place, with 21,500 kilometres.

In China, freight transported along the Yangtze River – the world's busiest river by cargo volume – was estimated at 1.2 billion tons in 2009. Provisional data for 2010 suggest that the end-of-year total may reach 1.34 billion tons.[24] In India, the level of freight transportation by inland waterway is negligible, especially when compared to the European Union, the United States, and China. The total cargo moved (in ton-kilometres) by inland waterway is about 0.1 per

Table 5.12. Freight transport via inland waterways *(in millions of ton-kilometres)*

	2000	2007	2008	Percentage change
Austria	2.4	2.6	2.4	-9.2
Azerbaijan	n.a.	6	6.1	1.1
Belarus	0	0.1	0.1	41.9
Belgium	7.3	9	8.7	-2.9
Bulgaria	0.4	1.7	1.9	13.2
Canada	25.4	29.4	n.a.	..
Croatia	0.1	0.1	0.1	-27.5
Czech Republic	0.8	0.9	0.9	-3.9
Estonia	0	0	0	
EU 26	134.7	140.2	142.7	1.8
Finland	0.1	0.1	0.1	0
France	9.1	8.8	8.6	-3.1
Germany	66.5	64.7	64.1	-1
Hungary	0.9	2.2	2.3	1.7
Italy	0.2	0.1	n.a.	
Latvia	n.a.	n.a.	n.a.	
Lithuania	0	0	0	18.2
Luxembourg	0.4	0.3	0.4	6.1
Netherlands	41.3	41.9	46	9.9
Poland	1.2	1.3	1.3	-4.8
Republic of Moldova	n.a.	0	0	0
Romania	2.6	5.3	4.9	-7.5
Russian Federation	71	86	63.7	-25.9
Serbia	1	1.6	1.4	-13.6
Slovakia	1.4	1	1.1	9.7
Switzerland	0.1	0.1	n.a.	..
Ukraine	5.9	5.7	n.a.	..
United Kingdom	0.2	0.1	0.2	14.3
United States	441.7	396.6	n.a.	..

Source: UNCTAD secretariat based on data supplied by the International Transport Forum (2010) *Trends in the Transport Sector*.

Note: Non-availability of data affects totals.

EU (26) refers to the 27 European Union countries minus Cyprus which is not a member of the International Transport Forum.

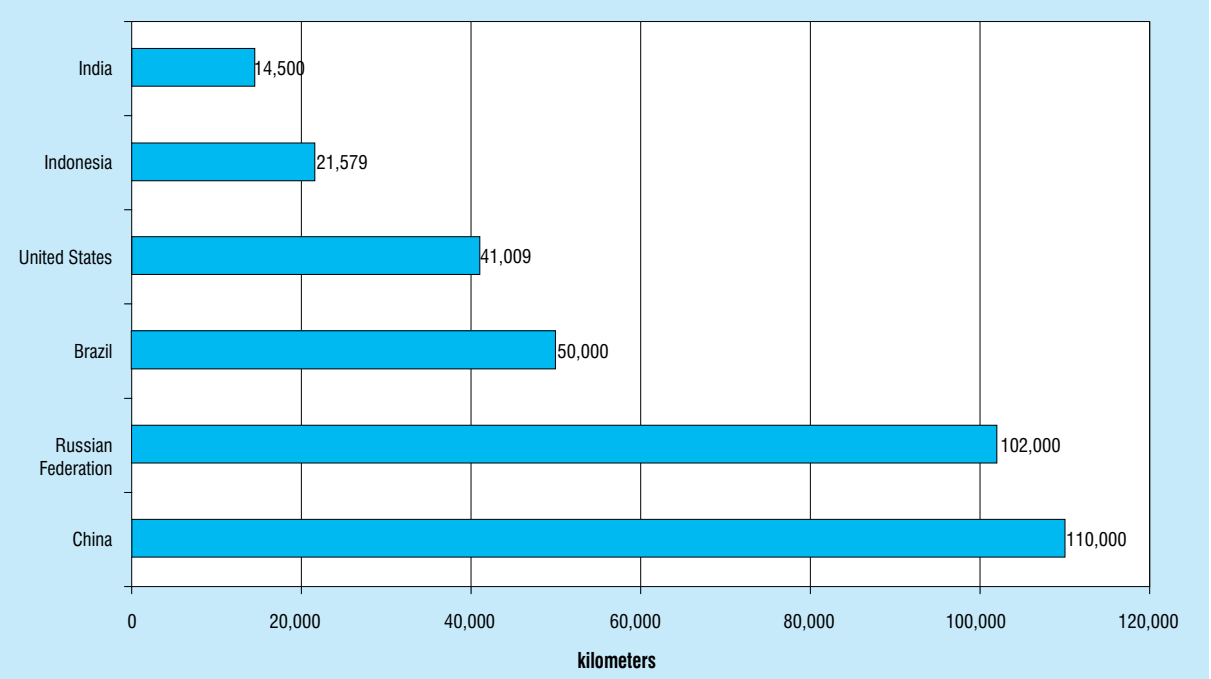
Table 5.13. Extent of physical transportation systems in the world's top economies, in 2008

Ranked by total length of roadways	Roadways		Railways	Waterways	Pipelines	Airports
	Total (km)	Paved roads (km)	(km)	(km)	(km)	(number)
United States	6 465 799	4 209 835	226 427	41 009	793 285	5 146
India	3 316 452	1 517 077	63 327	14 500	22 773	251
China	1 930 544	1 575 571	77 834	110 000	58 082	413
Brazil	1 751 868	96 353	28 857	50 000	19 289	734
Japan	1 196 999	949 101	23 506	1 170	4 082	144
Canada	1 042 300	415 600	46 688	636	98 544	514
France	951 500	951 500	29 213	8 501	22 804	295
Russian Federation	933 000	754 984	87 157	102 000	246 855	596
Australia	812 972	341 448	37 855	2 000	30 604	462
Spain	681 224	681 224	15 288	1 000	11 743	154
Germany	644 480	644 480	41 896	7 467	31 586	331
Italy	487 700	487 700	19 729	2 400	18 785	101
Turkey	426 951	177 500	8 697	1 200	11 191	103
Sweden	425 300	139 300	11 633	2 052	786	249
Poland	423 997	295 356	22 314	3 997	15 792	126
United Kingdom	398 366	398 366	16 454	3 200	12 759	312
Indonesia	391 009	216 714	8 529	21 579	13 752	669
Mexico	356 945	178 473	17 516	2 900	40 016	243
Saudi Arabia	221 372	47 529	1 392	...	8 662	215
Belgium	152 256	119 079	3 233	2 043	2 023	42
Netherlands	135 470	113 018	2 811	6 215	4 897	27
Austria	107 262	107 262	6 399	358	3 541	55
Republic of Korea	103 029	80 642	3 381	1 608	2 250	113
Norway	92 946	72 033	4 114	1 577	95	98
Switzerland	71 298	71 298	4 888	65	1 763	66

Source UNCTAD secretariat, on the basis of data from the United States Department of Transportation in *Freight Transportation: Global Highlights 2010* and Central Intelligence Agency in *World Factbook 2009*.

Note: The United States has the world's most extensive freight transportation network, when measured by the number of kilometres of public-use paved roads, railways, waterways and pipelines, and also by the number of airports.

Figure 5.6. Inland water navigation systems (top six countries), *(length in kilometres)*



Source: UNCTAD secretariat, based on United States Department of Transportation (2010). Freight transportation: Global highlights 2010.

cent of the total inland traffic in India, compared to 6 per cent in the European Union, or 21 per cent in the United States.[25]

Table 5.12 shows the ton-kilometres transported in 2000, 2007 and 2008, for selected economies. In the EU-26 (the 27 European Union countries minus Cyprus), a total of 143 million ton-kilometres were transported in 2008, which represented an annual growth rate of 1.8 per cent compared to 2007.[26] In the United States, 397 million ton-kilometres were transported in 2007, whereas in the Russian Federation there was a significant decrease, from 86 million ton-kilometres in 2007 to 64 million ton-kilometres in 2008. Double-digit negative growth rates were recorded in 2008 for Croatia (-27.5 per cent), the Russian Federation (-25.9 per cent) and Serbia (-13.6 per cent).

What these general trends tend to indicate is that in spite of the effects of the global crisis, the share of inland waterway transport in global transport is negligible, and that its trends do not significantly affect the overall trends reviewed. For the immediate future, the inland leg for maritime freight will continue to be dominated mainly by road and rail (and in a few cases, by air).

ENDNOTES

1 Due to variations in calculation methods and reporting periods, the 2009 data are preliminary.

2 COSCO Pacific 2009 final results, 30 March 2010.

3 See annex IV.

4 For the list of countries in each country grouping, see annex I. For the list of LDCs, see the United Nations Office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, at http://www.unohrlls.org/en/ldc/related/62/.

5 See also "Ports and international transport costs" in UNCTAD's Transport Newsletter, no. 31, first quarter 2006; and "Trade, liner shipping supply, and maritime freight rates" in Transport Newsletter, no. 33, third quarter 2006. Available at.http://www.unctad.org/transportnews.

6 http://www.jamaica-gleaner.com/gleaner/20100209/shipping/shipping1.html (accessed 23 June 2010).

7 http://www.apmterminals.com/uploadedFiles/corporate/Media_Center/Press_Releases/090618%20New%20Productivity%20Record%20for%20APM%20Terminals%20Apapa.pdF (accessed 23 June 2010).

8 http://www.gulf-daily-news.com/source/XXXIII/065/pdf/page24.pdf(accessed 23 June 2010).

9 http://www.ameinfo.com/206074.html (accessed 23 June 2010).

10 http://www.transportweekly.com/pages/en/news/articles/66364/(accessed 23 June 2010).

11 http://cpa.gov.bd/index.php?option=com_content&view=article&id=102&Itemid=44(accessed 23 June 2010).

12 http://www.facebook.com/note.php?note_id=372826574423(accessed 25 November 2010).

13 Includes freight and passenger transport by road.

14 Source: Datamonitor (2009). *Global Trucking*. August. The value of the freight segment is calculated on the basis of total road freight volume multiplied by average annual price per ton-kilometre. All currency conversions are at constant average annual 2008 exchange rates.

15 Business Monitor International (2010). Based on Freight Transport Reports for various countries.

16 Source: Eurostat. Energy, transport and environment indicators, 2009.

17 International Transport Forum, May 2010.

18 Ibid.

19 A compound annual growth rate (CAGR) is defined as the year-on-year growth rate of an investment over a specified period of time.

20 For 2005, or the year of latest available data.

21 The Staggers Act (1981).

22 One net ton of freight transported for one kilometre. Ton-kilometres provide a measure of the work done by the transport system: they include the weight of the freight and exclude the weight of the railway wagon.

23 Initiatives include the Three Gorges project, aimed at improving electric power supply and navigation safety, and reducing transport costs; and the development along the Hang Yong Canal, connecting a network of six rivers with the country's largest river.

24 World Cargo News (2010). Yangtze cargo volumes soar. May: 26.

25 Source: Wikipedia.

26 Source: Eurostat (2009). Energy, transport and environment indicators.

6

LEGAL ISSUES AND REGULATORY DEVELOPMENTS

CHAPTER 6

This chapter provides information on some important legal issues and recent regulatory developments in the fields of transport and trade facilitation, together with information on the status of ratification of some of the main maritime conventions. During 2009 and the first half of 2010, discussions continued at the International Maritime Organization regarding the scope and content of an international regime to control greenhouse gas emissions from international shipping. Moreover, a Protocol to the 1996 HNS Convention was adopted, in April 2010, with a view to facilitating the entry into force of the Convention. Standard-setting activities and other measures are continuing in the field of maritime and supply-chain security, in particular under the auspices of various international organizations such as the World Customs Organization, the International Maritime Organization and the International Organization for Standardization, but also at the national and regional level. The WTO negotiation on trade facilitation are now in their sixth year and are widely described as an area of the Doha Round in which tangible progress has been made; at the centre of the negotiations are the level of obligation and the level of precision that the new rules will have.

A. LEGAL ISSUES AND REGULATORY DEVELOPMENTS AFFECTING TRANSPORTATION

1. Developments relating to the United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea: the "Rotterdam Rules"

In 2008, work was completed on the text of a Draft Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea. A final draft text – approved by the United Nations Commission on International Trade Law (UNCITRAL) – was then adopted by the United Nations General Assembly on 11 December 2008. The new United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea, known as the Rotterdam Rules,[1] was opened for signature at a special conference held in Rotterdam in September 2009. An analytical overview of the complex provisions of the Rotterdam Rules was provided in the *Review of Maritime Transport 2009*,[2] which should be consulted in respect of the content of the new Convention. While the Convention has, at the time of writing, attracted 22 signatories,[3] it has not yet been ratified by any country. This is worth noting, as a number of press reports and articles published over the past year appear to suggest – based on the number of signatories – that the new Convention's entry into force is imminent.

It should be noted that the Convention will enter into force only if and when 20 States have deposited their instruments of ratification, acceptance, approval or accession with the Secretary-General of the United Nations.[4] Contracting States to the Rotterdam Rules are required to denounce the Hague Rules,[5] Hague-Visby Rules[6] or Hamburg Rules,[7] as the case may be, and therefore may not continue to adhere to maritime Conventions currently in force in relation to their different trading partners. Moreover, it is important to note that after the Convention's entry into force, ratification, acceptance, approval or accession of the Rotterdam Rules by any additional State becomes effective only if and when denunciation of the Hague Rules, the Hague-Visby Rules or the Hamburg Rules, as the case may be, has become effective.[8]

2. Legal instruments and other developments relating to the environment

(a) Reduction of greenhouse gas emissions from international shipping

Although maritime transport is the most fuel-efficient way of carrying cargo, international shipping causes around 3 per cent of the global carbon dioxide (CO2) emissions from fuel combustion. Mid-range emissions scenarios show that, by 2050, in the absence of countervailing policies, emissions from ships may increase by a factor of 2 to 3 (compared to the emissions in 2007) as a result of the growth in shipping.[9] Bunker fuel emissions from international shipping are, however, not covered by the international regulatory framework under the Kyoto Protocol.[10] The United Nations Climate Change Conference held in Copenhagen in December 2009 marked the culmination of international climate change negotiations for the year, but failed to adopt a legally binding instrument to regulate greenhouse gas (GHG) emissions after the expiry in 2012 of the first Kyoto Protocol commitment period. A considerable number of countries reached agreement on matters reflected in the non-binding Copenhagen Accord,[11] of which the Conference took note. However, emissions from bunker fuels are not explicitly mentioned in the Copenhagen Accord.[12]

Substantive deliberations on effective control of GHG emissions from international shipping continue, under the auspices of IMO. Following earlier relevant work in the field,[13] control of GHG emissions and improvements to energy efficiency for ships was, once again, the crucial issue on the agenda of IMO's Marine Environment Protection Committee (MEPC) at its sixtieth session, which was held from 22 to 26 March 2010. Although the scope and content of any mandatory regime on control of GHG emissions from international shipping remains to be agreed, considerable progress has been made towards the development of technical and operational measures needed for its efficient implementation.[14] The MEPC, at its sixtieth session, agreed to establish a Working Group on Energy Efficiency Measures for Ships, which would build on the progress made so far. In this context, a draft text was prepared by MEPC at its sixtieth session, on mandatory requirements for

the Energy Efficiency Design Index (EEDI) for new ships, and on the Ship Energy Efficiency Management Plan (SEEMP) for all ships in operation. However, the Committee noted that issues such as target dates, ship size and reduction rates in relation to the EEDI requirements still needed to be finalized. MEPC also agreed that a vessel's EEDI shall be equal or less than the required EEDI, and that the required EEDI shall be based on EEDI baselines and reduction rates yet to be agreed.[15]

In addition, work has continued at IMO on Market-Based Measures (MBMs) to regulate emissions from international shipping.[16] As discussed in the *Review of Maritime Transport 2009*, the Second IMO GHG Study 2009,[17] besides identifying considerable potential for reduction, concluded that MBMs were cost-effective policy instruments with a high degree of environmental effectiveness.[18] The MEPC at its fifty-ninth session held from 13 to 17 July 2009, having considered a large number of views and contributions on the subject, agreed by a majority that a market-based measure was needed as part of a comprehensive package of measures for the regulation of GHG emissions from international shipping.[19]

A number of proposals on MBMs to regulate emissions from international shipping were submitted at IMO, although there seems to be no clear preference for any particular proposal at this stage. The MEPC at its sixtieth session decided to undertake a feasibility study and impact assessment of all the proposed MBMs. To this end, it requested the IMO Secretary-General to establish the Expert Group on Feasibility Study and Impact Assessment of Possible Market-Based Measures (MBM-EG), to report to the sixty-first session of MEPC in September/October 2010. According to the terms of reference,[20] the remit of the Expert Group was "to evaluate the various proposals on possible MBMs with the aim of assessing the extent to which they could assist in reducing GHG emissions from international shipping, giving priority to the maritime sectors of developing countries, least developed countries (LDCs) and small island developing States (SIDS)." (…) The study/assessment would be conducted by a group of selected experts with appropriate expertise on matters within the scope of the study, who, in the discharge of their duties, would serve the Expert Group in their personal capacity. The terms of reference further envisage that the Secretary-General would invite "a proportionate number of organizations in consultative status with IMO, and relevant United Nations entities, as well as intergovernmental or international organizations, which can contribute with data and/or with expertise to the work of the Expert Group and will participate as advisers." The MBM-EG completed its work on evaluation of the proposals at the end of August 2010, and its conclusions are set out below.

For ease of reference, a brief summary of the main groups of MBM proposals[21] submitted at IMO, which were considered by the MBM-EG, is provided first, as follows:

Contribution- or levy-based (GHG fund, leveraged incentive scheme, Port States utilizing STEEM)

(i) Proposals on the establishment of a GHG fund.[22] Inspired by the International Oil Pollution Compensation Fund mechanism, a GHG fund could be established as a separate legal entity under the structure of a new IMO convention. However, its revenues should be kept completely separate from the budget of IMO. In the basic proposal, the GHG fund would introduce mandatory registration for bunker fuel suppliers within its Parties, and voluntary registration in non-parties. These proposals are based on the assumption that since a significant reduction in absolute terms cannot so far be foreseen, only some of the future GHG emissions from international shipping can be offset. It is the GHG contributions that should be set at a given level, per ton of fuel purchased, to be established by the GHG fund's administrator, and to be added to the price of bunker fuel. The money collected by the fund would be used to finance Clean Development Mechanism (CDM) projects in developing countries, to support marine fuel emission R&D, and to support adaptation projects in developing countries etc.

(ii) The leveraged incentive scheme[23] represents a modification of the GHG fund proposal above, and aims to incentivize energy efficiency improvements. New elements that it introduces, compared to the GHG fund proposal, are that the contribution, at a fixed amount per ton of fuel purchased, should be paid by the ships directly to the GHG fund, rather than being collected via fuel suppliers. Payment would be made through electronic accounts established for individual ships. Furthermore, ships ranked as "good performance ships" would benefit from refunds out of the revenues collected, thus creating a strong economic incentive to accelerate improvements in the energy efficiency of ships. The criteria to be used for ship performance appraisal are based on the Energy Efficiency Design

Index (EEDI) and on the Energy Efficiency Operational Indicator (EEOI). The revenues to be generated from the contribution can be utilized for various purposes including adaptation and mitigation in developing countries.

The sponsors of this proposal argue that a cap on total CO_2 emissions from international shipping as proposed in the context of an Emissions Trading Scheme (ETS) is not an appropriate approach as seaborne transport is a variable dependent on global economic activity, which is unpredictable and not under the control of the maritime industries. Therefore, they suggest that "the regulatory package to be developed by IMO should use efficiency improvements as targets." [24]

(iii) Another proposal focuses on "achieving reduction in GHG emissions from ships through Port State arrangements utilizing the Ship Traffic, Energy and Environment Model (STEEM)."[25] This proposal suggests that via a global agreement under IMO, all countries would be authorized to allow their ports to levy a globally uniform emissions charge on all vessels calling at their ports. The charge would be higher for heavier and dirtier fuels, and lower for cleaner fuels such as natural gas, and it would be structured in such a way as to achieve the global reduction targets for GHG emissions. The process would be enforced by the Port State by way of its port authorities. The amount of pollution produced by the ship during the voyage in arriving at a port would be used as the basis on which the emission charge would be levied.

It is further suggested that by using a matrix of all possible port pairs, it may be possible to determine the distance travelled to arrive at a particular port. Using predetermined factors based on STEEM calculations for particular vessel specifications, one can determine the amount of bunkers and marine fuel consumed during the voyage and determine the GHG emissions. Vessels would then be charged the emissions fee along with the other port dues.

The proposal argues that an emissions reduction mechanism administered by Port States and targeting the vessels themselves would overcome political and legal challenges inherent in the global shipping industry that arise with ships operating largely outside national boundaries, frequently in third party territories, and often changing nationalities. In addition, it states that such a mechanism has the advantages of "charging each unit of pollution, being universally applicable in all countries and ports, being uniform in its fee structure, having a flexible adjustment mechanism, being trade-related, and allowing benefits to be accrued in the areas where the damage occurs."[26]

Emissions Trading Scheme

Another group of proposals are those on an open global Emissions Trading Scheme (ETS)[27] for international shipping, which could be developed in a new legal mechanism, probably as part of a new convention under the auspices of IMO. Such a scheme would function on the basis of GHG emissions allowances that would be sold to the shipping industry via an auctioning system. Ships would also be able to acquire emissions allowances and credits from other systems, including from the UNFCCC Clean Development Mechanism. An important element of the ETS would be a global emissions cap to be set for international shipping, on the total number of allowances sold during a compliance period, with a long-term declining emissions trajectory. The amount of allowances and credits purchased by a ship would have to correspond to its bunker consumption, and be periodically surrendered. This would be a condition for maintaining a valid GHG certificate for the compliance period. A fund would be generated by the auctioning of emissions allowances. This fund could be used for climate change mitigation and adaptation purposes in developing countries, for technical cooperation activities under IMO, and for research and development (R&D) within the maritime sector.

The sponsors of the ETS proposals generally believe that the main advantage of a global ETS for international shipping would be that it would respond to the need for precise emission control by establishing a cap on the total emissions from the international shipping sector. At the same time, it would provide for access to more cost-effective emission reductions in order to meet the cap, and so a greater level of emission reductions could be achieved for the same cost.

Efficiency-based (the Ship Efficiency Credit Trading with Efficiency Standards, and the Vessel Efficiency System)

(i) The Ship Efficiency Credit Trading with Efficiency Standards[28] proposal focuses on and rewards enhanced vessel efficiency. It develops efficiency index baselines for existing ships of similar type and size using the EEDI as developed by IMO. A "required efficiency index" would be calculated for all ships, and it would gradually become more stringent.

An "attained efficiency index" would also be calculated periodically. It should be lower than or equal to the required efficiency index in order to demonstrate compliance. However, recognizing that not all ships would be able to meet this requirement, the proposal suggests that ships that are more efficient may sell their efficiency credit surplus to ships whose attained efficiency index does not meet the required efficiency index. Efficiency credits would be bought and sold through a Ship Efficiency Credit Trading Scheme, for which IMO would develop the necessary regulations and oversight but which IMO would not operate or implement. Only ships of 400 GT and greater carrying out international voyages would be included in this programme. Initially, only ship types with approved EEDI baselines would be required to comply. MARPOL annex VI[29] could potentially be used as the mechanism to implement efficiency index standards for new and existing ships.

(ii) The proposal of establishing a Vessel Efficiency System (VES)[30] is a combination of the vessel design efficiency concept applied to existing ships and the GHG fund concept. The proposal is based on:

- establishing efficiency design standards or targets for both new and existing vessels in the fleet where calculation of an EEDI baseline is deemed feasible;
- establishing mandatory efficiency standards applicable to new ships built after a particular year which may be tiered over time (e.g. X per cent by year 20XX, Y per cent by year 20XY);
- establishing different efficiency standards (less stringent than those applicable to new builds) that apply to the existing fleet after a given year to be determined by the parties;
- assessing charges (based on fuel consumption) for those existing vessels that fail to meet the applicable standard established for existing vessels; and
- establishing a fund populated by the charges collected.

The aim of combining vessel design efficiency with the fund concept is to produce an enhanced environmental result, to address criticisms on the one hand that the proposal to establish a fund through fees on all bunkers sold would be an international commodity tax, and on the other hand that such an approach would have a limited impact on improving carbon efficiency across the world's fleet. The aim is also to provide greater financial incentives to vessel operators that invest in efficiency improvements, and to discourage the long-term operation of the most inefficient vessels.

Differentiated proposals

(i) The proposal on a rebate mechanism[31] aims to deliver on the UNFCCC principle of common but differentiated responsibilities and respective capabilities,[32] for any MBM for international shipping. The rebate mechanism, it is argued, would ensure that developing countries are not disadvantaged by such an instrument but rather benefit from it. The proposal argues that all the relevant proposals that have been submitted to the MEPC so far assume uniform application of a yet-to-be-agreed MBM for all ships in international trade, irrespective of the flag they fly. Also, it states that disbursement to developing countries of any revenue raised, in the ways proposed so far, is not generally perceived by these countries as fulfilling the UNFCCC principle of common but differentiated responsibilities and respective capabilities. The proposal suggests that each developing country party to the UNFCCC would be entitled to obtain an unconditional rebate equal to the cost incurred because of the maritime MBM. The amount of rebate would be calculated annually in proportion to a country's share of global imports by value. A developing country could decide to forego the rebate, or a part of it. This would provide additional flexibility to reflect differentiated national circumstances. The net revenue raised, after the rebates have been issued, should be split between assisting developing countries in implementing climate change action, and assisting the global shipping sector to accelerate reductions of its growing emissions through technological advances. The disbursement of this net revenue could be managed by the operating entity of the financial mechanism of the UNFCCC, according to the relevant rules and provisions. In principle, the proposed rebate mechanism could apply and be integrated into any MBM, such as a levy and an ETS, provided that it generates enough gross revenue to cover the rebate needs. This would be a way to creatively reconcile the principles of IMO and the UNFCCC, and could unlock the debate and facilitate swift progress in this area.

(ii) Another proposal, which highlights the concerns of some developing countries, is entitled "Market-based instruments: a penalty on trade and development".[33] It first draws attention to the two main options currently being proposed regarding MBMs – one based on emissions trading, and the other on a levy (or contribution) on bunker fuel. As regards emissions trading schemes, it states that based on the experience of such schemes so far, brokers will buy and sell credits like any other commodity. They are likely to be operating in developed countries, where financial resources are more readily available, which means that the profits to be made in the process will be retained within developed countries. The proposal suggests that for an ETS to be successful on a global scale, certain criteria are essential, namely that:

- The countries involved must be at a similar level of economic development to avoid distortions in their ability to participate due to inequality of available funding;
- The countries concerned must have some degree of political cohesion to ensure that any disadvantages for one country vis-à-vis another can be dealt with;
- There must be a common central body that can ensure proper coordination of the measures.

According to this proposal, if these criteria are not satisfied, the system is bound to favour only developed countries, and may result in severe disadvantages for all developing countries, especially the most needy. Also, the proposal argues that efficiency gains are more difficult to achieve on older ships. Emission trading schemes, therefore, tend to favour owners who are able to afford newer ships and accordingly gain a competitive advantage from the scheme. Those engaged in trades in which older ships operate would be disadvantaged, as these tend to be trades carrying low-value cargoes, mainly from developing countries.

As regards the option of a levy or contribution on ship's bunkers to provide funds to alleviate the effects of climate change, the proposal expresses concern that although it has been called a levy or a contribution, in effect, it is a tax on international trade. It would set a precedent as the first internationally imposed tax, and once a precedent had been set, then other taxes could perhaps follow. The proposal also states that if a financial measure is to be applied to international shipping, then it should be proportional to the share of shipping emissions in total global emissions, which is 2.7 per cent, because "proportionality must be the key to any measures proposed for shipping, especially if such measures have a financial component."

Reduction targets for international shipping

MEPC, at its sixtieth session, revisited the topic of reduction levels, noting that reduction potential would be considered for each proposed MBM as part of the impact assessment. MEPC would need to consider whether or not the international maritime sector should be subject to an explicit emission cap, or to a reduction target comprising the entire world fleet of merchant vessels. The main questions would be how and through which international organization such a cap or reduction target should be established. Other questions regarding a cap or a target line would include the methodology by which the cap/target is set and maintained, as well as the possible connection with other transport modes and how they are regulated internationally.

After considering a number of documents[34] submitted on the matter, MEPC agreed that the debate on the reduction targets was a vital part of the Organization's GHG work, and that work on this matter should preferably continue in parallel with work on the development of market-based measures, with the aim of coming to a conclusion by the sixty-second session of MEPC in July 2011.

As has already been noted, the Expert Group on Feasibility Study and Impact Assessment of Possible Market-Based Measures (MBM-EG) completed its work on evaluating the MBM proposals at the end of August 2010. The full report of the work undertaken by the MBM-EG[35] includes the following five main parts dealing with evaluation of the various mechanisms:

- Proposals evaluated (chapter 6)
- Assumptions (chapter 7)
- Evaluation of the ten proposals against the nine criteria (chapters 9 to 18)
- General impacts of market-based measures on trade, competition and consumer prices (chapter 19)
- Conclusions (chapter 20)

The conclusions of the report suggest that further work is required on elaborating and developing the various proposals. The full text of the conclusions, contained in chapter 20 of the report, is reproduced below:

"20.1 The evaluation of the proposals was completed as requested by the Committee in accordance with the terms of reference, and each evaluation provides the required assessment as described in the terms of reference specifically in its paragraph 2.5.

20.2 The evaluation was complicated by the different levels of maturity of the various proposals. Proposals with a high level of maturity generated more discussion compared to those that were less developed.

20.3 The Group would like to point out that elements of the proposed measures would require further elaboration and development. Proposals at an early stage of development would be required to be developed further.

20.4 The Group reached its conclusions by consensus, apart from a few instances where the evaluation of legal or administrative aspects led to different views as captured in the report.

20.5 All proposals address control of GHG emissions from shipping. Some of the proposals go beyond mitigation and propose a mechanism that provides for substantial contribution to address the adverse effects of climate change.

20.6 The proposals have different ways of reducing emissions; some focus on "in-sector" reductions, and others also utilize reductions in other sectors. The extent of such reductions is detailed within the individual evaluation of each proposal in the report.

20.7 Cost-effective operational and technical emission-reduction measures are available to the shipping sector. However, barriers exist in the uptake of many of these measures.

20.8 The Group has considered sustainable development in a holistic way so that it has become an inherent part of the assessment rather than an isolated criterion, because this was deemed to be the best approach.

20.9 The Group has identified that the implications of implementing the different MBM proposals for international shipping are directly related to the stringency of the proposed measure. Irrespective of this, the Group concluded that all proposals could be implemented notwithstanding the challenges associated with the introduction of new measures.

20.10 The assessment of the impacts of an increase in bunker fuel prices and freight costs showed that implementation of the proposed measures would affect some countries and products more than others. In some cases, even small increases in costs could have relatively significant consequences. Indirect economic costs and benefits were not considered in the analysis. Some of the proposed measures include mechanisms aiming to provide means to mitigate negative impacts.

20.11 The proposals lack, to various degrees, sufficient details for the necessary evaluation of issues such as international harmonization in implementation, carbon leakage, fraud, and traffic of vessels between non-party states, among others. These issues require further policy consideration in order to be addressed more properly."[36]

(b) IMO conventions regarding the environment

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships 2009 (Hong Kong Convention) was adopted in May 2009. Since then, in order to help shipowners and operators to handle the transition to the Convention's requirements, a number of guidelines have been adopted or are under consideration at IMO. The Guidelines for the Development of the Inventory of Hazardous Materials were adopted by MEPC at its fifty-ninth session. At the sixtieth session of MEPC, a working group was established to continue work on developing the Guidelines for Safe and Environmentally Sound Ship Recycling, and also to begin the development of the Guidelines for the Development of the Ship Recycling Plan.

The Hong Kong Convention was open for signature from 1 September 2009 to 31 August 2010. Thereafter, it remains open for accession by any State. It will enter into force 24 months after the date on which 15 States, representing 40 per cent of world merchant shipping by gross tonnage, have either signed it without reservation as to ratification, acceptance or approval, or have deposited instruments of ratification, acceptance, approval or accession with the IMO Secretary-General. Furthermore, the combined maximum annual ship recycling volume of those States must, during the preceding 10 years, have constituted not less than 3 per cent of their combined merchant shipping tonnage.[37] MEPC, at its sixtieth session, encouraged more countries to sign the Convention in the remaining time, i.e. before the end of August 2010.

As regards ballast water management, MEPC at its sixtieth session agreed to grant final approval to a further five ballast water management systems that make use of active substances, and to grant

basic approval to a further eight. These should help to improve the prospects of the Ballast Water Management Convention 2004 gaining further ratifications. The 2004 Ballast Water Management Convention will enter into force 12 months after ratification by 30 States representing 35 per cent of the world merchant tonnage.[38]

As regards the issue of preventing air pollution from ships in general, and, in particular, issues related to MARPOL[39] annex VI,[40] MEPC, at its sixtieth session, adopted amendments to annex VI of the MARPOL Convention, entitled Regulations for the Prevention of Air Pollution from Ships, formally establishing the North American Emission Control Area, whereby emissions of sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter from ships will be subject to more stringent controls than the limits that apply globally. It also adopted a new MARPOL regulation to protect the Antarctic from pollution by heavy grade oils. These amendments are expected to come into force on 1 August 2011, by tacit acceptance procedure. MEPC, at its sixtieth session, also confirmed that the revised MARPOL annex VI and the NOx Technical Code 2008,[41] would come into force on 1 July 2010, as expected.

A diplomatic conference was held in April 2010 to adopt the Protocol to the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS Convention) 1996. Adoption of the Protocol represents a potentially important step towards strengthening the international liability framework for ship-sourced pollution by hazardous and noxious substances. The Protocol is designed to address practical problems that have prevented many States from ratifying the original HNS Convention which, despite having been adopted in 1996, still has not met the conditions for it to enter into force.[42]

The 1996 HNS Convention establishes a shared, two-tier compensation system for pollution arising from a variety of hazardous and noxious substances, with liability of the carrier supplemented by compensation available from a fund to which cargo interests contribute. The 1996 HNS Convention is thus modelled on the well-established and robust international liability regime for oil pollution damage from tankers under the International Convention on Civil Liability for Oil Pollution Damage 1969 (and its 1992 Protocol) and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 (and its 1992 and 2003 Protocols). Entry into force of the 1996 HNS Convention would ensure that adequate and effective compensation is available to persons who suffer damage caused by incidents in connection with the carriage of a wide range of hazardous and noxious substances by sea, and would further contribute to the preservation of the marine environment. The main obstacles so far to ratification of the 1996 HNS Convention appear to have been the requirement for States to report the quantities they receive of a diverse range of hazardous and noxious substances governed by the Convention (contributing cargo), and difficulties in setting up the reporting system for packaged goods.

The 2010 HNS Protocol seeks to address these concerns by amending certain provisions of the 1996 HNS Convention. The Protocol sets out revised detailed reporting requirements for States on contributing cargo at the time of ratification of the Protocol, as well as regularly thereafter, accompanied by sanctions for non-compliance with these requirements. Failure of a Contracting State to comply with its annual reporting requirements, before entry into force of the Protocol, leads to temporary suspension from being a Contracting State until the relevant data have been submitted (Art. 20(7) 2010 HNS Protocol). Therefore, even after ratification by the required number of States, entry into force of the Protocol is conditional upon all of the relevant States having complied with their respective reporting requirements. In addition, the 2010 HNS Protocol excludes packaged goods from the definition of contributing cargo, and accordingly, receivers of these goods will not be liable for contributions to the HNS Fund. However, given that incidents involving packaged goods will remain eligible for compensation, shipowners' liability limits for incidents involving packaged HNS were increased.

As regards limits of liability under the 2010 HNS Protocol, if damage is caused by bulk HNS, compensation would first be sought from the shipowner, up to a maximum limit of 100 million Special Drawing Rights (SDR) (approximately $150 million). Where damage is caused by packaged HNS, or by both bulk HNS and packaged HNS, the shipowner's maximum liability is 115 million SDR (approximately $172.5 million). Once this limit is reached, compensation would be paid from the second tier, the HNS Fund, up to a maximum of 250 million SDR (approximately $375 million), including compensation paid under the first tier. The Fund will have an Assembly, consisting of

all States Parties to the Convention and Protocol, and a dedicated secretariat. The Assembly will normally meet once a year.[43]

In terms of hazardous and noxious substances covered by the 1996 HNS Convention, it should be noted that the definition in Art. 1 (5) (vii) of the Convention, relevant in respect of certain bulk cargoes, makes reference to both the "International Maritime Solid Bulk Cargoes Code, as amended" and the "International Maritime Dangerous Goods Code in effect in 1996".[44] Therefore, the definition excludes relevant bulk cargoes which are subject to the International Maritime Dangerous Goods (IMDG) Code as amended post-1996 but were not subject to the IMDG Code in effect in 1996. Therefore, if and when the HNS Convention as amended by the 2010 Protocol enters into force, it will not apply in respect of some hazardous cargoes which have been added to the list of substances subject to the IMDG Code since 1996. Agreement on this issue proved to be an important element of the compromise reached by delegations at the Diplomatic Conference.[45]

The HNS Protocol 2010 will be open for signature from 1 November 2010 to 31 October 2011 and will thereafter remain open for accession. Entry into force of the 2010 Protocol will, for Contracting States, lead to entry into force of the HNS Convention as amended by the 2010 Protocol (HNS Convention 2010).[46] In this context, it should be noted that the requirements for entry into force are in one respect more stringent than in the original 1996 HNS Convention. In addition to the existing requirements,[47] entry into force is conditional on Contracting States complying with their relevant annual reporting requirements as regards contributory cargo.[48]

3. Overview of recent developments relating to maritime and supply-chain security

(a) World Customs Organization – SAFE Framework of Standards

In the context of its work on developing a global supply-chain security framework, the World Customs Organization (WCO) adopted, in 2005, the Framework of Standards to Secure and Facilitate Global Trade (the SAFE Framework), which has fast gained widespread international acceptance.[49] The SAFE Framework is a set of standards and guidelines that WCO member customs administrations agree to implement on a national basis. However, this does not automatically lead to mutual recognition of customs security provisions and procedures between such countries. Mutual recognition is a concept inherent in the SAFE Framework, which calls for customs administrations to develop industry partnership programmes that are referred to as Authorized Economic Operator (AEO) programmes. An AEO is defined in the SAFE Framework as "a party involved in the international movement of goods … that has been approved by or on behalf of national customs administrations as complying with the WCO or equivalent supply-chain security standards. AEOs include, inter alia, manufacturers, importers, exporters, brokers, carriers, consolidators, intermediaries, ports, airports, terminal operators, integrated operators, warehouses and distributors."[50]

The SAFE Framework is built on two supporting pillars: (a) customs-to-customs and (b) customs-to-business cooperation arrangements. The cooperation among customs administrations towards achieving mutual recognition also assists in respect of the customs-to-business pillar, by providing, among other things, standardized security requirements for AEO programmes. The requirements for AEO recognition have been presented in some detail in previous editions of the *Review of Maritime Transport*,[51] but are restated here for ease of reference. They include:

(i) Demonstrated compliance with customs requirements;

(ii) A satisfactory system for management of commercial records;

(iii) Financial viability;

(iv) Consultation, cooperation and communication;

(v) Education, training and awareness;

(vi) Information exchange, access and confidentiality;

(vii) Cargo security;

(viii) Conveyance security;

(ix) Premises security;

(x) Personnel security;

(xi) Trading partner security;

(xii) Crisis management and incident recovery; and

(xiii) Measurement, analyses and improvement.

Businesses that are awarded the status of AEO are considered reliable by national authorities. Such businesses are not only entitled to benefit from simplified declaration requirements, but also from simplified and facilitated customs controls. They are no longer regarded simply as users, but as "partners of customs administrations in making world trade more secure."[52]

As noted in the *Review of Maritime Transport 2009,* both the national implementation of the AEO system and mutual recognition agreements are, in many cases, still at an initial stage of their development, and remain a challenge, particularly from the perspective of developing economies. According to the information provided by WCO, as at 30 July 2010, in addition to the 27 member countries of the European Union, 12 additional countries had operational AEO programmes,[53] and such programmes were soon to be launched in a further nine countries.[54] So far, 12 mutual recognition agreements for AEO programmes have been concluded globally,[55] and another 10 are being negotiated.[56]

Through its main capacity-building programme – the Columbus Programme: Aid for SAFE Trade[57] – WCO continues to assist national customs administrations in the implementation of the SAFE Framework. Relevant activities that have been carried out recently include a regional seminar held in Japan, in January 2010; a seminar for the private sector on SAFE, which focused mainly on AEO and mutual recognition, and was held in Brussels in February 2010; and an AEO conference for the private sector in Central and Latin America, which was held in Guatemala in April 2010.[58]

WCO's Columbus Programme has already completed more than 100 diagnostic missions to member customs administrations. Recent reports from such missions have identified the complex nature of the customs operations at the start of the twenty-first century, and the need for a more strategic approach in the management of customs, including a broader range of management and development skills for customs managers and administrations. In response to these needs, WCO has developed a capacity-building development compendium; this will be a continuously evolving document with additional chapters added at regular intervals to reflect the ever-changing nature of customs reform and modernization.[59] It is also worth noting that on matters relating to the SAFE Framework, such as mutual recognition, AEO programmes, the participation of small and medium-sized enterprises (SMEs) in them, and customs reform and modernization, WCO cooperates closely and is assisted by the Private Sector Consultative Group.[60]

(b) Some developments at European Union level and in the United States

At the regional and national level, the European Union (EU) and the United States continue to be at the forefront in terms of developing measures to enhance maritime and supply-chain security. For this reason, and in view of the particular importance for many developing countries of trade with the European Union and the United States, some key regulatory developments in the field of international maritime and supply-chain security deserve particular mention here.

As reported in previous issues of the *Review of Maritime Transport,* at EU level, Regulation (EC) No. 1875/2006[61] was adopted in December 2006 to introduce a number of measures to increase the security of shipments into and out of the EU, and to implement Regulation (EC) No. 648/2005, which had first introduced the AEO concept into the Community Customs Code. Regulation (EC) No. 1875/2006 includes detailed rules regarding implementation of the AEO programme, and envisages that reliable economic operators that meet the conditions and criteria required for recognition of AEO status should be issued with AEO certificates as of 1 January 2008.[62] Companies seeking AEO status must comply with certain criteria, including an automated trade and transport data management system, proven financial solvency, and adequate safety/security standards (including physical security, access control, screening of personnel etc.). There are three types of certificate that may be applied for: Customs Simplifications (AEO-C); Security and Safety (AEO-S) and Customs Simplifications/Security and Safety jointly (AEO-F). A database of economic operators who hold a valid AEO certificate of any type and who have given their agreement for their details to be published, as well as a list of customs authorities competent to issue AEO certificates, has been available on the website of the European Commission since 2009, and is being regularly updated.[63]

According to EU statistics, as of 20 August 2010, a total of 5,573 applications for AEO certificates had been submitted, and a total of 3,448 certificates had been issued. The total number of applications rejected up until that date was 692 (i.e. 20 per cent of the applications received), and the total number

of certificates revoked was 82 (i.e. 2.38 per cent of the certificates issued). The number of applications received in the space of the one year from 20 August 2009 to 20 August 2010 was 2,385. The number of certificates issued during that same period was 2,028 (an average of 169 per month). The breakdown reported per certificate type issued was: AEO-F 2,423 (70.27 per cent); AEO-C 903 (26.19 per cent); and AEO-S 122 (3.54 per cent).[64]

Additionally, as laid down in Regulation (EC) 312/2009,[65] and in order to establish a unique system of registration and identification for economic operators in the EU, any economic operator established in the EU is required, from 1 July 2009 onwards, to have a valid Economic Operator Registration and Identification (EORI) number, used by one of the member States.[66]

The EU is continuing the process of negotiating agreements on mutual recognition of business partner programmes (AEO and similar) with some neighbouring States and with its major trading partners,[67] including in particular the United States. It is reported that further progress has been made with regard to reaching mutual recognition between the EU and the United States.[68] To this end, it has already been determined that the Customs–Trade Partnership Against Terrorism (C-TPAT) and the EU's AEO programme are compatible in principle, having similar requirements in place when it comes to their security criteria or standards. In order to move the process forward, three best practices workshops were held in 2009, which mainly clarified how the EU's programme works in theory. However, another very important phase of the mutual recognition process still needs to take place, which consists of joint exercises in Europe designed to ascertain the degree of compatibility between the two programmes on an operational level. It will also be helpful for C-TPAT to fully understand how the European Commission manages the programme across the EU and ensures uniformity and consistency from member country to member country. According to information provided by the EU, the signing of the Mutual Recognition Agreement was planned for the end of October 2010, and implementation of the Mutual Recognition decision was envisaged for 31 October 2011.

Achieving mutual recognition does not exempt any partner, whether domestic or foreign, from complying with other mandated requirements. As regards the United States, for instance, importers still need to comply with the requirements of the Interim Importer Security Filing Rule,[69] which is known as the 10+2 rule and is aimed at gathering better information on shipments. Under the 10+2 rule, importers are required to submit to United States Customs and Border Protection – electronically and 24 hours prior to loading cargo onto a vessel bound for the United States – the following information: (a) the name and address of the manufacturer or supplier; (b) the name and address of the seller; (c) the name and address of the buyer; (d) the "ship to" name and address; (e) the container stuffing location; (f) the stuffer's name and address; (g) the importer of record number; (h) the consignee number(s); (i) the country of origin; and (j) the commodity's Harmonized Tariff Schedule of the United States number. Moreover, within 48 hours of the vessel's departure for the United States, carriers need to provide: (a) the vessel stowage plan; and (b) container status messages. It was envisaged that this interim rule would come into effect on 26 January 2009, but its full compliance date was postponed for 12 months, taking into account difficulties that importers might face in upgrading their systems.[70] Certain "flexibilities" were allowed in the application of the 10+2 rule during the interim period – from 26 January 2009 to 26 January 2010 – which involved the timing of transmissions for 2 of the 10 elements, and the range of responses for 4 of the 10 elements. All other requirements in this rule were considered as final. At the time of writing, it appears that even after the date for full compliance with the 10+2 requirements, i.e. 26 January 2010, the "flexibilities" will stay in effect until a structured review is completed and a decision on keeping, modifying or removing them is made by the Department of Homeland Security and other executive branch agencies.[71]

Statutory advance declaration of cargo is also envisaged at the EU level, with Regulation (EC) No. 1875/2006 stipulating the requirement of mandatory advance customs notification relating to goods brought into or out of the customs territory of the European Union. Also known as the "advance cargo declaration scheme", the system, which in part corresponds to the United States' 24-hour rule,[72] would require economic operators to send manifest information to national authorities 24 hours prior to loading. This requirement was set to become mandatory on 1 July 2009, but in April 2009, Regulation (EC) No. 273/2009 was adopted, introducing a temporary derogation for 18 months, until 31 December 2010, from this requirement to provide advance electronic information for security and safety purposes. This was due to

unanticipated delays resulting from the complexity of the processes for introducing electronic entry and exit summary declarations. Also, the investments needed for automatic data transmission via the necessary IT and computer networks could have caused problems for economic operators in the short term. As was pointed out in the *Review of Maritime Transport 2009,* many exporters in developing countries would face particular challenges in meeting the requirements of the "advance cargo declaration scheme", not least due to the level of computer technology required and the costs involved.[73] For a transitional period, from 1 July 2009 to 31 December 2010, however, the advance declaration continues to be an option for traders, and not an obligation. During this period, goods not declared in advance will be submitted to risk analysis after arrival or before departure.[74]

Developments regarding one further set of regulatory measures adopted in the United States deserve particular mention. While most of the regulatory and other initiatives aiming to enhance the security of maritime container transport that have been adopted in the United States and elsewhere over recent years[75] have enjoyed broad national and international acceptance and support, one legislative requirement introduced into United States law in 2007,[76] providing for 100 per cent scanning by July 2012, using non-obtrusive imaging equipment, of all containers bound for the United States before they are loaded at a foreign port, has proved to be controversial.[77] It is therefore important to note that the United States Department of Homeland Security has recently decided to postpone implementation of the requirement until July 2014.

With regard to the 100 per cent container scanning requirement, many industry representatives, customs organizations, and government officials and entities, both outside and inside the United States, had expressed concerns regarding its effectiveness, viability, and implementation costs.

In this regard, in a WCO resolution adopted in December 2007,[78] member customs administrations expressed concern that the implementation of 100 per cent container scanning would be detrimental to world trade and economic and social development, and could result in unreasonable delays, port congestion, and international trading difficulties. Similarly, in 2009, the European Parliament adopted two resolutions[79] calling on the United States to modify the regulation providing for 100 per cent scanning of inbound cargo, and urged it to work closely with the EU to ensure the implementation of a multi-layered approach based on actual risk. This would include mutual recognition of the European Union's and the United States' trade partnership programmes, in accordance with the WCO SAFE Framework of Standards. More recently, in February 2010, the European Commission issued a report entitled "Secure trade and 100 per cent scanning of containers",[80] which concluded that implementation of 100 per cent scanning by the EU would have serious repercussions for European and global maritime transport, trade and welfare. The report lists a number of potential areas of concern regarding a requirement to scan 100 per cent of outbound containers, arguing in some detail why it would be "an unnecessary economic burden for European ports;… an expensive disruption of European transport; … a potential new trade barrier; and … a diversion from EU security priorities". As an alternative way forward, the EU report proposes addressing the supply chain as a global challenge, enhancing international cooperation and strengthening all its elements, and implementing multilayered risk management for both exports and imports.[81]

In the United States, a report issued by the General Accountability Office in December 2009[82] found that a pilot programme for the 100 per cent scanning requirement (the Secure Freight Initiative) was being carried out with limited success in five designated pilot ports, three of which accounted for a relatively low volume of container traffic to the United States and two of which accounted for a high volume of traffic. The Department of Homeland Security (DHS) itself has also identified a number of serious challenges to implementing the 100 per cent scanning requirement, including logistical challenges related to port configuration and to design incompatibility with current scanning systems; the absence of technology to detect anomalies within cargo containers, which would necessitate further inspections; and high deployment and operating costs. "In order to meet the 100 per cent scanning deadline by the 2012 deadline, DHS would need significant resources for greater manpower and technology, technologies that do not currently exist, and the redesign of many ports."[83] These were all "prohibitive challenges" that required the DHS to seek the time extensions authorized by law and to postpone implementation of the requirement to July 2014.

(c) International Organization for Standardization

As reported in previous issues of the *Review of Maritime Transport*, the ISO 28000 series of standards specify the requirements for security management systems to ensure security in the supply chain. These standards

are intended for application by organizations involved in manufacturing, service, storage or transportation, by all modes of transport and at any stage of the production or supply process.

During 2009, work continued on development of the ISO/PAS 28000 series of standards, which aim to facilitate and improve controls on transport flows, to fight smuggling, to deal with the threats of piracy and terrorism, and to enable secure management of supply chains.

Work continued on both part 1 and part 2 of ISO 28005 "Security management systems for the supply chain – Electronic port clearance". Part 2, entitled "Core data elements", was updated and issued as a Draft International Standard.

Additionally, work continued on three projects to amend ISO 28004 to provide additional guidance to smaller ports (project 1) and smaller businesses (project 3) that wish to implement ISO 28000, and to provide guidance to organizations that wish to implement the best practices in supply chain security (ISO 28001), as part of their ISO 28000 management system (project 2).

The working group on project 1 had prepared an initial draft for review, containing:

(i) a set of recommendations identifying the minimum requirements to be addressed in the supply-chain security management plan, and the acceptance criteria that would be used to measure compliance with the standard;

(ii) a set of management, operational and security guidelines and metrics that can be used to evaluate compliance with the ISO 28000 standard;

(iii) a mid- or small-sized port to be selected as a reference site to validate the certification procedures. The port of Riga (Latvia) was selected as a candidate reference site; and

(iv) acceptance criteria and metrics for certifying compliance with the ISO standard.

With regard to project 2, to provide guidance to organizations wishing to implement the best practices in supply chain security (ISO 28001), as part of their ISO 28000 management system, the draft amendment would be circulated for comments and later be sent to ISO for editing. The work on project 3 would be carried out by the same group that was working on project 2, and a draft of the proposed amendment was circulated too.[84]

It is important for developing countries to have access to international standards and to increase their participation in international standardization and conformity assessment activities, so that they can benefit from the technology transfer that the standards make possible, and can adapt their products and services to global requirements, thus increasing their competitiveness in world markets. In fact, three quarters of the 162 national standards bodies that make up the ISO network are from developing countries. This has prompted ISO to develop actions to assist in improving the standardization infrastructures and capacities in such countries. Moreover, the ISO Action Plan for Developing Countries 2005–2010 specifies five key objectives to be completed by 2010:

(i) Improve awareness of key stakeholders in developing countries of the role of standardization in economic growth, world trade and sustainable development.

(ii) Build the capacity of ISO members and stakeholders involved in developing the standardization infrastructure and participating in international standardization work.

(iii) Increase national and regional cooperation to share experiences, resources, training, and information and communications technologies.

(iv) Develop electronic communication and expertise in IT tools to participate in international standardization work, reach out to stakeholders, and make efficient use of ISO e-services.

(v) Increase participation in the governance and technical work of ISO to voice priorities, contribute to and influence the technical content of ISO deliverables.

The actions carried out during this period include (a) national, regional and international seminars and workshops; (b) sponsorships to attend ISO standards development meetings; (c) e-learning courses; (d) implementation of ICT projects, with equipment and training; and (e) preparation of training materials and publications. ISO carried out more than 250 activities covering the five objectives of the Action Plan during the period 2005–2009, and more than 12,000

participants from developing countries benefited. Around 6 million Swiss francs have been spent directly on implementing these activities. Consultations with all of ISO's developing country members worldwide are under way to prepare the Action Plan 2011–2015. Using a bottom-up approach, these consultations will provide for the strategic objectives of the plan, and will identify the specific areas in which developing countries need assistance, so that such assistance is more targeted. Implementation of the next Action Plan, as has been the case up to now, is expected to be funded by donors and by ISO member contributors.[85]

(d) International Maritime Organization

The Maritime Safety Committee, at its eighty-seventh session held at IMO in London from 12 to 21 May 2010, while considering measures to enhance maritime security, and particularly the implementation of SOLAS chapter XI-2 and the ISPS Code, noted, among other things, the main conclusions of the Third Latin American Forum on Maritime and Port Security, which had been held in Colombia from 28 to 30 September 2009. The Forum had focused on issues that had arisen in the region after five years' implementation of maritime security measures under the ISPS Code, looking particularly at the question of whether it was necessary to establish new regulations or simply amend the existing ones. The basic conclusion of the Forum was that, as these measures were still going through the implementation stage, it would be premature to draft new regulations, but that it was important to continue to review the ways in which the ISPS Code was being implemented.[86] The Maritime Safety Committee also noted that maritime security issues had been addressed at the last meeting of the African Union held in Durban in April 2010, which had adopted an updated African Charter on Maritime Transport.[87] The observer from the African Union assured the Committee that the African Union would continue to increase its efforts to ensure maritime safety and security in waters off the coasts of Africa.

The Maritime Safety Committee also recalled that SOLAS regulation XI-2/13.4 requires that "Contracting Governments shall, at five-year intervals after 1 July 2004, communicate to the Organization a revised and updated list of all approved port facility security plans for the port facilities located in their territory together with the location or locations covered by each approved port facility security plan and the corresponding date of approval (and the date of approval of any amendments thereto) which will supersede and replace all information communicated to the Organization, pursuant to SOLAS [regulation XI-2/13.3], during the preceding five years". The Maritime Safety Committee urged SOLAS Contracting Governments to meet their obligations under the above regulation, to communicate the relevant information to IMO, and to update it as and when changes occur.

4. Piracy

In 2009, a total of 406 incidents of piracy and armed robbery were reported, the highest figure since 2003 when the problem was at its highest in the Straits of Malacca. It was also the third successive year that the number of reported incidents increased. Of these incidents, 217 were attributed to Somali pirates, with 47 vessels hijacked and 867 crew members taken hostage.[88] In the first two quarters of 2010, there was a relative decline in pirate attacks worldwide, with a total of 196 incidents recorded by the International Maritime Bureau's Piracy Reporting Centre, compared to 240 incidents for the same period in 2009. This included 31 vessels hijacked, 48 vessels fired upon and 70 vessels boarded. Also during this period, one crew member was killed, 597 crew members were taken hostage, and 16 were injured. The coast of Somalia remained particularly vulnerable, with 100 pirate attacks during this period, including 27 hijackings.[89]

A potentially important development that may contribute towards strengthening maritime security and fighting piracy and armed robbery against ships was the entry into force on 28 July 2010 of the 2005 Protocol[90] to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention), 1988.[91] This Protocol extends the list of criminal offences actionable under the 1988 SUA Convention, and introduces provisions covering cooperation and procedures to be followed if a State Party desires to board a ship on the high seas that is flying the flag of another State Party, when the Requesting Party has reasonable grounds to suspect that the ship or a person on board the ship has been or is about to be involved in the commission of an offence under the 1988 SUA Convention (article 8 bis). The authorization of the flag State is required before such a boarding.[92]

In the context of multilateral action against piracy, the IMO Assembly at its twenty-sixth session (23 November to 2 December 2009) adopted, inter alia, resolution A.1025(26) on the Code of Practice for

Investigation of Crimes of Piracy and Armed Robbery Against Ships; and resolution A.1026(26) on Piracy and Armed Robbery Against Ships in Waters off the Coast of Somalia. These resolutions, among others, indicated avenues for further work at IMO, particularly at the Maritime Safety Committee, which could include:

(i) Developing guidance for shipowners, masters and crews with respect to the investigation of piracy and armed robbery against ships;

(ii) Developing guidance with respect to the fitness of ships to proceed and the care of seafarers and other persons on board who have been subjected to acts of piracy and armed robbery against ships; and

(iii) Procedures for updating and promulgating IMO guidance on piracy and armed robbery against ships.[93]

In addition, in April 2010, the United Nations Security Council adopted a resolution[94] appealing to all States to "criminalize piracy under their domestic law and favourably consider the prosecution of suspected, and imprisonment of convicted, pirates apprehended off the coast of Somalia, consistent with applicable human rights law." In this context, the Security Council welcomed the progress being made to implement the IMO Djibouti Code of Conduct,[95] and called upon its participants to implement it fully and as soon as possible. The Security Council also requested the United Nations Secretary-General to "present to the Security Council, within three months, a report on possible options to further the aim of prosecuting and imprisoning persons responsible for acts of piracy and armed robbery at sea off the coast of Somalia, including, in particular, options for creating special domestic chambers possibly with international components, a regional tribunal or an international tribunal and corresponding imprisonment arrangements, taking into account the work of the Contact Group on Piracy off the Coast of Somalia (CGPCS), the existing practice in establishing international and mixed tribunals, and the time and the resources necessary to achieve and sustain substantive results."

The resolution noted the efforts of international organizations and donors, including the CGPCS, to "enhance the capacity of the judicial and corrections systems in Somalia, Kenya, Seychelles, and other States in the region." Commending the efforts by Kenya to "prosecute suspected pirates in its national courts and imprison convicted persons", the Security Council encouraged Kenya to continue these efforts while acknowledging the difficulties that Kenya faced.[96]

The resolution also commended an earlier decision taken by the CGPCS on 28 January 2010, at its fifth plenary session, to set up an international trust fund, administered by the United Nations Office on Drugs and Crime, to support the initiatives of the CGPCS, to defray the expenses associated with prosecuting suspected pirates, and to support other counter-piracy initiatives. It welcomed the contributions of participating States, and encouraged other potential donors to contribute to the fund. In April 2010, it was announced that this trust fund was planning to support five projects, with a total value of $2.1 million, aimed at assisting Somalia and its neighbours. Four of these projects will help strengthen institutions in Seychelles and the autonomous Somali regions of Puntland and Somaliland, in the areas of mentoring prosecutors and police, building and renovating prisons, reviewing domestic laws on piracy, and increasing the capacity of local courts. The fifth project aims to help the local media to disseminate anti-piracy messages within Somalia. The fund has 10 voting members[97] and three non-voting United Nations members.[98]

5. Seafarers

In choosing "2010: Year of the Seafarer" as the theme for this year's World Maritime Day, IMO decided to pay tribute to the world's 1.5 million seafarers, for their unique contribution and the important role that they play in helping to achieve IMO's goal of safe, secure and efficient shipping in clean oceans. IMO considers that governments and the international community should focus on continuously improving conditions for seafarers and on avoiding unfair treatment.[99]

An important development giving further impetus to fair treatment for seafarers was the entry into force on 1 January 2010 of IMO's Casualty Investigation Code. The Code contains compulsory provisions on considerations to be observed when obtaining evidence from seafarers in casualty cases.

As reported in previous issues of the *Review of Maritime Transport,* the International Labour Organization's Maritime Labour Convention (MLC), adopted in February 2006, consolidated and updated

more than 65 international labour standards related to seafarers. The MLC was designed to be an important contribution to the international maritime regulatory regime, representing the "fourth pillar" alongside the three key IMO conventions, namely the International Convention for the Safety of Life at Sea, 1974 (SOLAS); the International Convention on Standards of Training,

Certification and Watchkeeping for Seafarers, 1978 (STCW); and the International Convention for the Prevention of Pollution from Ships (MARPOL). The 2006 Maritime Labour Convention will enter into force after it has been ratified by 30 member States of the International Labour Organization (ILO) with a total share of at least 33 per cent of world tonnage.[100] The high level required for ratification of 2006's MLC reflects the fact that the enforcement and compliance system established under the Convention needs widespread international cooperation in order for it to be effective.

Since many of the obligations under the 2006 MLC are directed at shipowners and flag States, it is important that ILO members with a strong maritime interest and a high level of tonnage operating under their legal jurisdiction ratify the Convention. According to information from ILO, as at 31 August 2010, ten ILO member States had ratified the Convention.[101] In addition, it is hoped that entry into force of the MLC will be achieved in late 2010/early 2011.[102]

B. STATUS OF CONVENTIONS

There are a number of international conventions affecting the commercial and technical activities of maritime transport, prepared or adopted under the auspices of UNCTAD. Box 6.1 provides information on the ratification status of each of these conventions, as at 31 August 2010.[103]

Box 6.1. Contracting States party to selected conventions on maritime transport, as at 31 August 2010

Title of convention	Date of entry into force or conditions for entry into force	Contracting States
United Nations Convention on a Code of Conduct for Liner Conferences, 1974	Entered into force 6 October 1983	Algeria, Bangladesh, Barbados, Belgium, Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chile, China, Congo, Costa Rica, Côte d'Ivoire, Cuba, Czech Republic, Democratic Republic of the Congo, Egypt, Ethiopia, Finland, France, Gabon, Gambia, Ghana, Guatemala, Guinea, Guyana, Honduras, India, Indonesia, Iraq, Italy, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Liberia, Madagascar, Malaysia, Mali, Mauritania, Mauritius, Mexico, Montenegro, Morocco, Mozambique, Netherlands, Niger, Nigeria, Norway, Pakistan, Peru, Philippines, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Senegal, Serbia, Sierra Leone, Slovakia, Somalia, Spain, Sri Lanka, Sudan, Sweden, Togo, Trinidad and Tobago, Tunisia, Turkey, United Republic of Tanzania, Uruguay, Venezuela (Bolivarian Republic of), Zambia. **(78)**
United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules)	Entered into force 1 November 1992	Albania, Austria, Barbados, Botswana, Burkina Faso, Burundi, Cameroon, Chile, Czech Republic, Dominican Republic, Egypt, Gambia, Georgia, Guinea, Hungary, Jordan, Kazakhstan, Kenya, Lebanon, Lesotho, Liberia, Malawi, Morocco, Nigeria, Paraguay, Romania, Saint Vincent and the Grenadines, Senegal, Sierra Leone, Syrian Arab Republic, Tunisia, Uganda, United Republic of Tanzania, Zambia. **(34)**
International Convention on Maritime Liens and Mortgages, 1993	Entered into force 5 September 2004	Albania, Benin, Ecuador, Estonia, Lithuania, Monaco, Nigeria, Peru, Russian Federation, Spain, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Syrian Arab Republic, Tunisia, Ukraine, Vanuatu. **(16)**
United Nations Convention on International Multimodal Transport of Goods, 1980	Not yet in force – requires 30 contracting parties	Burundi, Chile, Georgia, Lebanon, Liberia, Malawi, Mexico, Morocco, Rwanda, Senegal, Zambia. **(11)**
United Nations Convention on Conditions for Registration of Ships, 1986	Not yet in force – requires 40 contracting parties with at least 25 per cent of the world's tonnage as per annex III to the Convention	Albania, Bulgaria, Côte d'Ivoire, Egypt, Georgia, Ghana, Haiti, Hungary, Iraq, Liberia, Libyan Arab Jamahiriya, Mexico, Oman, Syrian Arab Republic. **(14)**
International Convention on Arrest of Ships, 1999	Not yet in force – requires 10 contracting parties	Algeria, Benin, Bulgaria, Estonia, Latvia, Liberia, Spain, Syrian Arab Republic. **(8)**

Source: For official status information, see http://www.un.org/law

C. THE WTO NEGOTIATIONS ON TRADE FACILITATION

1. Emergence of a sole negotiating text

The WTO negotiations on trade facilitation are now in their sixth year and are widely described as an area of the Doha Round in which tangible progress has been made.[104] A consolidated text of members' proposals was put forward in December 2009 (WTO document TN/TF/W/165 and its revisions), and this is now the sole negotiating text. The scope of the proposed substantive rules has remained largely unchanged since November 2008. Rules are proposed in the field of publication of trade regulations, consultations about trade regulations, appeal procedures, fees and charges, the release and clearance of goods, border agency cooperation, a customs cooperation mechanism, formalities, and transit. A subset of the proposed rules applies directly to customs unions; this involves harmonizing the administration of appeal and test procedures and harmonizing documentation requirements.

Given that the scope of the proposed rules remains largely unchanged, the negotiations have been focusing on the details of the proposed rules. At the centre of the negotiations are the level of obligation and the level of precision that the new rules will have, as well as their overall coherence. The negotiating text therefore contains multiple square brackets reflecting the various changes which delegations would like to make to the text and which are still subject to discussion.

2. Extensive use of best-endeavour language

More than half of the proposed rules contain so-called best-endeavour language, which reduces the binding character of a rule by using language such as "to the extent possible", and "should" instead of "shall". The extensive use of this so-called best-endeavour language is motivated by developing-country members' concerns about implementation, and also by issue linkage between the negotiations on trade facilitation and the Doha Round's other negotiating areas.[105] At the outset of the negotiations, it was made clear that developing countries would be granted special and differential treatment[106] to accommodate implementation difficulties, and to facilitate access to technical assistance and capacity-building to overcome these gaps. Delegations are therefore negotiating a subset of rules on special and differential treatment. It seems, however, that progress in this field is slow, and that developing countries are not yet confident with the proposed rules on special and differential treatment. Much of the best-endeavour language currently in square brackets will therefore either remain or disappear, depending on how confident developing countries are with the provisions on special and differential treatment designed for this agreement, and with the overall progress in the Doha Round. It can be expected that resistance to legally binding rules in the field of trade facilitation will remain strong as long as no progress is achieved in the other areas of the Doha Round.

3. Variance in the level of precision

Another important aspect of the current negotiations is the level of precision of the rules. The objective of the agreement is to achieve trade facilitation reform through changes in the behaviour of States in response to the future WTO rules on trade facilitation. These rules can be drafted with different degrees of clarity, scope and inclusiveness. Given the different administrative and legal systems, as well as the different levels of development of WTO members, it is a challenging task to draft rules which are acceptable to all, and which can be effectively implemented in all countries. Delegations, therefore, have to strike a balance between more general rules, and rules that contain a high level of detail regarding the definition and the implementation of the rule.

The form of rule chosen has a bearing on the implementation process at the national and also at the international level. Precise international rules are best suited to formal enforcement through third-party adjudication. They are, however, limited as regards their adaptation to local circumstances and to legal, administrative or technological differences, and their implementation can trigger resistance if the relevant stakeholders have not been brought on board early on in the drafting of the rules. Less precise rules, on the other hand, have to be interpreted, and can lead to different forms of implementation. While this provides room for adaptability and for contributions from local stakeholders when designing the implementation solution, it requires the implementation process to

be monitored more closely to ensure a minimum of harmonization and commitment. The implementation process will therefore require activities such as training, information exchange, and the subsequent development of rules to guide interpretation and implementation.

4. Linking WTO rules to other work on trade facilitation

Although WTO has been at the centre of public and professional attention in recent years when it comes to trade facilitation, many other international organizations – such as WCO, the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), OECD, UNCTAD, the World Bank, regional integration secretariats, and private sector associations – carry out work on trade facilitation. Their work consists of recommendations, conventions, standards, and technical assistance projects, which do not have the binding force of WTO commitments. They are, however, relevant for the practical implementation of trade facilitation reforms, as they provide practical solutions, allow for the exchange of experiences, and develop harmonized approaches.

The negotiation process, and, in particular, the recent discussions on the level of precision and obligation, have made it clear that the legally binding WTO commitments are only one element of the efforts to harmonize and advance trade facilitation efforts.

There is an existing network of rules, recommendations, and standards which should be developed in a coherent manner and linked to WTO commitments. Organizations such as WCO and UN/CEFACT have already seen an increase in attention to and participation in their decision-making processes as a result of the WTO negotiations.

The current WTO negotiating text proposes linkages to the work of other organizations in two areas, namely, substantive rules which further clarify or facilitate the implementation of the commitment, and technical assistance and capacity-building. It is therefore proposed that authority to further develop rules, or recommendations on the implementation of a given rule, be delegated to the future supervisory body for the agreement, which will undertake this task in cooperation with international organizations and other technical bodies.

An information exchange is also envisaged on technical assistance provided by these different organizations, as well as on the technical assistance needs of individual countries and the implementation progress. Details of these procedural requirements and their operationalization are still under negotiation, but they hold out the prospect for effective cooperation and information exchange beyond the negotiating phase, which would be a unique characteristic of the WTO agreement on trade facilitation and a prerequisite for successful implementation of the rules.

Box 6.2. UNCTAD assistance in the area of the WTO negotiations on trade facilitation

As part of its work in the area of trade and transport facilitation, UNCTAD helps build capacities in developing countries to meet the challenges of the WTO negotiations on trade facilitation and to ensure a result from the negotiations that is appropriate to the needs and implementation capacities of developing countries and LDCs.

With the support of its development partners, UNCTAD provides training and advisory services on the WTO negotiations on trade facilitation through the UNCTAD Trust Fund on Trade Facilitation. Since 2005, UNCTAD has been organizing regional and national workshops to ensure a better understanding of the issues at stake, in Asia, Africa, and Latin America and the Caribbean. Together with its international partners (particularly the other Annex D organizations – the World Bank, the International Monetary Fund, OECD, the World Customs Organizations and the WTO secretariat), UNCTAD has conducted national trade facilitation needs assessments in 16 developing countries. UNCTAD has also complemented this analytical work with tailored advisory services to help countries prepare for the assessment, in particular by strengthening multi-agency and public–private stakeholder groups.

UNCTAD seeks to further its assistance to strengthen the strategic planning capacity in developing countries, with a view to compliance with the negotiated WTO commitments. This work builds on linkages with regional economic integration organizations (ALADI, OECS, SIECA, WAEMU) and with the private sector.

ENDNOTES

1 On 11 December 2008, the United Nations General Assembly adopted the United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea. The General Assembly authorized the Convention to be opened for signature at a ceremony to be held on 23 September 2009 in Rotterdam, the Netherlands, and recommended that the rules embodied in the Convention be known as the "Rotterdam Rules". The text of the Convention, as adopted, is set out in the annex to the General Assembly resolution 63/122, available at http://www.uncitral.org.

2 See the *Review of Maritime Transport 2009,* pages 123–130. The UNCTAD secretariat has provided substantive analytical comment for consideration by the UNCITRAL working group throughout the drafting process. Relevant documentation, highlighting potential areas of concern, in particular from the perspective of developing countries, is available on the UNCTAD website at http://www.unctad.org/ttl/legal. This includes an article-by-article commentary on the original draft legal instrument (UNCTAD/SDTE/TLB/4), as well as a note entitled "Carrier liability and freedom of contract under the UNCITRAL draft instrument on the carriage of goods [wholly or partly] [by sea]" (UNCTAD/SDTE/TLB/2004/2). The documentation is also available on the UNCITRAL website as working documents A/CN.9/WG.III/WP.21/Add.1, A/CN.9/WG.III/WP.41 and A/CN.9/WG.III/WP.46.

3 Armenia, Cameroon, Congo, Denmark, France, Gabon, Ghana, Greece, Guinea, Luxembourg, Madagascar, Mali, the Netherlands, Niger, Nigeria, Norway, Poland, Senegal, Spain, Switzerland, Togo and the United States. Status information is available on the UNCITRAL website at http://www.uncitral.org.

4 See Art. 88 and Art. 94(1) of the Rotterdam Rules. The Convention will enter into force on the first day of the month following the expiration of one year after the date of deposit of the twentieth instrument of ratification, acceptance, approval (signatory States) or accession (non-signatory States).

5 International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 1924 (Hague Rules).

6 International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 1924 (Hague Rules), as amended by the Visby and SDR protocols 1968 and 1979 (Hague-Visby Rules).

7 United Nations Convention on the Carriage of Goods by Sea, 1978.

8 See Art. 89(3).

9 See the second IMO GHG study (2009). Final report incorporating changes listed in document MEPC 59/INF.10/Corr.1, International Maritime Organization, September 2009.

10 The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997. It came into force on 16 February 2005, and, to date, has 191 Parties. It is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), which provides the overall framework for international efforts to tackle climate change. While the UNFCCC encourages developed countries to stabilize GHG emissions, the Kyoto Protocol sets specific commitments, binding 37 developed countries to cut GHG emissions by about 5 per cent from 1990 levels over the five-year period from 2008 to 2012. The Protocol places a heavier burden on developed countries, as the largest contributors to GHG emissions over the years, under the principle of Common But Differentiated Responsibilities. For more information, see the UNFCCC website at http://www.unfccc.int.

11 The text of the Copenhagen Accord is available at http://www.unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf#page=4. In addition, other COP 15 documents are available from the UNFCCC website at http://www.unfccc.int. For more information on the COP 15 and UNFCCC process, see also the Report of the Marine Environment Protection Committee on its sixtieth session, MEPC 60/22, pages 19–22.

12 It should be noted that a draft text on emissions from international bunkers was proposed during the Conference by the facilitators of the informal consultation group on bunkers established by the Chair of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA). The draft text is also reproduced in paragraph 10 of document MEPC 60/4/9/Add.1. The AWG-LCA is a subsidiary body under the UNFCCC, established at the thirteenth Conference of the Parties (COP 13) by its decision 1/CP.13 (the Bali Action Plan), with the aim of conducting a process that would "enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session." The mandate of the AWG-LCA was extended by COP 15, and the group will continue its work drawing on its initial report to COP 15 and also on the progress made during the Conference. For more information and for AWG-LCA documents, see http://unfccc.int/meetings/items/4381.php.

13 For an overview, see chapter 6 of the 2008 and 2009 editions of the *Review of Maritime Transport.*

14 As reported in the *Review of Maritime Transport 2009*, four circulars on technical and operational measures were issued in August 2009 following the meeting of the Marine Environment Protection Committee at its fifty-ninth session. These may be found on the IMO website at http://www.imo.org.

15 See the Report of the Marine Environment Protection Committee on its sixtieth session. MEPC 60/22, pages 33–34.

16 For a concise description of selected market-based mitigation measures, and other potential mitigation options, see also the *Summary of Proceedings* from the UNCTAD Multi-year Expert Meeting on Transport and Trade Facilitation:

Maritime Transport and the Climate Change Challenge, 16–18 February 2009, Geneva. UNCTAD/DTL/TLB/2009/1, pages 14–15.

17 The *Second IMO GHG Study 2009* is a comprehensive assessment of the level of greenhouse gases emitted by ships, and of the potential for reduction. The text is available at http://www5.imo.org/SharePoint/mainframe.asp?topic_id=1823. For the main conclusions of the study, see the *Review of Maritime Transport 2009*, pages 145–146.

18 *Second IMO GHG Study 2009*, pages 81–86.

19 For more information on progress on market-based measures, see the Report of the Marine Environment Protection Committee on its sixtieth session. MEPC 60/22, page 35.

20 For the terms of reference and composition of MBM-EG, see ibid., annex 8.

21 The sponsors for various MBM proposals are indicated in parentheses in notes 22–33 that follow.

22 MEPC 59/4/5 (Denmark), MEPC 60/4/8 (Cyprus, Denmark, the Marshall Islands, Nigeria, and the International Parcel Tankers Association).

23 MEPC 60/4/37 (Japan), MEPC 60/4/51 (Japan).

24 MEPC 60/4/51 (Japan).

25 MEPC 60/4/40 (Jamaica).

26 MEPC 60/4/40 (Jamaica) at para. 17.

27 MEPC 59/4/25 (France, Germany and Norway); MEPC 59/4/26 (France, Germany and Norway); MEPC 60/4/22 (Norway); MEPC 60/4/26 (United Kingdom); MEPC 60/4/41 (France); MEPC 60/4/43 (France, Germany, Norway and the United Kingdom).

28 MEPC 60/4/12 (United States).

29 See note 38 and the accompanying text.

30 MEPC 60/4/39 (World Shipping Council).

31 MEPC 60/4/55 (International Union for Conservation of Nature).

32 Article 3 (paras. 1, 2, 3 and 5) and article 4 (paras. 3 and 7) of the UNFCCC. The principles of equity and common but differentiated responsibilities and respective capabilities reflect the general acceptance by developed countries of their greater historical contribution to the accumulation of GHG emissions, and their relatively greater resource capacity to develop and carry out remedial actions. This principle is reflected in the additional obligations imposed on Annex I countries. See also note 10 above.

33 MEPC 60/4/10 (Bahamas).

34 MEPC 60/4/23, MEPC 60/4/28 and MEPC 60/4/55.

35 Reduction of GHG emissions from ships: Full report of the work undertaken by the Expert Group on Feasibility Study and Impact Assessment of Possible Market-Based Measures. MEPC 61/INF.2.

36 Ibid., page 220.

37 Article 17 of the 2009 Hong Kong Convention. So far, five countries – France, Italy, the Netherlands, Saint Kitts and Nevis, and Turkey – have signed the Convention, subject to ratification or acceptance. See IMO news item, 27 August 2010, available at http://www.imo.org.

38 Article 18 of the 2004 BWM Convention. According to information provided on the IMO website, as at 31 August 2010, 26 States had become members of the BWM Convention, representing 24.44 per cent of world tonnage.

39 International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL).

40 MARPOL annex VI came into force on 19 May 2005, and by 31 August 2010 it had been ratified by 60 States, representing approximately 84.04 per cent of world tonnage. Annex VI covers air pollution from ships, including SOx and NOx emissions and particulate matter, but it does not cover CO2 emissions, which are subject to separate discussions within IMO.

41 These two instruments were adopted unanimously by the MEPC at its fifty-eighth session in October 2008 by resolutions MEPC 176(58) and MEPC 177(58). For further information, see the *Review of Maritime Transport 2009*, page 145.

42 The 1996 HNS Convention will enter into force 18 months after the following conditions have been fulfilled: (a) 12 States have accepted the Convention, four of which have not less than 2 million units of gross tonnage; and (b) the persons in these States who would be responsible for paying contributions to the general account have received a total quantity of at least 40 million tons of contributing cargo in the preceding calendar year. By 31 August 2010, the Convention had been ratified by 14 States, representing 13.61 per cent of world tonnage.

43 This summary on limitation of liability provisions is based on the relevant press release on IMO's website http://www.imo.org.

44 The full provision in Art. 1(5)(vii) of the 1996 HNS Convention as amended by Art. 3 of the 2010 HNS Protocol states that the solid bulk goods falling within the scope of application of the amended Convention are "the solid bulk materials

possessing chemical hazards covered by the International Maritime Solid Bulk Cargoes Code, as amended, to the extent that these substances are also subject to the provisions of the International Maritime Dangerous Goods Code in effect in 1996, when carried in packaged form".

45 For some background information on the debate, see the Report of the IMO Legal Committee on the Work of its 95th Session. LEG/95/10, paras. 3.4–3.9.

46 See Art. 18 of the 2010 HNS Protocol.

47 These are summarized in note 42 above.

48 See Art. 21(1) of the 2010 HNS Protocol.

49 As at 15 September 2010, 162 of the 177 members of WCO had expressed their intention to implement the SAFE Framework.

50 SAFE Framework of standards to secure and facilitate global trade. Rev. June 2007. Page 6, footnote 1.

51 See the 2008 and 2009 editions of the *Review of Maritime Transport.*

52 See "Focusing Customs on client service". WCO News no. 61. February 2010. Available at http://www.wcoomd.org.

53 Argentina, Canada, China, Japan, Jordan, Malaysia, New Zealand, Norway, the Republic of Korea, Singapore, Switzerland and the United States.

54 Andorra, Botswana, Chile, Colombia, Costa Rica, Guatemala, Israel, San Marino, and the former Yugoslav Republic of Macedonia.

55 United States–New Zealand; United States–Canada; United States–Jordan; Japan–New Zealand; United States–Japan; European Union–Switzerland; European Union–Norway; Canada–Japan; Canada–Republic of Korea; Canada–Singapore; Republic of Korea–Singapore; United States–Republic of Korea.

56 Andorra–European Union; China–European Union; China–Singapore; European Union–Japan; European Union–San Marino; European Union–United States; Republic of Korea–New Zealand; New Zealand–Singapore; Norway–Switzerland; Singapore–United States. According to information provided by the European Union, as regards China–European Union mutual recognition of AEO programmes, the new rules for AEOs in China have not yet been published and this might occur later in 2010. These new rules need to be published and implemented before the European Union can declare equivalency and compatibility of the AEO programmes. For other general information on AEO implementation and mutual recognition, see also the ICC draft discussion paper entitled "ICC recommendations on mutual recognition". Globalized version. Revised June 2010. Available from http://www.iccwbo.org.

57 See WCO Columbus Programme brochure entitled "Enhancing the global dialogue on capacity-building".

58 For more information, see http://www.wcoomd.org/event_cal2010_about.htm.

59 For more information, see http://www.wcoomd.org. The publication will be shortly available for sale through the WCO bookshop.

60 The PSCG was established in 2006 to advise WCO on the progress and issues in implementing the SAFE Framework. Its membership is limited to no more than 30 participants representing the business community, namely 17 companies and 13 international associations representing every region of the world. Membership may be renewed every two years. For further information, see the PSCG website at http://www.wcopscg.org.

61 Regulation no. 1875/2006 is contained in *Official Journal L360*, 19 December 2006, on page 64.

62 A number of guidance documents and tools have been prepared by the European Commission. These include detailed AEO guidelines published in June 2007, a common framework for risk assessment of economic operators called COMPACT which was published in June 2006, an AEO self-assessment tool, and an AEO e-learning tool. The AEO guidelines (TAXUD/2006/1450) and the AEO compact model (TAXUD/2006/1452) are available at http://ec.europa.eu.

63 For updates, see http://ec.europa.eu/taxation_customs/dds/cgi-bin/aeoquery?Lang=EN.

64 Information was provided by the European Commission's Directorate-General for Taxation and Customs Union.

65 OJ.L 98/3 of 17 April 2009 (http://eur-lex.europa.eu).

66 For further information, see http://ec.europa.eu.

67 In particular, Andorra, China, Japan, and San Marino. Negotiations with Canada are also likely to begin in 2010. For more information, see the European Commission's website (http://ec.europa.eu). See also the 2008 and 2009 editions of the *Review of Maritime Transport.*

68 For further information, see two documents dated 10 March 2010 that are available from the United States Customs and Border Protection website www.cbp.gov, namely "Mutual recognition information", available at http://www.cbp.gov/linkhandler/cgov/trade/cargo_security/ctpat/mr/mutual_recog.ctt/mutual_recog.pdf and "Mutual recognition FAQ" available at http://www.cbp.gov/linkhandler/cgov/trade/cargo_security/ctpat/mr/mutual_recog_faq.ctt/mutual_recog_faq.pdf

69 For the text, see http://edocket.access.gpo.gov/2008/pdf/E8-27048.pdf, where earlier comments by stakeholders are also addressed.

70 For further information, see also the frequently asked questions document, last updated on 1 February 2010, which is available at www.cbp.gov.

71 For further information, see www.cbp.gov/xp/cgov/trade/cargo_security/carriers/security_filing/

72 For further information on the United States 24-hour rule, see http://www.cbp.gov. See also the UNCTAD report entitled "Container security: Major initiatives and related international developments" (UNCTAD/SDTE/TLB/2004/1) available at http://www.unctad.org/ttl/legal. It should be noted that the 24-hour rule requires carriers to provide advance manifest information to the United States Customs 24 hours prior to the loading of United States–bound cargo at a foreign port.

73 In this context, see, for instance, the UNCTAD report entitled "Maritime security: ISPS implementation, costs and related financing" (UNCTAD/SDTE/TLB/2007/1) available at http://www.unctad.org/ttl/legal. This report gives the results of a survey conducted by the secretariat which showed that the costs of compliance with the ISPS Code were proportionately higher for smaller ports.

74 For further information, see the European Commission's website http://ec.europa.eu.

75 See, for instance, "Container security: major initiatives and related international developments" (UNCTAD/SDTE/TLB/2004/1). For related issues, see also "Maritime security: ISPS implementation, costs and related financing" (UNCTAD/SDTE/TLB/2007/1). Both reports are available at www.unctad.org/ttl/legal.

76 Implementing Recommendations of the 9/11 Commission Act of 2007. Public Law 110-53. 3 August 2007. The full text is available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ053.110.pdf. For an analysis of the respective provisions, see UNCTAD's *Transport Newsletter* no. 45, first quarter 2010, available at www.unctad.org/ttl.

77 For a more detailed overview of the legislation and the surrounding debate, see also UNCTAD's *Transport Newsletter* no. 45, first quarter 2010, available at www.unctad.org/ttl.

78 See www.tradeinnovations.com/Documents/News/Resolution per cent20CPG_PSCG per cent20E.pdf.

79 Resolutions P6_TA(2009)0193 and P7_TA(2009)0058 are available from the website of the European Parliament at www.europarl.europa.eu

80 The full text of the European Commission's staff working document entitled "Secure Trade and 100% Scanning of Containers" is available at http://ec.europa.eu/taxation_customs/resources/documents/common/whats_new/sec_2010_131_en.pdf.

81 For a similar position by the United States CPB, see "Risk-based, layered approach to supply chain security". Fiscal year 2010 report to Congress. 13 April.

82 The report issued on 2 December 2009 entitled "Homeland security: DHS's progress and challenges in key areas of maritime, aviation, and cybersecurity" is available on the GAO website at www.gao.gov/new.items/d10106.pdf. Earlier GAO reports on the issue of 100 per cent scanning include: "Supply chain security: Feasibility and cost-benefit analysis would assist DHS and Congress in assessing and implementing the requirement to scan 100 per cent of U.S.-bound containers" (GAO-10-12, 30 October 2009); "Supply chain security: Challenges to scanning 100 percent of U.S.-bound cargo containers" (GAO-08-533T, 12 June 2008); and "Supply chain security: CBP works with international entities to promote global customs security standards and initiatives, but challenges remain" (GAO-08-538, 15 August 2008).

83 See the written testimony presented in December 2009 by the Secretary of DHS to the United States Senate Committee on Commerce, Science and Transportation, available at http://commerce.senate.gov/public/?a=Files.Serve&File_id=77bc2a79-88f2-4801-a201-01eb1ddbc823.

84 See the minutes of the twenty-eighth ISO/TC8 meeting held in Izmir, Turkey, 27–29 October 2009. Annex 3. Japan, the Republic of Korea, Singapore, the United Kingdom and the United States have designated representatives for these projects.

85 For further information, see the recent ISO publication entitled ISO – *A Trusted Partner for Development Donors*. See also the "ISO action plan for developing countries 2005–2010" and the "ISO strategic plan 2005–2010", available at http://www.iso.org/iso/about_iso.html.

86 See the "Draft report of the Maritime Safety Committee on its eighty-seventh session". MSC 87/WP.10, page 9.

87 Further details, and the text of the Charter, can be found on the African Union's website at http://www.africa-union.org/root/au/Documents/Treaties/Text/AFRICAN_MARITIME_TRANSPORT.pdf

88 See the "Piracy and armed robbery against ships" report for the period 1 January–31 December 2009, issued by the International Maritime Bureau's Piracy Reporting Centre (IMB PRC), available upon request at www.icc-ccs.org. See also the International Maritime Bureau's press release "2009 worldwide piracy figures surpass 400", available on the same website.

89 See the International Maritime Bureau's "Piracy and armed robbery against ships" report for the period 1 January–30 June 2010. See also "Pirates face new resistance as navies strike back, says ICC" in ICC News. 15 July 2010.

90 Nauru deposited its instrument of ratification of the 2005 Protocol to the SUA Convention and also of the 2005 Protocol to the 1988 Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the

Continental Shelf (1988 SUA Protocol) on 29 April 2010, thus becoming the twelfth country to ratify the 2005 Protocol to the SUA Convention, and the tenth to ratify the 2005 Protocol to the 1988 SUA Protocol. Both protocols will come into force 90 days after this deposit, namely on 28 July 2010.

91 The 1988 SUA Convention provides a basis for its States parties to prosecute pirates. Although the Convention does not contain an express definition of piracy and armed robbery against ships, its article 3(1)(a) stipulates that any person commits an offence if that person unlawfully and intentionally "seizes or exercises control over a ship by force or threat thereof or any other form of intimidation." Under the Convention, appropriate measures need to be taken by States to make this and other offences punishable by penalties, to establish jurisdiction over these, and to accept delivery of persons responsible for or suspected of committing such offences. For more details, see also the *Review of Maritime Transport 2009*.

92 For a description of the amendments to the 1988 SUA Convention and to the 1988 SUA Protocol, adopted in 2005 under the auspices of IMO, see the *Review of Maritime Transport 2006*. The 1988 SUA Convention came into force on 1 March 1992. As at 31 August 2010, it had 156 parties, representing 94.73 per cent of world tonnage. The text of the Convention can be found at www.admiraltylawguide.com. For an update on its status, check the IMO website at www.imo.org.

93 For further information, see document MSC 87/19/3.

94 S/RES/1918(2010), 27 April 2010.

95 For further information on the Djibouti Code of Conduct, see the *Review of Maritime Transport 2009*, page 135.

96 S/RES/1918(2010), 27 April 2010. See also the United Nations press release "Security Council suggests possible tribunals to deal with Somali piracy problem".

97 These are Djibouti, Egypt, France, Germany, Greece, Kenya, the Marshall Islands, Norway, Somalia, and the United States.

98 These are IMO, UNODC, and the United Nations Country Team for Somalia. For more information, see United Nations press release "UN trust fund backs projects in fight against piracy off Somali coast". 23 April 2010.

99 See "A message to the world's seafarers". Press briefing by IMO Secretary-General. 23 December 2009.

100 Article 8(3) of the Convention.

101 The ratifying States are the Bahamas, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Liberia, the Marshall Islands, Norway, Panama and Spain. For updated information on the status of the MLC convention, see www.ilo.org/ilolex/cgi-lex/ratifce.pl?C186.

102 See: MLC to be ratified "by 2011". Fairplay Daily News, quoting the director of ILO's International Labour Standards Department. 2 July 2010.

103 Up-to-date and authoritative information on the status of international conventions is available from the relevant depository. For United Nations conventions, see the United Nations website at http://www.un.org/law. This site also provides links to a number of websites of other organizations, such as IMO (www.imo.org), ILO (www.ilo.org) and the United Nations Commission on International Trade Law (www.uncitral.org), which contain information on conventions adopted under the auspices of each organization. Since the last reporting period, Albania, Benin, and Saint Kitts and Nevis have acceded to the International Convention on Maritime Liens and Mortgages, 1993. In addition, Benin has acceded to the International Convention on Arrest of Ships, 1999.

104 To find out more on the history and objectives of the negotiations, see the *Review of Maritime Transport 2009*, chapter 6, as well as information from WTO at http://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm.

105 The other topics of the Doha Round of trade negotiations are agriculture, services, market access for non-agricultural products (NAMA), balance between agriculture and NAMA, and trade-related aspects of intellectual property rights (TRIPS).

106 Special and differential treatment refers to provisions in the existing WTO agreements which allow developing countries to be treated differently, in particular with regard to exemptions from the most-favoured-nation principle, longer time periods for implementation, or exemptions from implementation.

7

REVIEW OF REGIONAL DEVELOPMENTS IN ASIA AND THE PACIFIC

CHAPTER 7

This chapter follows up on the developments in international transport and trade in the Asia-Pacific region reported in the Review of Maritime Transport 2007. It examines regional developments from 2007 to 2009, and gives special consideration to landlocked developing countries in the region. In contrast with the last review period of 2004 to 2006, when economic growth and trade in the region were booming, the current review period is characterized by a downturn in economic growth and trade. Reflecting the wide geographical spread of the global economic crisis of late 2008 and subsequent recession, GDP growth in the Asia-Pacific region decelerated to 4 per cent in 2009, its lowest level in 8 years. Consequently, growth in international merchandise trade in the region decelerated in 2008, and trade volumes contracted in 2009 with merchandise exports falling at the double-digit rate of about 12 per cent. Container trade volumes on the trans-Pacific and the Asia–Europe trades plummeted in 2009 due to a sharp decline in developed countries' import demand for consumer and manufactured goods – the main exports of the region – as did intra-Asian container volumes and the Asia-Pacific port container throughput. By mid-2010, economic indicators were showing a recovery in the region's economic growth and trade, with some economies already displaying signs of a return to pre-crisis growth and export levels. However, the potential for recovery should be viewed with caution. Recovery is subject to the assumption that the world remains on the same stabilization path, that the region continues to experience strong domestic demand, that debt positions do not deteriorate, that commodity prices remain relatively stable, and that Asian policymakers continue to enact fiscal stimulus packages. In other words, recovery remains fragile and is subject to downside risks.

A. ECONOMIC SITUATION AND PROSPECTS

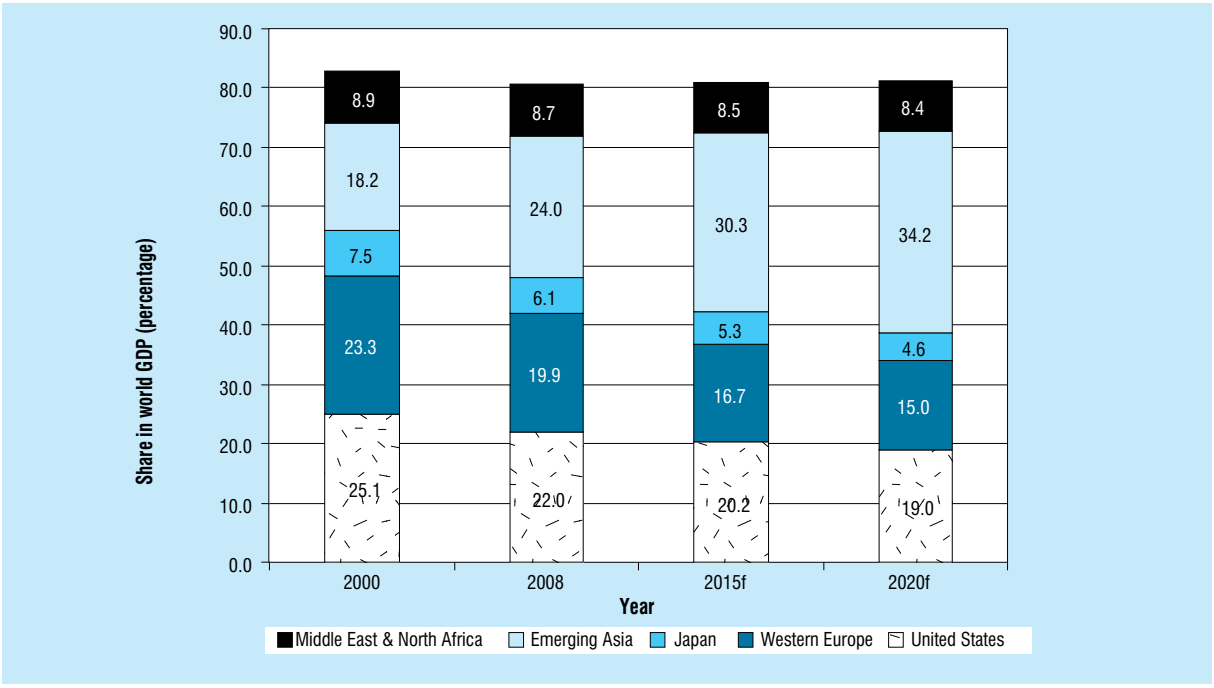
The vast Asia-Pacific region is home to nearly 4 billion people or more than half the world's population. This region is characterized by wide diversity and disparities. It contains some of the world's largest and smallest countries, and comprises some of the most – and least – advanced economies. The level of development varies considerably across the region, and there are differences in geography, size, culture, historical background and systems of government, among other things.

Measured by the size of the nominal GDP, Japan remains the largest economy in the region. In terms of purchasing power parity (PPP), China is the region's leading economy, followed by Japan, India, the Republic of Korea, and Indonesia.[1] Over the last decade, China and India have been growing rapidly, with an average annual growth rate of 10.0 per cent for China and around 6.0 per cent for India. Emerging Asia – which includes China, China (Hong Kong SAR), China (Taiwan Province of), India, Indonesia, Malaysia, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam – has been growing in importance, with its share in global GDP rising from 18.2 per cent in 2000 to 24 per cent in 2008.[2] Existing growth forecasts for emerging Asia are pointing to a share of 34.2 per cent by 2020 (see fig. 7.1).[3]

The last review of the Asia-Pacific region (which covered the period 2004–2006)[4] highlighted the rapid growth in the global economy (i.e. in GDP) and in international trade. The current review highlights a major shift in trends, reporting on the very different economic situation in Asia-Pacific that has resulted from the global financial crisis of late 2008 and the subsequent world recession.

In 2007, economic growth and trade, both at the global and the Asia-Pacific level, continued unabated. By the end of 2008, however, a reversal in growth had been recorded, with global GDP decelerating in 2008 and then contracting in 2009. In the Asia-Pacific region, economic growth did not contract, but it decelerated sharply – from 5.8 per cent in 2007 to 2.6 per cent in 2008, and then to only 0.1 per cent in 2009. In line with the overall regional trends, developed Asia-Pacific suffered significant contractions in GDP in 2008 and 2009. Developing Asia-Pacific fared better than developed Asia-Pacific, with GDP decelerating from 8.8 per cent in 2007 to 5.7 per cent in 2008, and then to 3.9 per cent in 2009.

Figure 7.1. Share of world GDP, 2000–2020



Source: KCIC (2009). See http://www.kcic-asia.com.

Notes: f = forecast

Developing Asia-Pacific remained the fastest-growing region in the world in 2009 (3.9 per cent). It should be noted, however, that this rate masks differences at both the subregional and the country level, and that the main drivers of the resilient growth are China and India. According to data from the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), if China and India are excluded, the GDP of the region contracted by 0.6 per cent in 2009.[5]

GDP in the whole Asia-Pacific region is estimated to grow by around 5 per cent in 2010 (see table 7.1 and fig. 7.2), in tandem with the projected recovery at the global level.

GDP growth by subregion varied considerably, with East Asian countries recording, on average, a slowdown from a rate of 10.2 per cent in 2007, to 6.8 per cent in 2008, and then to 5.3 per cent in 2009. GDP growth in South-East Asia slowed from a solid 6.6 per cent in 2007, to 4 per cent in 2008, to a marginal 0.8 per cent in 2009. In South Asia, GDP growth slowed from 8.7 per cent in 2007 to 5 per cent in 2008, reaching 5.5 per cent in 2009. Altogether, South Asia fared better than South-East Asia and West Asia. The developed economies in Oceania were affected by the global economic situation, too, with GDP growth decelerating from 3.6 per cent in 2007 to 2.1 per cent in 2008 and then to 1 per cent in 2009 (Australia and New Zealand). The transition economies in Central Asia continued to record positive growth rates, despite decelerating sharply since 2007 – their GDP growth fell from 12.1 per cent in 2007 to 6.2 per cent in 2008. In 2009, their growth slowed further, to 2.9 per cent, with GDP in Armenia and Georgia contracting by 14.4 per cent and 3.9 per cent respectively. Uzbekistan recorded the strongest GDP growth in the subregion in 2009, at over 8 per cent.[6] Unlike other subregions, which suffered a slowing of their GDP growth, West Asia suffered a GDP contraction of 0.8 per cent in 2009, which contrasts sharply with the positive growth rates that they recorded in 2007 (5 per cent) and 2008 (4.6 per cent).

Prospects for 2010

Prospects for 2010 are positive, and point to a potential recovery in the course of the year. GDP growth in developing Asia in 2010 is forecast to almost double, to 7.8 per cent. Growth is expected in all subregions, with relatively high growth rates both in East Asia (8.9 per cent) (with China in the leading position with 10.0 per cent), and also in South Asia (6.6 per cent) largely on account of robust growth in India (7.9 per cent).

In sum, four main factors explain why Asia is showing signs of rapid recovery in 2010. These are:

(a) the recovery in trade volumes, which raises the production and export levels of many export-oriented economies;

(b) the substantial reduction of inventories domestically and of major trading partners, which raises demand for exports;

(c) the resurgence of capital inflows into the region, generating liquidity, and

(d) the strong domestic demand.

The abovementioned positive signs for a rebound in the Asia-Pacific region must be considered with caution, as risks to economic stability remain on the horizon. Firstly, growth levels in the upcoming years will be measured against a low base. Secondly, estimates for 2010–2011 are based on assumptions that the world economy stays on the same stabilization path. In this regard, the timing and sequencing of withdrawal of macroeconomic stimulus packages could impact on the already vulnerable economies of Asia and the Pacific. Other global imbalances could affect economic stability and halt recovery. These include, for example, deteriorating debt positions and a rise in commodity prices. Thirdly, even if stabilization continues at the projected pace, it could take time to return to pre-crisis growth levels.

B. TRENDS IN MERCHANDISE TRADE

The impact of the economic crisis

Reflecting the global economic situation, trade in the Asia-Pacific region was also affected by the 2008–2009 reversal in growth patterns, with all subregions recording a similar decline in trade volumes (see tables 7.2a and b).

When measured on a yearly basis, export of goods from Asia and the Pacific decreased by more than 11 per cent in 2009 (see table 7.2a). Economies in Central Asia and the Pacific, as well as Bhutan, Malaysia, Mongolia, the Philippines, Singapore, and Taiwan Province of China were severely impacted, with merchandise exports declining by more than 20 per cent. The high degree of export orientation of some Asian economies, coupled with shrinking domestic

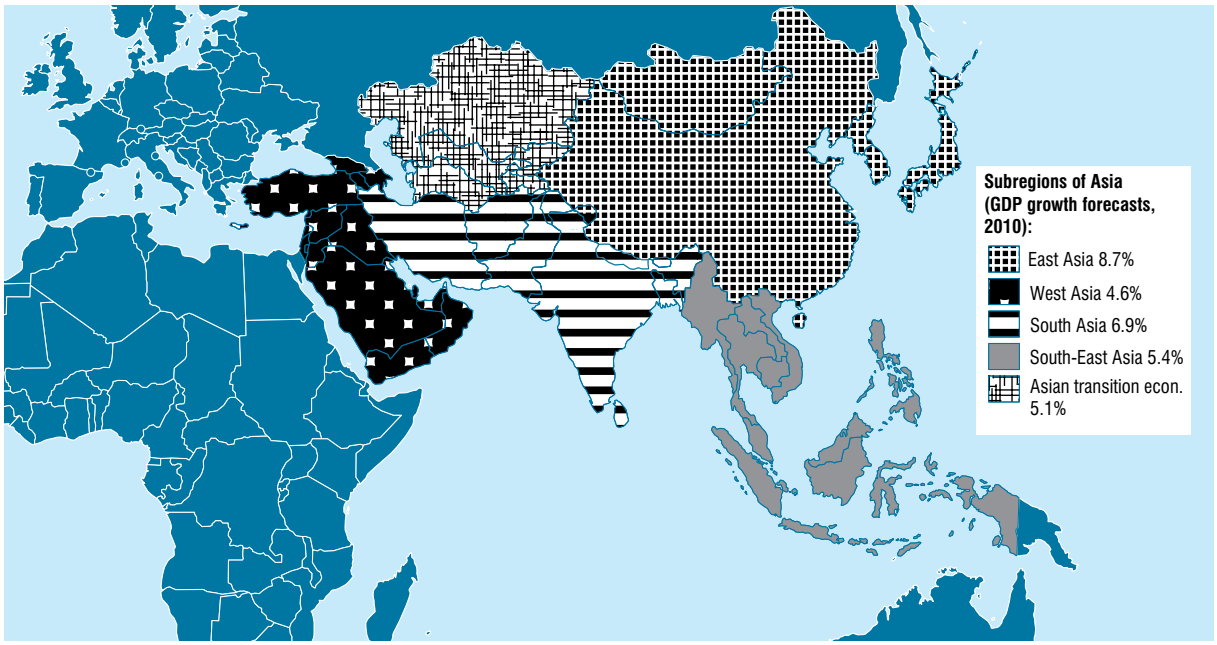
Table 7.1. Asia-Pacific economic growth, 2007–2010[a] *(annual percentage change)*

Region/country	2007	2008	2009[b]	2010[c]
Asia and Oceania	8.7	5.8	4.0	7.8
Oceania	2.1	3.0	1.2	2.6
Developed Asia and Oceania				
Developed Asia	2.5	-1.1	-5.0	2.0
Japan	2.4	-1.2	-5.2	2.5
Israel	5.4	4.0	0.7	2.9
Developed Oceania	3.6	2.1	1.0	2.9
Australia	3.7	2.4	1.3	3.0
New Zealand	3.1	-0.2	-1.6	2.5
Developing Asia and Oceania	8.7	5.8	4.0	7.8
Developing Asia	8.8	5.8	4.0	7.8
Eastern Asia	10.2	6.8	5.3	8.9
of which:				
China[d]	13.0	9.6	8.7	10.0
Southern Asia	8.7	5.0	5.5	6.6
of which:				
India[e]	9.6	5.1	6.6	7.9
South-East Asia	6.6	4.0	0.8	7.0
Western Asia	5.0	4.6	-0.8	5.2
Developing Oceania	2.1	3.0	1.2	2.6
Economies in transition in Asia	12.1	6.2	2.9	5.1
of which:				
Armenia	13.8	6.8	-14.4	1.5
Georgia	12.3	2.3	-3.9	2.0
Azerbaijan	25.1	10.8	9.3	7.0
Turkmenistan	11.6	3.0	-6.0	7.0
Uzbekistan	9.5	9.0	8.1	8.5
Least Developed Countries[f]	8.4	5.4	4.7	5.7
Afghanistan	16.2	3.4	22.5	8.6
Bangladesh	6.4	6.2	5.9	5.6
Bhutan	21.4	6.6	6.3	6.8
Maldives	6.0	5.8	-3.0	3.4
Nepal	4.7	5.6	4.7	3.8
Cambodia	10.2	6.0	-2.5	4.8
Lao People's Democratic Republic	7.9	7.5	7.6	7.2
Myanmar	11.9	4.5	4.4	5.2
Timor-Leste	..	..	7.4	7.5
Yemen	4.7	3.9	3.8	4.8
Kiribati	-1.8	6.3	-0.7	1.5
Samoa	6.4	-3.4	-4.9	-2.8
Solomon Islands	10.0	6.0	-2.2	3.4
Tuvalu	2.0	2.0	1.5	1.6

Source: UNCTAD secretariat based on the *Trade and Development Report 2010*.

[a] Calculations based on GDP at constant 2000 dollars.
[b] Preliminary estimates for 2009.
[c] Forecasts for 2010.
[d] Excluding China (Hong Kong), China (Macao) and China (Taiwan Province of).
[e] Including Sikkim.
[f] Excluding Timor-Leste.

Figure 7.2. GDP growth estimates for the subregions of Asia for 2010
(annual percentage change)



Source: UNCTAD secretariat, based on data from UNCTAD's *Trade and Development Report 2010*.

Table 7.2.(a) Growth rate of merchandise exports
(annual percentage at constant 2005 prices)

	Exports			Imports		
	2007	2008	2009	2007	2008	2009
World	6.4	2.1	-12.2	6.1	2.2	-12.9
United States	6.7	5.8	-13.9	1.1	-3.7	-16.5
European Union	4	-0.1	-14.8	4.1	-0.8	-14.5
Africa	4.8	0.7	-5.6	13.8	14.1	-5.6
Middle East	4.5	2.3	-4.9	14.6	14.6	-10.6
Asia	11.7	5.5	-11.1	8.2	4.7	-7.9

Source: World Trade Organization (2010). World trade 2009, prospects for 2010. Press release (PRESS/598). 26 March. Available at http://www.wto.org.

demand and reductions in orders from developed economies due to the economic crisis, resulted in some countries experiencing dramatic declines in both production and exports in 2009.[7]

In 2010, a recovery is taking place for Asian exports. In fact, the latest available reports show Asia's export volumes returning to pre-crisis levels in newly industrialized economies[8] and in China.[9] China and India dominate export growth in Asia. Recent data show that both of these countries have already exceeded pre-crisis levels of exports and output measured in volume terms. The data for emerging Asia – China, China (Hong Kong SAR), China (Taiwan Province of), India, Indonesia, Malaysia, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam) – show that emerging Asia had already recovered in the last quarter of 2009, with exports and output in April 2010 already at or above pre-crisis levels, except in the case of China (Hong Kong SAR).

Intraregional trade in Asia

UNCTAD's ***Review of Maritime Transport 2004*** addressed the importance of intraregional trade in Asia, reporting that over half of the countries within the region had Asia as their major market. Exports from Asia (with the exception of Central Asia) are largely destined for developing Asia.[10] In fact, in the case of South-East, East and South Asia, developing Asia was the major market for exports in 2008 (table 7.3). In the case of South Asia, exports to developing Asia increased from 17 per cent in 2000 to 21 per cent in 2008, while exports to the United States decreased from 24 per cent to 13 per cent during the same period. For all subregions, including East Asia, the

Table 7.2.(b) Growth rate of merchandise exports, Asian subregions *(percentage change per year)*

	Exports [a]				
	2007	2008	2009	2010[c]	2011[d]
East Asia[a]					
China	25.8	17.6	-16.1	12.7	13.5
China, Hong Kong	8.9	5.6	-11.9	13.0	6.3
Republic of Korea	14.2	14.2	-13.7	12.0	11.0
Mongolia	26.3	29.9	-24.9	-	-
China, Taiwan Province of	10.1	3.4	-20.2	19.6	8.5
Central Asia and transition economies[b]	33.1	25.5	-16.2	20.3	10.7
Armenia	16.7	-7.1	-35.0	5.2	11.8
Azerbaijan	63.4	43.8	-31.0	31.8	7.6
Georgia	25.3	16.3	-22.0	12.2	14.3
Kazakhstan	24.7	48.9	-38.9	29.9	12.8
Kyrgyzstan	47.7	38.1	-11.3	10.0	10.0
Tajikistan	10.0	-6.8	-1.4	8.8	10.4
Turkmenistan	33.8	26.8	8.0	45.6	-
Uzbekistan	42.9	44.2	1.7	18.9	18.6
South Asia[b]					
Afghanistan	1.3	18.9	-2.4	-	-
Bangladesh	15.8	17.4	10.1	5.0	11.0
Bhutan	83.7	4.4	-23.8	-	-
India	28.9	13.7	-15.0	16.0	12.0
Maldives	1.2	45.2	-50.7	-	-
Nepal	2.6	9.3	-4.7	-	-
Pakistan	4.4	18.2	-6.4	-1.4	4.2
Sri Lanka	11.0	6.5	-12.9	5.0	15.0
South-East Asia[b]					
Brunei Darussalam	0.5	37.5	-	-	-
Cambodia	10.7	15.1	-17.0	5.0	8.0
Indonesia	14.0	18.3	-14.4	10.8	9.2
Lao People's Democratic Republic	16.6	24.1	-10.0	15.0	13.0
Malaysia	9.6	13.1	-21.1	11.0	8.5
Myanmar	23.9	15.5	4.8	9.0	12.0
Philippines	6.4	-2.5	-22.3	15.2	12.7
Singapore	10.1	13.0	-20.3	19.5	14.0
Thailand	18.2	15.9	-13.9	16.0	18.0
Viet Nam	21.9	29.1	-8.9	9.0	14.0
The Pacific[b]					
Cook Islands	35.7	-3.7	-	-	-
Fiji Islands	9.0	20.4	-27.8	-	-
Kiribati	21.9	23.1	-	-	-
Marshall Islands	31.2	21.4	-	-	-

Source: Asian Development Bank. *Asian Development Outlook 2010* (statistical appendix).

Note: Data as reported in the balance of payments of each country. Exports are reported on a free-on-board basis.

[a] International Monetary Fund (2010). April.

[b] ESCAP (2010). Subregional weighted averages. For more information, see Economic and Social Survey of Asia and the Pacific 2010 available at http://www.unescap.org.

[c] The 2009 figures are estimates and the 2010 figures are forecasts (made on 15 April 2010).

[d] The 2011 figures are forecasts (made on 15 April 2010).

Table 7.3. Direction of exports *(as a percentage of total exports)*

To	Developing Asia		China		Japan		United States		European Union		Others	
From	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Central Asia	9.2	9.4	4.1	6.5	0.5	1.0	1.7	6.6	28.1	45.6	56.4	30.9
Armenia	7.8	9.7	0.2	0.2	0.1	0.0	12.6	5.0	36.9	54.2	42.5	30.9
Azerbaijan	7.1	12.6	0.3	1.0	0.0	0.3	0.5	12.5	63.6	56.0	28.6	17.5
Georgia	16.2	26.2	0.3	0.6	0.1	0.0	2.2	6.8	24.0	22.2	57.2	44.3
Kazakhstan	5.4	4.0	6.8	13.4	0.1	1.5	2.1	2.9	23.0	46.0	62.6	32.2
Kyrgyzstan	29.0	31.1	8.8	2.7	0.1	0.2	0.6	0.3	37.6	11.7	23.9	54.0
Tajikistan	16.5	8.5	0.4	5.6	-	0.0	0.1	0.0	30.1	41.9	52.9	43.9
Turkmenistan	6.4	7.6	0.3	0.3	-	0.0	0.5	1.4	21.5	27.0	71.3	63.8
Uzbekistan	23.6	22.1	0.5	4.3	3.2	4.1	1.5	3.8	26.8	10.4	44.3	55.3
East Asia	25.9	27.4	11.7	13.3	11.4	7.0	21.8	14.9	15.2	17.0	13.9	20.3
China	32.9	32.8	-	-	16.3	8.0	20.4	17.3	16.1	20.1	14.3	21.8
China, Hong Kong	10.2	10.7	34.1	48.3	5.5	4.3	23.0	12.7	15.5	13.6	11.8	10.4
Republic of Korea	23.8	21.9	10.2	20.8	11.3	6.4	20.9	10.6	13.7	13.3	20.2	27.0
Mongolia	4.0	1.4	49.8	64.5	1.5	1.1	24.3	4.5	7.7	17.1	12.6	11.3
China, Taiwan Province of	38.2	30.1	2.9	26.2	11.2	6.9	23.6	12.0	15.2	10.7	8.8	14.1
South Asia	17.3	20.8	1.6	4.8	3.6	1.7	24.2	12.9	26.3	23.5	26.9	36.3
Afghanistan	46.0	55.1	3.4	0.5	0.3	0.1	1.9	16.5	35.3	12.8	13.1	15.0
Bangladesh	5.4	5.8	0.2	0.7	1.2	0.6	31.7	20.7	40.1	48.1	21.5	24.1
India	19.2	22.2	1.8	5.4	4.1	1.8	21.1	11.6	24.1	21.1	29.8	38.0
Maldives	32.0	48.0	-	0.7	4.1	2.7	44.0	1.9	18.5	42.6	1.4	4.1
Nepal	44.5	66.0	-	0.6	1.4	1.2	27.4	9.6	23.0	13.6	3.7	8.9
Pakistan	18.5	19.4	2.6	4.2	2.6	1.8	24.9	16.0	27.7	22.4	23.6	36.2
Sri Lanka	8.6	10.4	0.1	0.6	4.2	2.2	40.1	22.0	28.2	38.6	18.9	26.1
South–East Asia	37.4	41.8	3.7	8.8	12.6	10.5	18.2	10.4	14.4	11.5	13.7	17.0
Brunei Darussalam	36.2	44.0	1.8	0.7	40.7	40.4	12.0	1.0	3.6	0.2	5.8	13.6
Cambodia	8.2	10.1	2.1	0.8	0.9	2.6	65.4	54.3	20.5	22.8	2.9	9.4
Indonesia	33.1	38.1	4.2	8.1	22.1	19.2	13.0	9.1	13.7	10.7	13.7	14.9
Lao People's Democratic Republic	43.4	54.9	1.5	8.4	2.8	1.0	2.2	2.5	26.0	11.2	24.1	22.0
Malaysia	40.3	41.4	2.9	9.2	12.3	10.4	19.5	12.1	13.3	10.9	11.7	16.0
Myanmar	35.2	74.1	5.6	8.7	5.4	4.3	22.0	-	16.4	3.7	15.5	9.1
Philippines	30.5	33.4	1.6	10.6	13.4	15.0	27.3	16.0	16.5	16.6	10.7	8.3
Singapore	44.1	51.7	3.8	9.0	7.3	4.9	16.7	7.0	13.5	10.2	14.7	17.2
Thailand	30.8	34.7	3.9	9.1	14.2	11.2	20.5	11.2	15.7	12.7	15.0	21.2
Viet Nam	25.8	22.6	10.3	7.1	17.2	13.4	4.9	18.6	20.0	16.9	21.9	21.5
The Pacific	11.2	14.3	5.2	5.8	10.3	8.1	5.3	2.6	11.1	9.1	56.9	60.1
Fiji Islands	14.3	16.4	0.0	0.1	4.1	4.1	21.1	15.2	16.5	12.8	44.0	51.5
Papua New Guinea	7.6	9.6	6.5	5.1	11.2	9.2	1.3	1.1	10.2	9.1	63.2	65.9
Samoa	18.1	11.5	0.1	1.4	0.3	0.5	10.6	2.8	3.0	0.3	67.9	83.5
Solomon Islands	42.3	23.4	12.0	48.1	20.7	2.7	0.7	0.4	10.6	9.6	13.6	15.8
Tonga	6.3	30.6	-	0.1	48.5	10.3	30.0	25.4	6.5	5.2	8.7	28.5
Vanuatu	60.7	88.1	0.4	0.1	18.7	5.9	9.7	0.3	5.7	2.7	4.8	2.9
Developing Asia	29.2	30.2	8.4	11.4	11.3	7.5	20.3	13.3	15.6	16.8	15.1	20.8

Source: : Asian Development Bank. Asian Development Outlook 2010 (statistical appendix).

share of exports to developing Asia has increased since the year 2000.[11]

Despite the fact that a larger proportion of trade is carried out within Asia today, intraregional trade volumes contracted by 9 per cent during the financial crisis of 2008 and 2009. This is similar to the trade declines suffered within the United States and within Europe during the crisis (by 9 per cent and 10 per cent respectively). A large proportion of intraregional trade is intra-industrial processing, resulting in goods that are mostly exported and are later consumed outside the Asian region.[12] Since Asia continues to depend on import demand from industrialized countries in North America and Europe, the fall in demand for imports from those countries impacted on Asian trade, considerably slowing down the movement of parts and components across borders, even within Asia.[13] Trade in automotive products was the sector in Asia most severely impacted by the financial crisis, declining 48 per cent during the first quarter of 2009 (year on year). Other sectors affected were iron and steel (37 per cent), office and telecommunications equipment (29 per cent) and integrated circuits (31 per cent).[14]

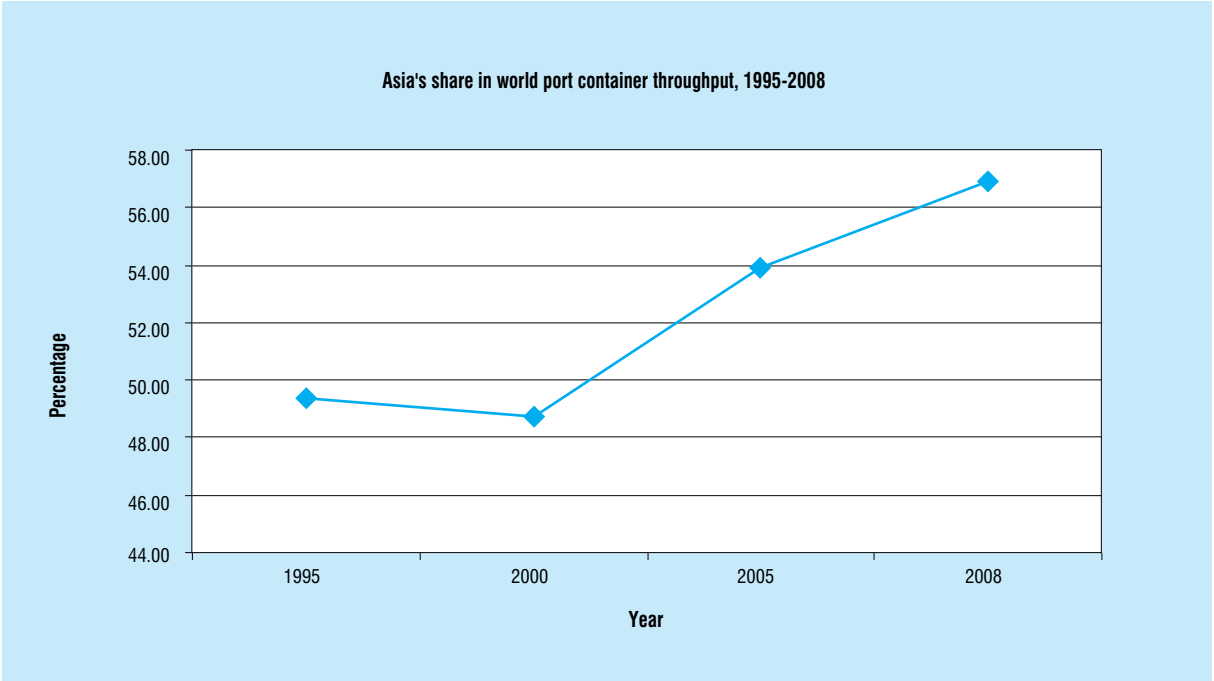
C. MARITIME TRADE

Economic growth, merchandise trade and seaborne trade are closely related. In recent years, Asia's share of the world's total goods loaded on board vessels has increased to 41 per cent, followed, in decreasing order, by the Americas, Europe, Africa and Oceania (see chapter 1). Asia's share in world container throughput – the fastest-growing sector out of the major types of cargo (dry bulk, oil and container) – has increased from 50 per cent in 1995 to almost 60 per cent today (see fig. 7.3). The top 10 busiest ports together handle over 40 per cent of containerized trade, and nine of these ports are located in Asia. Fifteen of the world's largest liner shipping companies are located in Asia, too.

Containerized trade

Asia ranks top for goods loaded per continent, with 41 per cent, followed by the Americas with 23 per cent, and then Europe with 18 per cent. Africa and Oceania account for 10 per cent and 9 per cent of the total share, respectively (see chapter 1). Not

Figure 7.3. Container throughput in Asia *(annual percentage change)*



Source: UNCTAD secretariat, based on the *ESCAP Review of Developments in Transport in Asia and the Pacific 2009*, which uses data from *Containerisation International* (1978 to 2007) and estimates from Drewry Shipping Consultants (2008 and 2009).

Note: The Asian and Pacific countries in this figure refer to ESCAP members. For further information, see http://www.unescap.org/about/member.asp

surprisingly, therefore, the global downturn in 2008 and 2009 was significant for Asia.

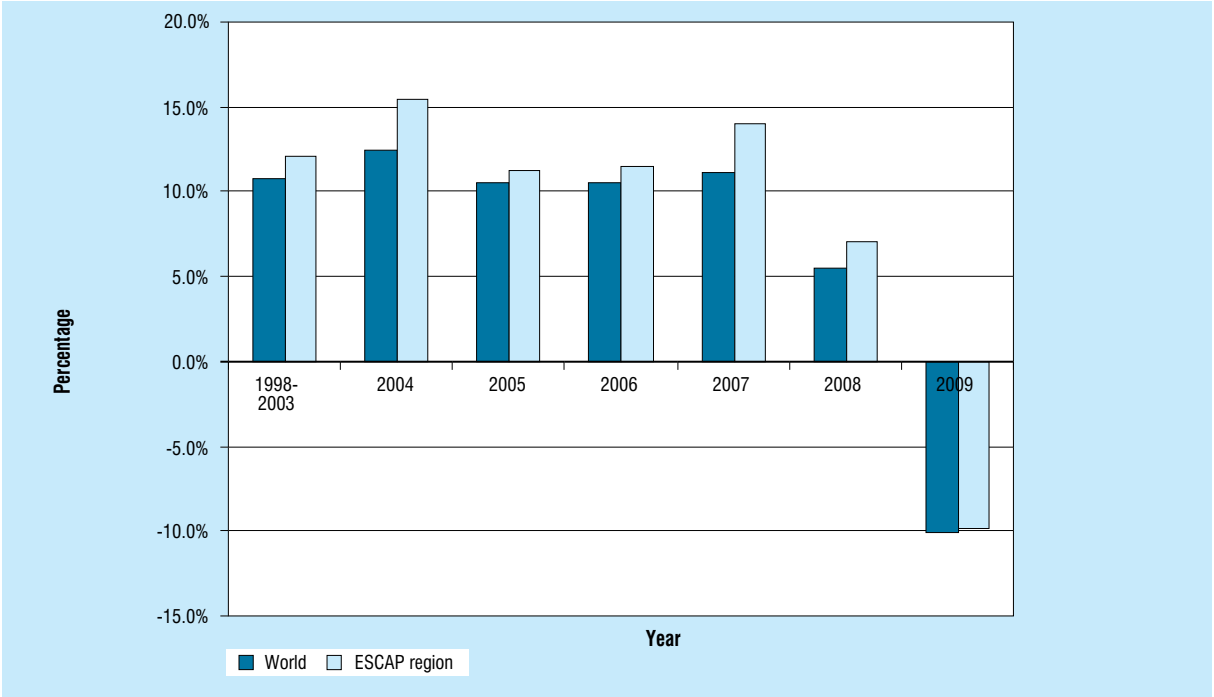
In 2007, the global container trade was thriving, including on the major East–West shipping lanes. With the onset of the global financial crisis and recession in 2008, orders from the consumer markets of the United States and Europe declined, leading to a significant drop in industrial production and container trade flows. Container volumes on the Asia–Europe and Asia–North America routes contracted by an average of about 10 per cent in 2009, and consequently, container throughput in Asian ports sharply contracted too (fig. 7.4).

Placing these trends in a historical context, growth in container port throughput was particularly strong from the 1980s until 2007, exceeding world trade growth rates. Annual trade growth rates of about 10 per cent were maintained until 2007. Container port volumes in 2003, for instance, were at 20 times their 1978 levels. But by the end of 2008, growth rates had turned negative, and in 2009, the region handled approximately 10 per cent fewer containers than in 2008.[15]

Asian container trade accounted for an almost 60 per cent share of world container port throughput in 2009, with East Asia as the dominant subregion. Asian countries' share in global port container volumes has been varying since 1970, with mainland ports in China making remarkable increases to their share since 2005. China's container throughput went up from 1 million TEU in 1983 to 43.6 million TEU in 2005, making the country's container market – excluding China (Hong Kong SAR) and China (Taiwan Province of) – the largest container market in the world today.[16]

The outlook for container trade volumes for the Asia-Pacific region shows signs of improving, in line with improvements in the global economy. Container trade in 2010 is forecast to increase by 8 per cent on the Far East–Europe route, and by 10 per cent on the trans-Pacific Asia–North America route.[17] Dry bulk trade is expected to grow at a rate of 9.4 per cent. The strong growth expected in both China and India in 2010 is very encouraging news for the shipping industry. Shipping lines are responding to increasing demand by putting idle vessels back into service. There are indications, nevertheless, that the supply of shipping capacity could exceed the increasing demand in the near future, which could have a corresponding effect on prices and on the supply of maritime services (see chapter 3 for more details).

Figure 7.4. Asia's share in world container throughput



Source: UNCTAD secretariat, using data from Containerisation Online.

Busiest seaports

In 2009, the 10 busiest ports in the world handled 155 million TEU, approximately 41 per cent of the total world throughput. Of the 10 busiest ports, 9 are located in Asia (see table 7.4). The top five container ports over the last four years have been (1) Singapore; (2) Shanghai; (3) Hong Kong, China; (4) Shenzhen; and (5) Busan; which altogether handled approximately 102 million TEU in 2009. Within Asia, these ports handled over 60 per cent of the Asian throughput.[18]

Container throughput in South-East Asia grew on average by 3.6 per cent per year from 2000 until 2008. Since the *Review of Maritime Transport* last reported on the subregion in 2007, ports in Malaysia, the Republic of Korea, Singapore, Sri Lanka and Thailand have grown considerably.

Thai ports have been gaining momentum, growing at a pace of 9.5 per cent per year from 2000 to 2008 and registering a growth of 11.23 per cent in 2006–2007, mainly thanks to the developments in the port of Laem Chabang. Laem Chabang grew from a low level in the 1990s, to 2.1 million TEU in 2000, and then to 5.1 million TEU in 2008, declining to 4.6 million TEU in 2009, handling almost 80 per cent of Thailand's total container trade.[19]

The port of Singapore is a major transhipment hub for countries within the region exporting to the United States and Europe. Although estimates show a year-on-year throughput decline of 14 per cent in 2009, Singapore still registers the largest container throughput and ranks at the top of the busiest ports worldwide.[20]

In East Asia, China's container throughput is now more than six times larger than that of Japan. Among the four ports gaining rank since 2006, three are located in China: Guangzhou, Ningbo and Qingdao (see tables 7.4–7.6 for details of the main winners and losers). Guangzhou recorded 1.4 million TEU in 2000, which went up to a remarkable 11 million TEU in 2008 and stabilized at that level in 2009 in spite of the financial crisis. Qingdao increased from 2.1 million TEU in 2000 to 10.3 million TEU in 2008, stabilizing at this level in 2009. Ningbo recorded a dramatic increase between 2000 and 2008 – rising from 0.9 to 11.2 million TEU –

Table 7.4. World's 10 busiest ports

World ranking				Port name	Country	Trade region	Total TEU in 2009
2009	2008	2007	2006				
1	1	1	1	Singapore	Singapore	South–East Asia	25 866 400
2	2	2	3	Shanghai	China	East Asia	25 002 000
3	3	3	2	Hong Kong	Hong Kong, China	East Asia	20 983 000
4	4	4	4	Shenzhen	China	East Asia	18 250 100
5	5	5	5	Busan	Republic of Korea	East Asia	11 954 861
6	8	12	15	Guangzhou	China	East Asia	11 190 000
7	6	7	8	Dubai	United Arab Emirates	West Asia	11 124 082
8	7	11	13	Ningbo	China	East Asia	10 502 800
9	10	10	11	Qingdao	China	East Asia	10 260 000
10	9	6	7	Rotterdam	Netherlands	Europe	9 743 290

Source: : UNCTAD secretariat, based on data from *Containerisation Online*, accessed May 2010.

Table 7.5. Ports previously in the top 10 that have lost rank since 2006

	Country	Region	World ranking			
			2009	2008	2007	2006
Rotterdam	Netherlands	Europe	10	9	6	7
Hamburg	Germany	Europe	16	11	9	9
Los Angeles	United States	North America	16	16	13	10

Source: : UNCTAD secretariat based on data from *Containerisation Online,* accessed May 2010.

Table 7.6. Ports that have gained rank since 2006

	Country	Region	World ranking			
			2009	2008	2007	2006
Guangzhou	China	East Asia	6	8	12	15
Dubai	United Arab Emirates	West Asia	7	6	7	8
Ningbo	China	East Asia	8	7	11	13
Qingdao	China	East Asia	9	10	10	11

Source: : UNCTAD secretariat based on data from *Containerisation Online*, accessed May 2010.

and then dropping to 10.5 million TEU in 2009.

Similarly, container throughput for the Republic of Korea grew rapidly in the 2000–2008 period, averaging 8.6 per cent per year, and recording a high of 10 per cent growth in 2006–2007 (table 7.7). In 2009, however, the throughput contracted to 11.9 million TEU, having stood at 13.4 million TEU in 2008.

In South Asia, container throughput has almost tripled since 2000, however it is still negligible when compared to other Asian subregions – especially East Asia, where the throughput is 10 times higher than in South Asia.

Interestingly, the port of Dubai in Western Asia registered a container throughput of 6.4 million TEU in 2004, rising to 11.1 million TEU in 2009. The port of Dubai is among the 10 busiest ports in the world, and the only port in Western Asia that has ranked at that level for the past four years.

Iranian ports have registered very fast growth in recent years, with a yearly growth rate averaging 21 per cent in the 2000–2008 period. India and Bangladesh have followed, with growth rates averaging 13.5 per cent and 10.3 per cent respectively during the same period. However, substantial contractions year on year were recorded for Indian ports in 2006–2007 (by 15 per cent). The latest available data for Pakistani ports records significant growth, averaging 15 per cent from 2000 to 2006, and then slowing down to a yearly growth rate of 9 per cent in 2006–2007.[21]

Major shipping lines

Asian liner shipping companies lead the world containership market. Fifteen out of the 21 busiest liner shipping companies are located in Asia, notably in China, in Taiwan Province of China, and in Singapore. Table 7.8 lists these top 15 shipping companies. Taken together, these companies operate about 40 per cent of the existing TEU carrying capacity.

Since the ***Review of Maritime Transport*** reported in 2004 on maritime transport services in Asia, some important developments have taken place. Table 7.8 compares recent data with data from 2004, and shows that among the companies gaining rank are APL, COSCO, MOL, Yang Ming Marine, Hyundai, PIL, UASC, and Wan Hai Lines. Among these companies, the growth in TEU capacity is at double or more (the percentage change is almost 100 per cent, or more). UASC tops the list in growth of TEU capacity, with a 160 per cent change in 2010 when compared to 2004, followed by COSCO (115 per cent) and APL (106 per cent).

Regarding the number of containerships, the companies that gained rank in 2010 compared to 2004 were APL, Evergreen, COSCO, MOL, Yang Ming Marine, Hyundai, PIL, UASC and Wan Hai (see table 7.8). These companies have seen their number of ships increase by between 30 and 70 per cent in 2010. Their orders have also increased, by between 20 and 70 per cent.

D. THE ASIAN FLEET

Table 7.9 provides details on the Asian fleet by flag of registration and type of vessel, while table 7.10 gives a breakdown of growth in the merchant fleet for 32 selected Asian countries. Mongolia and Saudi Arabia experienced the largest increases in their merchant fleet in the period from 2007 to 2010, with an impressive 89 per cent in three years. Viet Nam recorded a 72 per cent increase. Increases were also recorded – to a lesser extent – by Bangladesh (58 per cent increase) and Bahrain (50 per cent increase). Countries that recorded significant contractions were the Islamic Republic of Iran (-85 per cent or 7,620 vessels), the Lao People's Democratic Republic and Myanmar

Table 7.7. Container port throughput in selected countries of Asia and the Pacific

Country/ territory	Port	Thousands of TEUs						Annual growth		
		2006	2007	2008	2009	% share 2007 (sample)	Rank (sample)	2006/ 2007	2007/ 2008	2008/ 2009
China		54 949	66 071	70 940	64 015	37.57%		20.24%	7.37%	-9.76%
	Shanghai	21 710	26 150	27 980	25 002	14.87%	2	20.45%	7.00%	-10.64%
	Shenzhen	18 469	21 099	21 414	18 250	12.00%	4	14.24%	1.49%	-14.77%
	Qingdao	7 702	9 462	10 320	10 260	5.38%	7	22.85%	9.07%	-0.58%
	Ningbo	7 068	9 360	11 226	10 503	5.32%	8	32.43%	19.94%	-6.44%
French Polynesia	Papeete	66	69	70	68	0.04%	21	5.96%	0.89%	-3.14%
China, Hong Kong	Hong Kong	23 539	23 998	24 248	20 983	13.65%	3	1.95%	1.04%	-13.47%
India	Mumbai	138	118	..	..	0.07%	20	-14.91%	..	..
Indonesia	Tanjung Priok	3 420	3 690	3 984	3 800	2.10%	12	7.90%	7.98%	-4.63%
Malaysia	Port Klang	6 326	7 119	7 970	7 300	4.05%	9	12.53%	11.96%	-8.41%
	Tanjung Pelepas	4 770	5 500	5 600	6 000	3.13%	10	15.30%	1.82%	7.14%
Pakistan		**1 777**	**1 936**	**..**	**..**	**1.01%**		**8.94%**	**..**	**..**
	Karachi	1 107	1 220	..	..	0.69%	17	10.14%	..	..
	Port Mohammad Bin Qasim	670	716	687	..	0.41%	18	6.96%	-4.09%	..
Philippines	Manila	2 720	2 869	2 978	..	1.63%	14	5.51%	3.77%	..
Republic of Korea	Busan	12 039	13 261	13 425	11 955	7.54%	5	10.15%	1.24%	-10.95%
Singapore	Singapore	24 792	27 936	29 918	25 866	15.88%	1	12.68%	7.10%	-13.54%
Sri Lanka	Colombo	3 079	3 382	3 687	3 464	1.92%	13	9.83%	9.04%	-6.05%
China, Taiwan Province of		13 102	13 722	..	10 727	7.80%		4.73%	..	..
	Kaohsiung	9 775	10 257	9 677	8 581	5.83%	6	4.93%	-5.66%	-11.32%
	Keelung	2 129	2 215	2 055	1 578	1.26%	15	4.07%	-7.23%	-23.23%
	Taichung	1 199	1 250	..	568	0.71%	19	4.29%	..	..
Thailand		5 574	6 200	6 586	5 844	3.53%		11.23%	6.22%	-11.27%
	Laem Chabang	4 123	4 642	5 134	4 622	2.64%	11	12.58%	10.60%	-9.98%
	Bangkok	1 451	1 559	1 452	1 222	0.89%	16	7.38%	-6.84%	-15.83%

Source: UNCTAD, using data from *Containerisation Online.*

Table 7.8. Comparative table of Asian liner shipping companies, 2004–2010

World Ranking 2004	Company	Country or territory of the company	Existing TEU					Ships			Ordered in 2004			Ordered in 2010		
			2004	2010	% of world total in 2004	% of world total in 2010	% change 2004–2010	2004	2010	% change	TEU	Ships	% existing	TEU	Ships	% exisiting
6	APL	Singapore	287 000	589 879	3.7%	4.5%	105.5%	87	147	69.0%	29 000	6	10%	112 736	13	19.1%
3	Evergreen Line	China, Taiwan Province of	455 000	554 725	5.9%	4.2%	21.9%	158	152	-3.8%	152 000	22	33%	n/a	n/a	n/a
9	COSCO Container Lines	China	232 000	498 437	3.0%	3.8%	114.8%	107	134	25.2%	131 000	20	56%	365 646	47	73.4%
7	Hanjin Shipping	Republic of Korea	287 000	448 051	3.7%	3.4%	56.1%	78	98	25.6%	72 000	10	25%	245 720	25	54.8%
n/a	CSCL	China	n/a	440 236	n/a	3.3%	n/a	n/a	122	n/a	n/a	n/a	n/a	150 400	16	34.2%
8	NYK	Japan	260 000	365 034	3.4%	2.8%	40.4%	95	95	0.0%	82 000	10	32%	43 722	7	12.0%
15	MOL	Japan	181 000	363 188	2.4%	2.8%	100.7%	58	94	62.1%	83 000	12	46%	120 825	21	33.3%
11	OOCL	China, Hong Kong	204 000	353 338	2.7%	2.7%	73.2%	56	77	37.5%	79 000	11	39%	60 756	8	17.2%
14	Zim	Israel	187 000	322 685	2.4%	2.5%	72.6%	85	96	12.9%	28 000	6	15%	182 771	18	56.6%
12	K Line	Japan	198 000	318 193	2.6%	2.4%	60.7%	66	82	24.2%	107 000	19	54%	133 844	23	42.1%
18	Yang Ming Marine	China, Taiwan Province of	160 000	313 379	2.1%	2.4%	95.9%	58	77	32.8%	64 000	18	40%	141 402	22	45.1%
20	Hyundai M. M.	Republic of Korea	141 000	271 604	1.8%	2.1%	92.6%	37	52	40.5%	34 000	5	24%	71 810	6	26.4%
21	PIL (Pacific Int. Lines)	Singapore	117 000	227 649	1.5%	1.7%	94.6%	91	126	38.5%	26 000	12	22%	58 418	12	25.7%
23	UASC	Kuwait	76 000	199 082	1.0%	1.5%	162.0%	34	50	47.1%	n/a	n/a	n/a	117 900	9	59.2%
22	Wan Hai Lines	China, Taiwan Province of	97 000	160'185	1.3%	1.2%	65.1%	67	74	10.4%	52 000	18	54%	32 050	11	20.0%

Source: For 2004, data from UNCTAD's *Review of Maritime Transport 2004*. For 2010, data from Alphaliner: Top 100 operated fleets as per 18 May 2010 – as well as calculations by the UNCTAD secretariat.

Table 7.9. Merchant fleets of the world, by country group, flag of registration and type of ship *(as at 1 January 2010)*

	Bulk carriers	% of total	Container ships	% of total	General cargo	% of total	Oil tankers	% of total	Other types	Grand total	% of total
DEVELOPING ECONOMIES OF ASIA											
Bahrain	57 738	0.1%	247 466	0.9%	1 166	0.0%	81 461	0.2%	129 818	517 649	0.1%
Bangladesh	270 626	0.4%	35 284	0.1%	238 275	0.9%	64 386	0.1%	36 019	644 590	0.1%
Brunei Darussalam	12 757	0.0%		0.0%	2 843	0.0%	501	0.0%	483 910	500 011	0.1%
Cambodia	249 907	0.4%	11 273	0.0%	1 494 276	5.9%	39 672	0.1%	168 777	1 963 905	0.2%
China	13 314 691	20.9%	4 393 418	15.8%	4 701 668	18.6%	5 446 345	10.5%	2 221 007	30 077 129	3.4%
China, Hong Kong	22 366 209	35.1%	8 745 385	31.5%	2 741 637	10.8%	10 315 279	19.9%	1 169 763	45 338 273	5.1%
China, Macao		0.0%		0.0%		0.0%		0.0%	2'321	2 321	0.0%
China, Taiwan Province of	1 001 374	1.6%	637 304	2.3%	116 615	0.5%	674 522	1.3%	206 177	2 635 992	0.3%
Democratic People's Republic of Korea	96 058	0.2%	22 305	0.1%	620 477	2.4%	70 382	0.1%	61 556	870 778	0.1%
India	2 376 774	3.7%	254 374	0.9%	322 271	1.3%	4 971 488	9.6%	1 102 034	9 026 941	1.0%
Indonesia	1 263 679	2.0%	630 416	2.3%	2 290 576	9.0%	2 334 752	4.5%	1 573 632	8 093 055	0.9%
Iran (Islamic Rep. of)	260 347	0.4%	186 797	0.7%	235 999	0.9%	79 853	0.2%	224 583	987 579	0.1%
Iraq		0.0%		0.0%	39 211	0.2%	41 679	0.1%	62 052	142 942	0.0%
Jordan		0.0%		0.0%	49 626	0.2%	137 227	0.3%	76 935	263 788	0.0%
Kuwait	23 495	0.0%	269 489	1.0%	98 283	0.4%	1 752 199	3.4%	225 816	2 369 282	0.3%
Lao People's Democratic Republic		0.0%		0.0%	483	0.0%		0.0%		483	0.0%
Lebanon	34 456	0.1%		0.0%	102 381	0.4%	842	0.0%	2 820	140 499	0.0%
Malaysia	289 980	0.5%	702 508	2.5%	495 759	2.0%	2 937 855	5.7%	3 291 683	7 717 785	0.9%
Maldives	1 057	0.0%		0.0%	119 042	0.5%	7 635	0.0%	13 371	141 105	0.0%
Mongolia	532 025	0.8%		0.0%	178 305	0.7%	10 813	0.0%	23 201	744 344	0.1%
Myanmar	14 159	0.0%		0.0%	136 061	0.5%	2 935	0.0%	29 382	182 537	0.0%
Oman		0.0%		0.0%	1 585	0.0%	1 358	0.0%	24 355	27 298	0.0%
Pakistan	36 098	0.1%		0.0%	75 377	0.3%	158 367	0.3%	25 653	295 495	0.0%
Philippines	2 406 481	3.8%	290 894	1.0%	1 394 051	5.5%	488 010	0.9%	639 815	5 219 251	0.6%
Qatar	70 253	0.1%	365 207	1.3%	664	0.0%	302 324	0.6%	277 999	1 016 447	0.1%
Republic of Korea	7 864 105	12.3%	687 775	2.5%	1 333 614	5.3%	1 373 841	2.7%	1 633 200	12 892 535	1.5%
Saudi Arabia		0.0%	204 421	0.7%	288 212	1.1%	877 639	1.7%	341 075	1 711 347	0.2%
Singapore	7 807 585	12.2%	8 894 324	32.1%	3 928 477	15.5%	16 709 443	32.3%	3 706 747	41 046 576	4.7%
Sri Lanka	45 234	0.1%		0.0%	86 033	0.3%	14 720	0.0%	21 661	167 648	0.0%
Syrian Arab Republic	47 821	0.1%	7 572	0.0%	188 064	0.7%		0.0%	3 775	247 232	0.0%
Thailand	538 119	0.8%	231 727	0.8%	910 835	3.6%	594 042	1.1%	251 401	2 526 124	0.3%
Timor-Leste		0.0%		0.0%		0.0%		0.0%	1'134	1 134	0.0%
Turkey	1 952 827	3.1%	457 832	1.7%	1 611 440	6.4%	979 195	1.9%	449 221	5 450 515	0.6%
United Arab Emirates	74 609	0.1%	345 068	1.2%	74 603	0.3%	386 779	0.7%	202 397	1 083 456	0.1%
Viet Nam	732 920	1.1%	109 522	0.4%	1 452 594	5.7%	905 390	1.7%	250 640	3 451 066	0.4%
Yemen		0.0%		0.0%	6 320	0.0%	13 177	0.0%	13 258	32 755	0.0%
DEVELOPING ECONOMIES OF ASIA Total	63 741 384	100.0%	27 730 361	100.0%	25 336 823	100.0%	51 774 111	100.0%	18 947 188	187 529 867	21.2%

Table 7.9. Merchant fleets of the world, by country group, flag of registration and type of ship *(as at 1 January 2010) (concluded)*

	Bulk carriers	% of total	Container ships	% of total	General cargo	% of total	Oil tankers	% of total	Other types	Grand total	% of total
DEVELOPING ECONOMIES OF OCEANIA											
Fiji		0.0%		0.0%	9 247	2.1%		0.0%	25 984	35 231	0.0%
French Polynesia		0.0%		0.0%	399	0.1%		0.0%	1 047	1 446	0.0%
Kiribati	191 132	47.6%		0.0%	197 240	44.9%	96 950	12.2%	61 740	547 062	0.1%
New Caledonia		0.0%		0.0%	1 874	0.4%		0.0%	429	2 303	0.0%
Papua New Guinea	4 617	1.2%		0.0%	71 471	16.3%	4 209	0.5%	17 524	97 821	0.0%
Samoa		0.0%		0.0%	7 981	1.8%		0.0%	2 484	10 465	0.0%
Solomon Islands		0.0%		0.0%	2 443	0.6%		0.0%	10 487	12 930	0.0%
Tonga	5 717	1.4%		0.0%	47 952	10.9%	1 321	0.2%	13 249	68 239	0.0%
Tuvalu	199 828	49.8%	10 686	100.0%	100 628	22.9%	692 720	87.1%	94 384	1 098 246	0.1%
DEVELOPING ECONOMIES											
OF OCEANIA Total	401 294	100.0%	10 686	100.0%	439 235		795 200	100.0%	227 328	1 873 743	0.2%
COUNTRIES WITH ECONOMIES IN TRANSITION IN ASIA											
Azerbaijan		0.0%		0.0%	111 711	18.3%	247 582	76.8%	383 699	742 992	0.1%
Georgia	129 674	100.0%	8 328	100.0%	478 262	78.4%	21 829	6.8%	69 777	707 870	0.1%
Kazakhstan		0.0%		0.0%	2 991	0.5%	37 485	11.6%	36 617	77 093	0.0%
Turkmenistan		0.0%		0.0%	16 966	2.8%	15 518	4.8%	30 661	63 145	0.0%
COUNTRIES WITH ECONOMIES IN TRANSITION IN ASIA											
Total	129 674	100.0%	8 328	100.0%	609 930	100.0%	322 414	100.0%	520 754	1 591 100	0.2%
Grand total	252 710 162		145 498 034		107 523 274		252 172 266		124 669 972	882 573 708	100.0%
Asian percentage of world fleet	25.4%		19.1%		24.5%		21.0%		15.8%	21.6%	

Source: Compiled by the UNCTAD secretariat on the basis of data provided by IHS Fairplay and UNCTAD.

(-63 per cent).

E. REGIONAL TRADE ARRANGEMENTS AND TRADE FACILITATION: STATE OF PLAY

The regional trade integration landscape in Asia: increased attention to trade facilitation

Trade facilitation has emerged as an important trade policy tool in an international environment where tariffs and quotas are falling and represent less of a barrier to trade. The main objective of trade facilitation is to reduce the costs and time associated with often cumbersome administrative and customs procedures and controls to move goods across borders. From a development perspective, this type of reform matters more than ever, especially in the aftermath of the global economic crisis. As trade facilitation represents a win–win–win opportunity for governments, the business community and consumers, many developing countries and LDCs have embarked on national trade facilitation reform programmes. Experience shows that countries' gains from trade facilitation reforms can be even greater when they are adopted by trading partners regionally, as part of regional economic integration efforts. Figure 7.5 gives an overview of regional trade facilitation initiatives and arrangements in Asia.

The major regional integration blocs include the Association of Southeast Asian Nations (ASEAN), the South Asian Association for Regional Cooperation (SAARC), and the Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation (BIMSTEC) in South and South-East Asia. A new regional economic integration power bloc has emerged, with ASEAN concluding bilateral regional trade agreements (RTAs) with six major Asia-Pacific economies, namely Australia, China, India, Japan,

Table 7.10. Merchant fleet by flag of registration, for selected Asian countries[a] *(in thousands of dwt)*

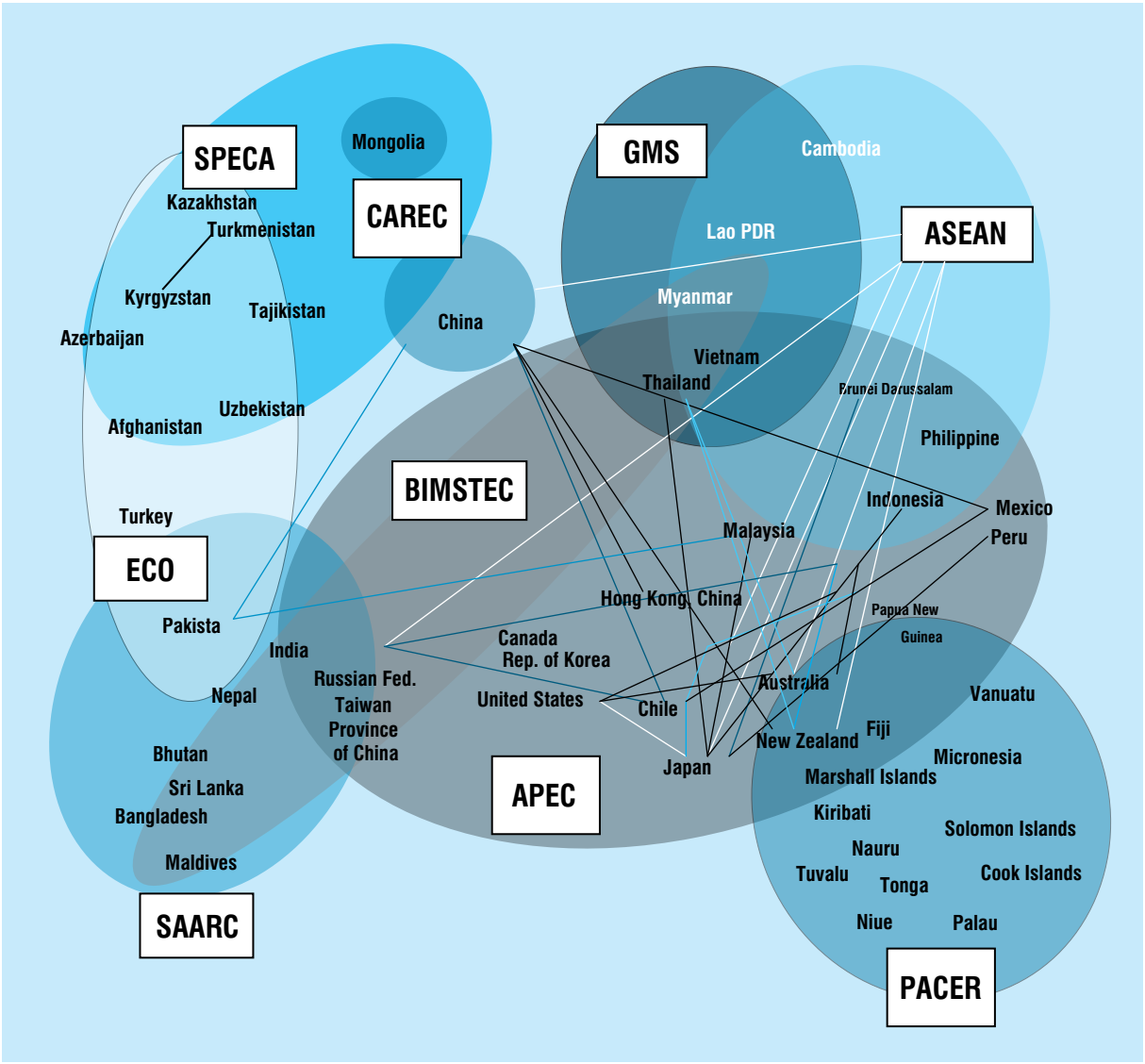
	1 Jan. 2005	1 Jan. 2006	1 Jan. 2007	1 Jan. 2010	% change 2005–2006	% change 2006–2007	% change 2007–2010
Bahrain	380	396	410	613	4.2%	3.5%	49.6%
Bangladesh	626	664	618	975	6.1%	-6.9%	57.8%
Brunei Darussalam	422	421	421	449	-0.2%	0.0%	6.6%
China	29 793	32 774	34 924	45 157	10.0%	6.6%	29.3%
China, Hong Kong	43 957	50 443	54 341	74 513	14.8%	7.7%	37.1%
China, Macao	-	-	2	2			0.0%
China, Taiwan Province of	-	-	4 398	3 944			-10.3%
Democratic People's Republic of Korea	1 531	1 733	1 419	1 266	13.2%	-18.1%	-10.8%
India	12 347	13 295	14 190	14 970	7.7%	6.7%	5.5%
Indonesia	5 038	5 308	6 392	10 471	5.4%	20.4%	63.8%
Iran (Islamic Republic of)	9 115	9 009	8 953	1 333	-1.2%	-0.6%	-85.1%
Iraq	210	175	176	180	-16.7%	0.6%	2.3%
Jordan	211	225	550	369	6.6%	144.4%	-32.9%
Kazakhstan	20	47	80	91	135.0%	70.2%	14.1%
Kuwait	3 811	3 706	3 442	3 856	-2.8%	-7.1%	12.0%
Lao People's Democratic Republic	-	-	5	2			-60.0%
Malaysia	8 708	7 755	8 571	10 225	-10.9%	10.5%	19.3%
Mongolia	-	-	629	1 190			89.2%
Myanmar	656	645	574	210	-1.7%	-11.0%	-63.4%
Oman	10	11	13	14	10.0%	18.2%	7.7%
Pakistan	472	652	673	481	38.1%	3.2%	-28.5%
Philippines	7 008	7 129	6 704	7 033	1.7%	-6.0%	4.9%
Qatar	793	795	933	1 363	0.3%	17.4%	46.1%
Republic of Korea	12 017	14 347	16 540	20 819	19.4%	15.3%	25.9%
Saudi Arabia	2 581	1 278	1 229	2 319	-50.5%	-3.8%	88.7%
Singapore	40 943	48 562	51 043	61 660	18.6%	5.1%	20.8%
Sri Lanka	196	222	224	239	13.3%	0.9%	6.7%
Thailand	4 383	4 591	4 320	3 747	4.7%	-5.9%	-13.3%
Turkey	7 048	7 621	7 223	7 878	8.1%	-5.2%	9.1%
Turkmenistan	36	42	48	62	16.7%	14.3%	29.2%
Viet Nam	2 127	2 479	3 144	5 415	16.5%	26.8%	72.2%
Yemen	-	-	26	31			19.2%
Asian dwt	212 413	231 631	252 361	280 879	9.0%	8.9%	11.3%
World dwt total	895 843	959 964	1 042 351	1 276 137	7.2%	8.6%	22.4%
Asian market share of world dwt	23.71%	24.13%	24.21%	22.01%	0.4%	0.1%	-2.2%

Source: Compiled by UNCTAD secretariat, on the basis of data supplied by the *Review of Maritime Transport 2004* and IHS Fairplay.

Notes: Figures rounded to the nearest thousand.

[a] Cargo-carrying vessels of 100 GT and above.

Figure 7.5. Regional trade facilitation initiatives and arrangements in Asia[23]



Source: UNCTAD.

New Zealand and the Republic of Korea.[22]

ASEAN

ASEAN is one of the most advanced regional integration blocs in Asia; it has been deepening its intraregional integration, and has been moving towards the creation of the ASEAN Economic Community in 2015. Trade facilitation is an important part of ASEAN's integration efforts, both within and outside its region. In the context of the ASEAN Free Trade Agreement (AFTA), trade facilitation has traditionally been associated with customs modernization and standards and technical regulations. ASEAN has undertaken various separate measures and agreements related to trade facilitation; examples of these efforts are the ASEAN Customs Agreement (1997), the ASEAN Framework Agreement on the Facilitation of Goods in Transit (1998), the ASEAN Framework Agreement on Multimodal Transport (2005), and the implementation of the ASEAN Framework Agreement on Mutual Recognition Arrangements. The ASEAN Single Window Agreement (2005), which aims at establishing a regional single window system for the electronic exchange of trade-related information among ASEAN countries, is the most significant and far-reaching commitment in the area

Box 7.1. The ASEAN Single Window as a major regional trade facilitation initiative

The ASEAN Single Window is expected to be operational by the end of 2012. The main condition required to launch the regional single window among ASEAN countries is the establishment of a national single window system in each ASEAN country. A national single window allows trade information to be exchanged between government agencies within a one-stop facility, simplifying trade procedures and reducing paperwork. National single window systems already exist in Malaysia and Singapore, while Indonesia, the Philippines and Thailand have launched single window pilot projects with their customs agencies. A regional single window aims to ease and speed up the exchange of trade information between customs agencies across borders, requiring a harmonization of legal and technical frameworks and the adoption of international standards and best practices. This includes the adoption – by all member countries – of the ASEAN Data Model (based on the World Customs Organization (WCO) Data Model and on other international standards), and the adoption of a legal arrangement that would enable mutual recognition of electronic data and electronic signatures.

So far, the ASEAN Single Window has been limited to a few pilot projects where live customs information has been exchanged bilaterally between Indonesia, Malaysia and the Philippines. Besides reducing the time and cost associated with the clearance of goods, the ASEAN Single Window initiative has the additional advantage of encouraging countries to reform their trade facilitation environment more speedily at the national level.

Source: UNCTAD.

of trade facilitation in this region (see box 7.1).

SAARC

The South Asian Association for Regional Cooperation (SAARC), resting on the South Asian Free Trade Agreement, provides an umbrella for economic relations within South Asia. Its predecessor, the South Asian Preferential Trading Agreement (SAPTA), was initially envisaged as the first step towards the South Asian Free Trade Area (SAFTA), leading subsequently to a customs union, common market and economic union. Since the major trading partners of the individual South Asian countries are located in Europe, the Middle East and North America, the benefits from SAFTA and from other regional trading arrangements in South Asia have so far been limited. Although SAFTA has taken a number of trade facilitation measures – such as the simplification and harmonization of customs clearance procedures and of import licensing procedures, customs cooperation, and the improvement of transit facilities – the effective implementation of these measures has not yet been fully achieved.

BIMSTEC

The Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation (BIMSTEC), which emerged in the late 1990s as a linkage between South and South-East Asia, is aimed at strengthening economic cooperation within the region and fully realizing the potential of trade and development. Trade facilitation measures related to customs cooperation, standards and technical regulations, mutual recognition agreements, trade finance, e-commerce and business visas were identified in the BIMSTEC agreement. However, as in case of SAARC, their effective implementation is lagging behind.

APEC

Despite its transcontinental coverage and the lack of a legally binding trade pact in the form of an RTA, Asia-Pacific Economic Cooperation (APEC) is an important player in Asian regional integration and in South–South and North–South cooperation. APEC is a leader in trade facilitation efforts in Asia. The APEC economies met the target of reducing trade transaction costs by 5 per cent by the end of 2007 by means of the Trade Facilitation Action Plan, which was part of the Shanghai Accord (2001). Following this endeavour, APEC in 2007 adopted the second Trade Facilitation Action Plan, with the objective of reducing transaction costs by a further 5 per cent. The majority of the trade facilitation initiatives and measures taken under the two action plans were confined to border issues, including customs matters, the APEC travel card, and facilitating the movement of goods via the adoption of harmonized standards and mutual recognition agreements.

A moving target: From a narrow to a broad scope of trade facilitation–related provisions

Over the past two decades, the number of trade facilitation–related provisions in the growing number of regional trade agreements worldwide has tripled. As at February 2010, 462 RTAs had been notified to WTO, 85 of which included some type of provision related to trade facilitation. Out of the total number, there were 154 RTAs involving an Asian country (excluding West Asia) – either

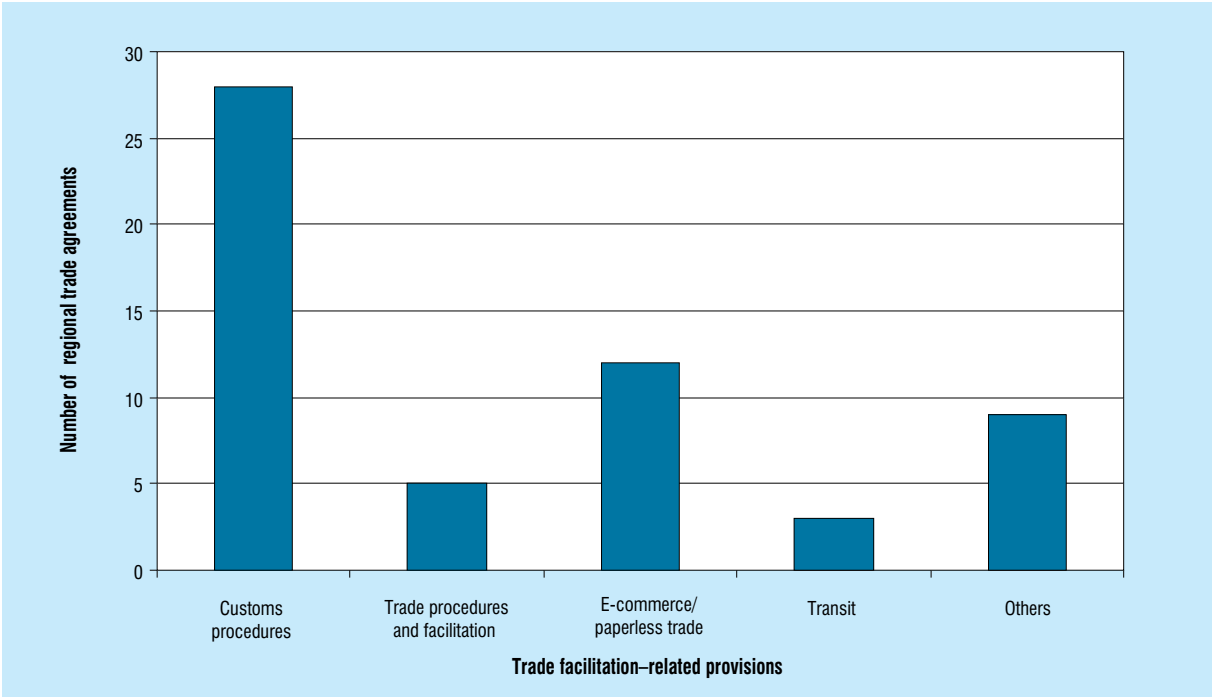
in force, signed, or under negotiation, as at May 2010.[24] Almost half of these RTAs contained trade facilitation provisions.[25]

The scope and depth of the trade facilitation measures included in Asian RTAs differs greatly. The issues covered range from the narrow scope of the "at the border" measures such as customs-related matters, including customs procedures, customs cooperation and transit customs, to the "behind the border" measures, which refer to the broader scope of trade facilitation measures, covering transport and logistics development, technical standards, sanitary and phytosanitary measures, electronic commerce, and the mobility of business people.

Most provisions on customs-related measures in the RTAs analysed are covered by a separate chapter on customs procedures. Over time, the scope of these chapters has evolved and become more comprehensive, covering a wide range of measures such as transparency, administration, simplification of customs procedures, the use of information and communications technologies (ICT), the application of risk management techniques, advance rulings, appeal procedures, confidentiality, and cooperation among customs authorities (e.g. the Asia-Pacific Trade Agreement, the Trans-Pacific Strategic Economic Partnership Agreement, and bilateral agreements between Japan and the Philippines, Japan and Thailand, and Peru and Thailand). In some cases, chapters on customs procedures are closely linked to a chapter dealing with rules of origin and the procedures related to certificates of origin.

In most RTAs, the application of multilateral trade agreements under WTO (such as GATT articles VII and X and the Customs Valuation Agreement) and under WCO's international conventions and standards (such as the Revised Kyoto Convention and the WCO Data Model) are being explicitly reaffirmed. This suggests that the incorporation of trade facilitation provisions into RTAs not only contributes to regional integration, but may also be conducive to the convergence of trade and customs procedures worldwide. Findings suggest that most Asian RTAs contain customs-related provisions, which are limited to customs cooperation or to customs procedures related to the issuance of

Figure 7.6. Breakdown of trade facilitation–related provisions as contained in regional trade agreements concluded by Asian countries



Source: UNCTAD, based on ESCAP (2010) *Asia-Pacific Trade and Investment Agreements Database* and on WTO (2010) Regional Trade Agreements Gateway.

Note: "Others" includes provisions on transparency and on the public availability of trade-related information contained in the general part of an RTA.

certificates of origin (fig. 7.6). Separate provisions on broader trade procedures and facilitation issues can only be found in five RTAs – namely AFTA, BIMSTEC, SAFTA, the Trans-Pacific Strategic Economic Partnership, and the RTA between China and China (Hong Kong SAR). These agreements cover issues such as the simplification of procedures by other government agencies, or provisions related to the issuance of certificates to comply with international standards. Provisions related to e-commerce, such as electronic data exchange or paperless trade, are contained in 12 Asian RTAs, and provisions on transit are contained in three. Nine Asian RTAs contain provisions related to transparency measures and the public availability of trade-related information in their general parts.

The differences in the scope and depth of the trade facilitation–related provisions in RTAs depend on the following main factors:

The time factor: The date when the agreement was concluded. The early-stage RTAs that started emerging in the 1970s and 1980s aimed at dismantling tariffs and quotas, while the so-called "new generation" RTAs are more comprehensive, going beyond the creation of a free or preferential trade area;

The objective of an RTA: RTAs that aim to establish closer economic cooperation or a common market providing for a greater economic integration contain more elaborate trade facilitation provisions, with broader and deeper commitments that go beyond general customs cooperation provisions. Example of these are the Asia-Pacific Trade Agreement and the Trans-Pacific Strategic Economic Partnership Agreement (as opposed to the traditional RTAs that aim solely at the liberalization of trade in goods);

Specific conditions of the contracting parties: The level of economic development, the geographical conditions, and the level of ICT infrastructure development. If an RTA involves at least one landlocked country, it usually includes elaborate transit-related provisions, which in some cases are linked to provisions on development of transport infrastructure and logistics (e.g. the RTA between Kazakhstan and Kyrgyzstan). Some bilateral RTAs concluded even between remote trading partners contain articles on goods in transit and storage and on temporary admission (e.g. the Japan–Mexico and Republic of Korea–Singapore RTAs). RTAs concluded between countries with a well-developed ICT infrastructure contain provisions encouraging the use of ICT solutions, ranging from customs automation to paperless trade to e-commerce transactions between business operators (e.g. the Singapore–United States, ASEAN–Japan and Australia–Thailand RTAs).

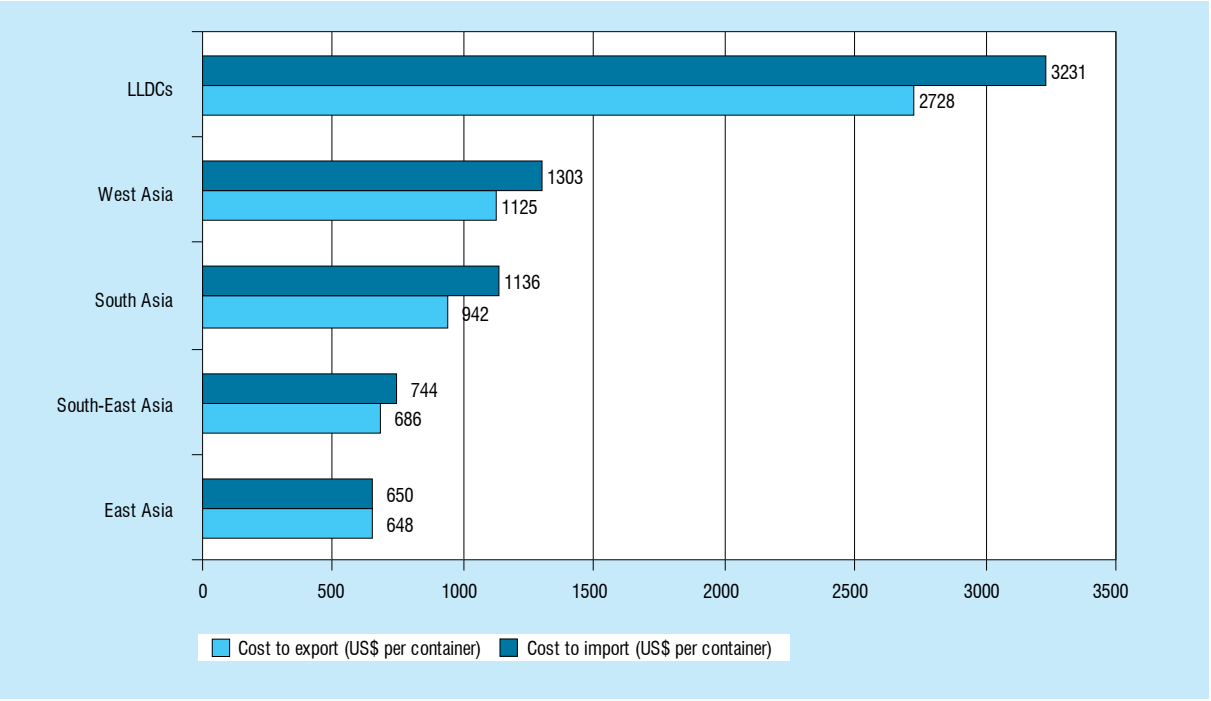
Overall, the inclusion of trade facilitation in RTAs in Asia has proved to be a positive development. The references to global standards and to rules, such as those of WCO and WTO, ensure that there is no "spaghetti ball" effect of potentially conflicting or contradictory trade facilitation measures in those RTAs.

F. CHALLENGES FACED BY LANDLOCKED COUNTRIES IN ASIA

Of the world's 31 landlocked developing countries (LLDCs), 12 are located in Asia. While, by definition, all LLDCs depend on their neighbouring countries' transit systems, regulatory environment, and transport infrastructure in order to access seaports and global markets, many Asian LLDCs are confronted with particularly difficult situations. Distances, particularly in Central Asia, are longer, and coastal transit neighbours often lack a well-performing transport infrastructure, port facilities and services. Administrative controls also translate into excessive paperwork and long delays at land borders, adding extra cost to trade by LLDCs. Published surveys, such the World Bank's ***Doing Business*** or ***Logistics Performance Index*** confirm the challenges faced by Asian LLDCs. These are discussed below.

On average, the overall international trade transaction costs for LLDCs in Asia remain three times higher than those of maritime countries in the region (fig. 7.7). High costs for LLDC trade usually stem from high land transport and administrative costs, the highest of which are found in Central Asian LLDCs, where, for example, moving a traditional dry cargo in a 20-foot fully loaded container from the closest seaport to a warehouse by land costs as much as $4,600 in Uzbekistan, $4,550 in Tajikistan, $3,480 in Azerbaijan, $3,250 in Kyrgyzstan and $3,055 in Kazakhstan. With an average distance of 3,350 km between these countries and the closest seaport, these countries are among the most remote from world markets.[26] Other Asian LLDCs, such as Bhutan, the Lao People's Democratic Republic and Nepal – all of which are also least developed countries – fare slightly better, with an average cost for imports of between $1,825 and $2,140. And yet, they lag significantly behind their coastal neighbours, where

Figure 7.7. The cost of trade is highest in the landlocked developing countries



Source: World Bank (2010). *Doing Business*.

the average cost of importing is only $950. A similar situation exists with regard to exporting goods, and this prevents some of the Asian LLDCs from being more competitive in global markets.

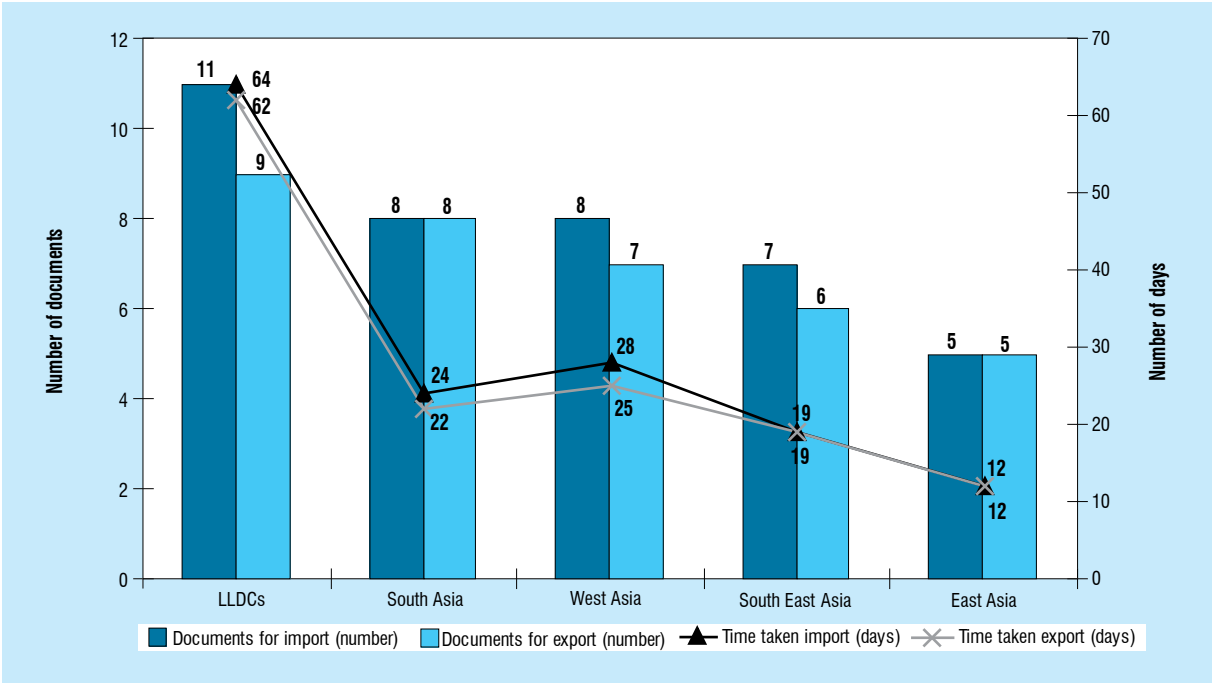
Unnecessary delays and the resultant higher transaction costs have a major impact on trade efficiency. The time taken and the costs incurred in trading have a close correlation with the number of documents required in order to export and import (fig. 7.8). Traders in Asian LLDCs need to submit almost twice as many trade documents as their counterparts in non-LLDC neighbours do. On average, it takes 62 days for an Asian LLDC to export, whereas a coastal or island country in this region takes only 18 days. Importing goods takes, on average, 64 days for Asian LLDCs – nearly three times as long as for their coastal neighbours.[27]

Figure 7.8 shows that document preparation accounts for the largest share of the delays experienced. Figures 7.9, 7.10 and 7.11 show that document preparation takes, on average, as much as 49 per cent of the entire lead time to trade either imports or exports. This is mainly because document preparation requires arranging for a number of commercial and administrative forms and permits, including a packing list, a bill of lading, a certificate of origin, a commercial invoice, terminal handling receipts, an import licence, and a technical or health certificate, to supplement the customs declaration. Filling in these numerous forms is a cumbersome process. Information required for the forms is often not readily available, and frequently, due to the lack of harmonization with international standards, data may have to be inserted repeatedly, which can cause errors to be introduced, which, in turn, necessitates time-consuming and error-prone correction processes. Research suggests that importing a single consignment requires an average of 36 original paper documents and 240 copies from 27 parties,[28] which might explain why traders need to spend so much time on preparing the import or export documentation.

Another important factor contributing to longer import and export times is the number of days that cargo spends in inland transportation, including handling, which amounts to 25 per cent of the total time to trade. Next to physical constraints related to the existence and quality of road and railway infrastructure, it is non-physical bottlenecks at land borders that contribute significantly to extending inland transport times.

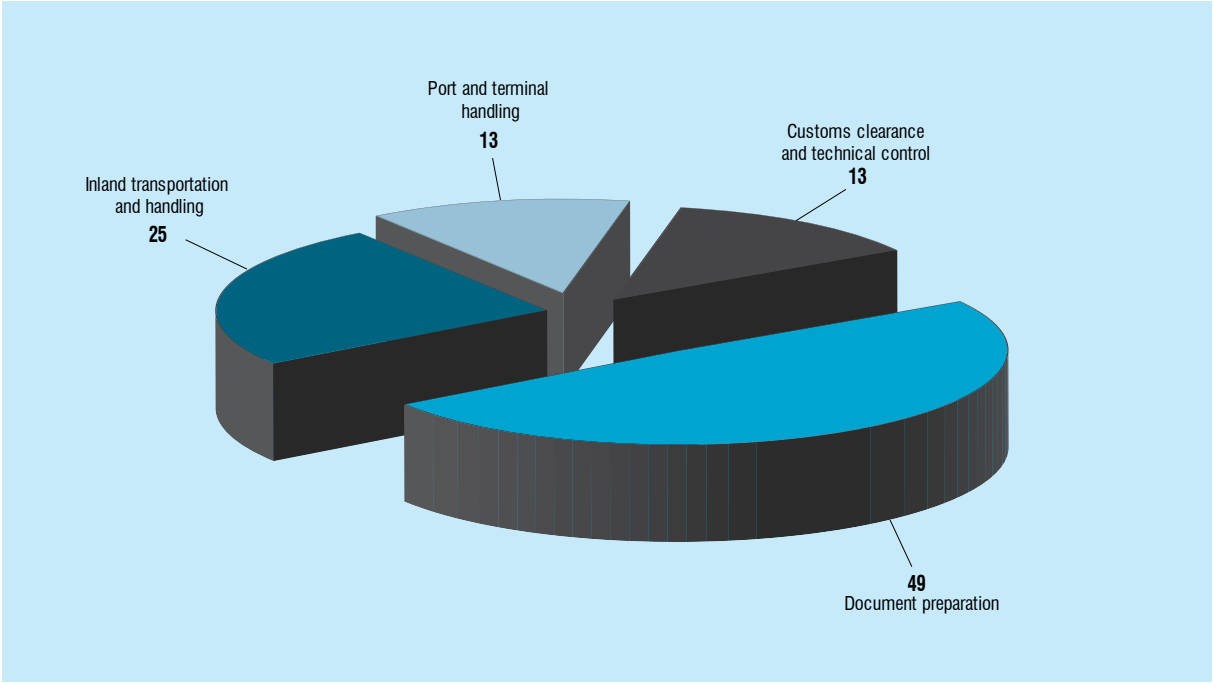
Interestingly, customs clearance and controls and port handling seem to take the shortest times. The average time for customs clearance and technical control represents one quarter of the time spent on document preparation. This may be partly attributed

Figure 7.8. A snapshot of trading across borders



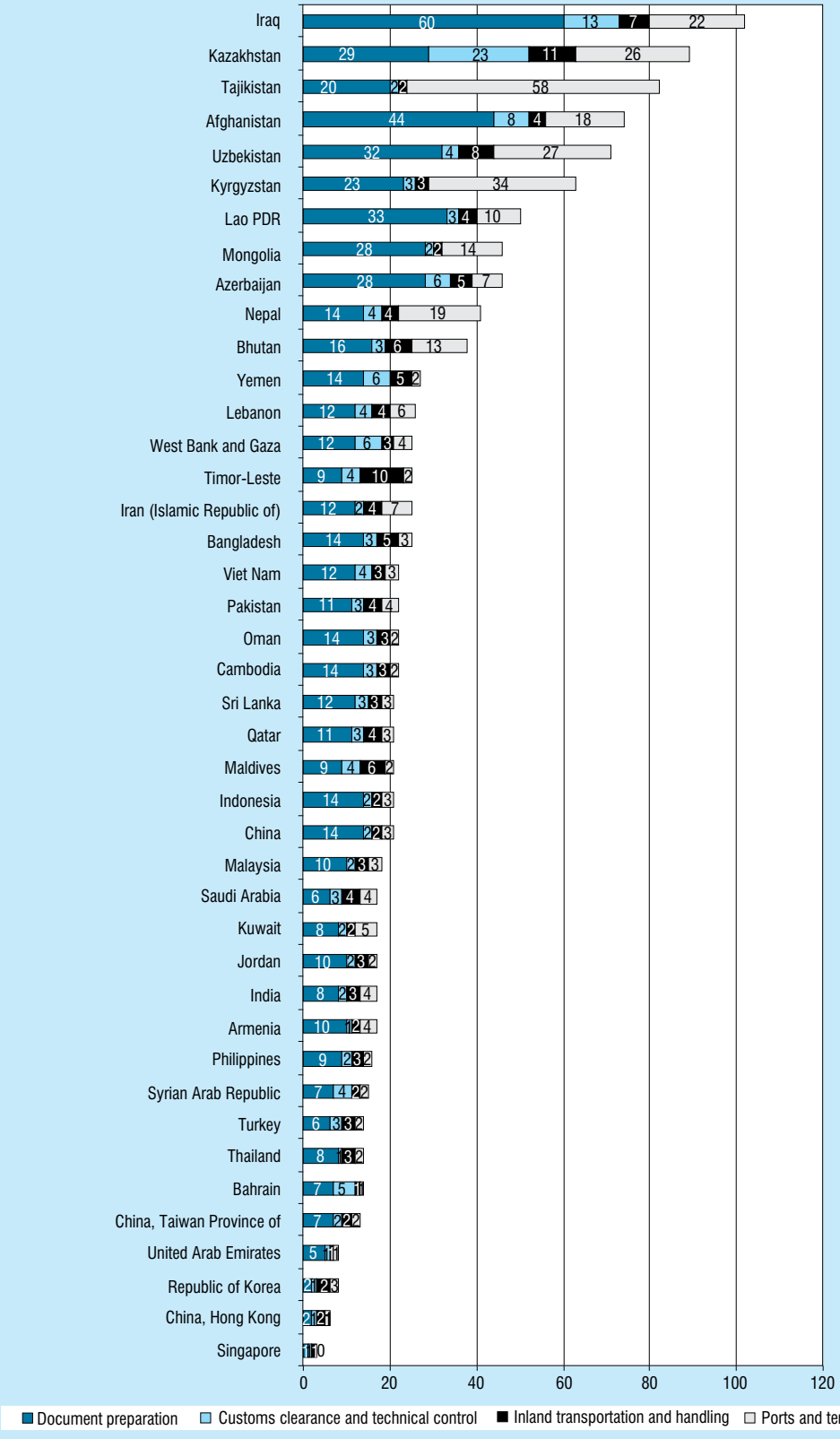
Source: World Bank (2010). *Doing Business*.

Figure 7.9. Percentage of time spent on four individual stages of the trade process in Asian countries



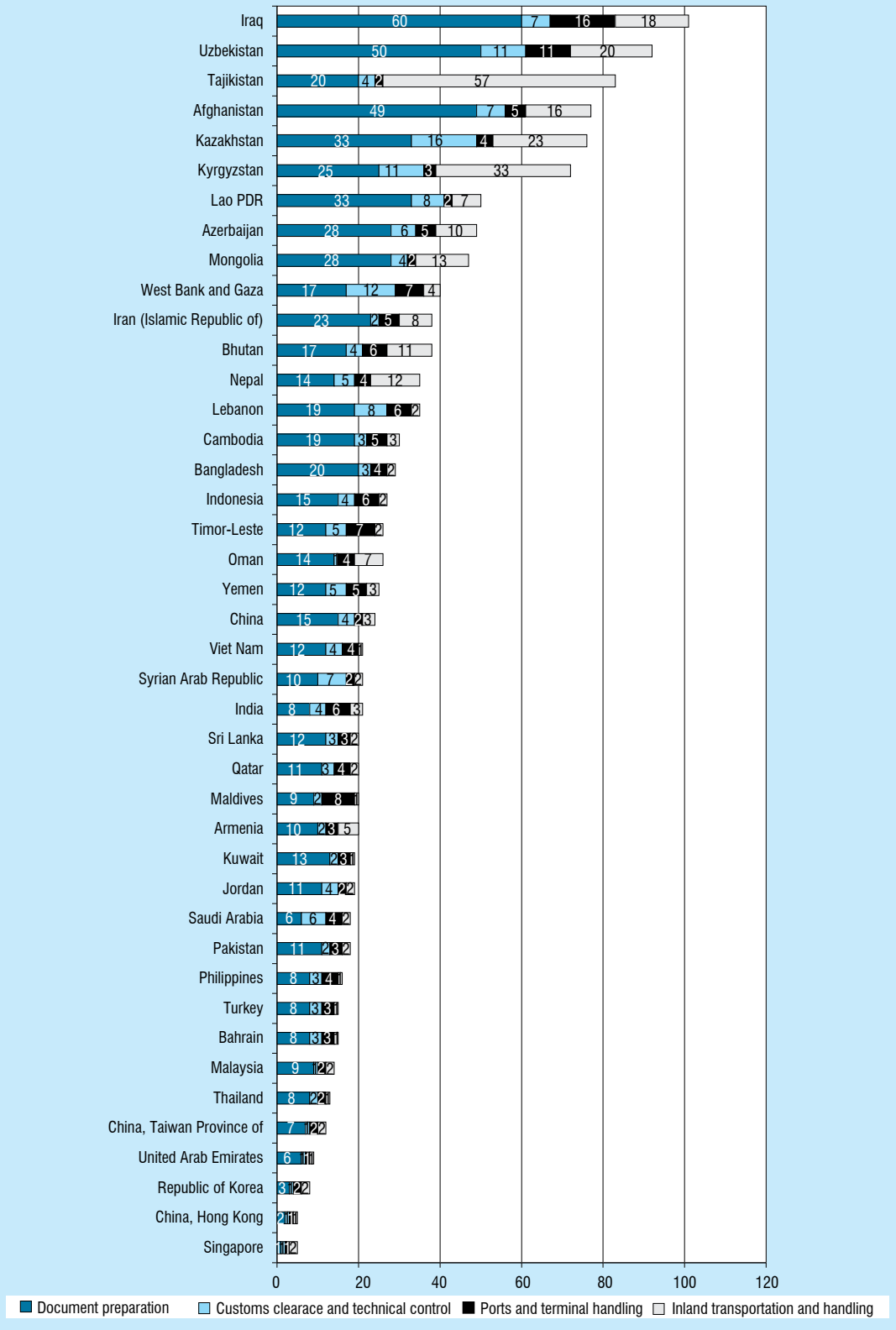
Source: UNCTAD. Based on World Bank (2010), *Doing Business*.

Figure 7.10. Number of days necessary to complete export procedures in developing Asia.



Source: World Bank (2010). *Doing Business*.

Figure 7.11. Number of days necessary to complete import procedures in developing Asia.



Source: World Bank (2010). *Doing Business*.

to the fact that the customs agencies in almost all Asian developing countries, including LLDCs, have been improving their performance through customs automation and modernization programmes, whereas impediments are often encountered in other border agencies that are less efficient than customs.

The above findings suggest that intervention aimed at speeding up cargo movement and increasing trade efficiency should focus, as a matter of priority, on addressing impediments encountered at the document preparation stage, as well as during cargo transportation and handling.

Experience shows that trade facilitation measures based on the use of information technology (IT) can greatly help in reducing trade times and costs. These include savings in transmission costs by using e-documents, improved productivity by automating administrative work, and improved management, storage and retrieval of information and documents through the use of IT.[29] Moreover, dedicated modules enable port owners and operators, terminal operators, cargo owners, agents, surveyors and customs services to carry out their responsibilities easily and efficiently. However, there is still a large technology gap in Asia. The use of sophisticated IT solutions for trade facilitation, such as an electronic single window, or paperless trade systems, remains restricted to a few high- and middle-income developing countries which are major trading economies in the region and operate large and efficient freight terminals and ports. Some of these serve as transit ports for LLDC trade; such is the case of Laem Chabang Port in Thailand, which enables the Lao People's Democratic Republic to connect to world markets using the inland Bangkok Port as a multimodal platform.

As mentioned, customs administrations in the majority of LLDCs operate some kind of an automation system and apply risk management techniques, which reduce the number of cargo inspections in order to facilitate trade. For example, Afghanistan and Nepal have adopted the Automated System for Customs Data (ASYCUDA), and the Lao People's Democratic Republic has just begun implementation of ASYCUDA. This system automates import, export and transit customs procedures. In Afghanistan, ASYCUDA has been implemented in the six main customs offices and has led to full automation of the entire customs clearance process for imports and exports, enabling the electronic exchange of data between customs and customs brokers/traders (using 100 per cent Direct Trader Input). Moreover, Afghanistan's customs office has introduced a new declaration process, which is in line with most international standards and best practices, and reduces the previous 14 steps and signatures to only three. The new declaration has replaced the five copies of the previous customs clearance declaration form and other extra customs forms previously used, with 100 per cent of import and export declarations processed through the automated system. Some of the major benefits of operating such a system, especially from the viewpoint of a landlocked developed country such as Afghanistan, are summarized in box 7.2 below.

Even where the new computerized customs systems have been rolled out to the main land border posts, they may not be fully effective, because of the lack

Box 7.2 The benefits of introducing an automated customs system in a landlocked developing country

Afghanistan is a landlocked developing country, located on the crossroads between South and Central Asia. Implementation of ASYCUDA in Afghanistan's Customs Department started at the beginning of 2005, as part of the World Bank–funded customs modernization programme. The system handles manifests, customs declarations, accounting procedures and transit customs. ASYCUDA has been implemented in the six main customs houses in Kabul, and at the main border crossings with the Islamic Republic of Iran, Pakistan, Turkmenistan and Uzbekistan.

The introduction of ASYCUDA in Afghanistan has resulted in:

Reducing the number of customs documents from 10 to 2;

Reducing the number of customs clearance steps from 14 to only 4;

Reducing customs clearance time for trucks from 428 minutes to around 90 minutes;

Increasing trade volumes by 300 per cent from $2 billion to $8 billion, according to World Bank estimates;

Enhancing customs revenue collection by almost 700 per cent, from $50 million to nearly $400 million;

Strengthening the capacity of Afghanistan's customs department to deliver better and more transparent services by implementing electronic customs processing systems and training.

Source: UNAMA press release, 18 January 2010; and Afghanistan's customs department.

Box 7.3. Lessons learned from automating customs procedures in Nepal

ASYCUDA was introduced in Nepal in 1996, and its operation was extended by 2005 to nine main customs points – to seven land border posts, to Tribhuwan International Airport, and to the dry port at Birgung. The system was only being partly used – for goods declaration, processing and accounting for payment, which is a fraction of ASYCUDA's capabilities. Moreover, customs computers are not linked to each other, or with headquarters, because of the missing local network connections. The basic problem in Nepal was inadequate support for the ASYCUDA system, and the fact that the implementation programme was designed as a one-off computerization exercise rather than as part of a comprehensive customs modernization reform programme. The improvements in customs clearance time have, therefore, been minimal. This experience shows that computerization of customs clearance procedures is likely to be much more effective if it is used as a component in a wider customs reform programme.

Source: Rajkarnikar PR et al. (2006). ARTNeT, ESCAP. [30]

of reliable electricity and communications, neither of which is yet available at most land borders in Asia's poorest countries and especially in its LDCs (box 7.3). In such cases, customs documentation has to be processed manually, which subjects trucks and cargo to delays. Moreover, manual processing exposes traders to personal interaction with border agency officers, and may provide opportunities for rent-seeking.

International conventions in the area of international transport and transit, as well as regional and bilateral agreements, are the main vehicles for harmonization, simplification and standardization. The TIR system[31] is implemented in 8 of the 12 landlocked developing countries in Asia, and it is the only international transit system in place in those 8 countries.[32] Afghanistan is a Contracting Party to the TIR Convention, but is not yet implementing the transit system, while Bhutan, the Lao People's Democratic Republic and Nepal are not yet Contracting Parties to this convention. Transit issues in Asia are mostly dealt with bilaterally, through transit agreements. The implementation of these agreements appears somewhat problematic, due to several shortcomings, including different standards for road vehicles, transit guarantees to national customs administrations, and visa arrangements for truck drivers, to name a few.

Some progress in the Asian region has been made by both landlocked and transit-developing countries in building transport infrastructure networks. For example, development of road infrastructure has been undertaken in the Greater Mekong Subregion[33] countries in the North–South Corridor; this included the completion of more than 200 kilometres of road in the Lao People's Democratic Republic (Houayxay-Boten) in 2008. This road, linking Thailand, the Lao People's Democratic Republic and China, together with the scheduled completion in 2011 of a bridge over the Mekong river between Chiang Kong (Thailand) and Houazxay (Lao People's Democratic Republic), will allow goods to be transported by road from Bangkok to Kuming in 30 hours in 2015, as opposed to 78 hours in 2000.[34] Route analysis has revealed that border crossings remain the weakest link in this corridor, hence special attention must be paid to border issues. Introducing trade facilitation measures – such as full customs data computerization and the simplification and reduction of customs documents, as demonstrated by the case of Afghanistan (box 7.4) – could provide a viable solution to start with. Further work also needs to be done in order to complete the missing links, improve the infrastructure, promote multimodal transport, and develop integrated transport corridors and logistics services in the region.

The establishment of regional transport corridors and the adoption of harmonized rules and procedures play a major role in transit transport facilitation and economic development, in particular for LLDCs. The above-mentioned North–South Corridor in the Greater Mekong Subregion aims to enhance the economic and living standards of the countries through which the corridor runs. Other practical examples of a similar corridor approach in Asia include the East–West Corridor, the Southern Economic Corridor in the Greater Mekong Subregion, and six corridors under the Central Asia Regional Economic Cooperation (CAREC) programme.[35]

In summary, this review of developments in Asia over the past three years shows that this very large and diverse region has significantly increased its intraregional trade, and, at the same time, has continued to better integrate into the global economy. In this process and during this period, the whole of Asia has been exposed to the forces of economic and financial turmoil triggered by the crisis in developed partner economies. As a result, trade in 2009 – in particular, exports with the rest of the world – declined severely, and the different subregions of Asia have followed a similar pattern. But the crisis

Box 7.4. Computerized transit corridors: the case of Afghanistan

The promotion of transit corridors is part of the Afghan National Development Strategy. The strategy foresees the promotion of Afghanistan as the centre of a regional transit network, by virtue of its strategic geographic position, to gain access to international markets and to link major trading partners by providing the quickest means of access to the sea. Two major corridors pursued under this strategy are:

The North–South Transport Corridor, which connects Tajikistan, Turkmenistan and Uzbekistan with the ports of Karachi, Qasim and Gawada in Pakistan, and continues through Wagah to India and the rest of South Asia;

and the East–West Transport Corridor, which connects Tajikistan, Turkmenistan and Uzbekistan with the ports of Cha Bahar and Bandar Abbas in the Islamic Republic of Iran.

The ASYCUDA system is fully operational at the five border posts in Afghanistan along these two transit corridors, connecting the country to the Islamic Republic of Iran (Islam Qala, and in the very near future, Zaranj/Nimroz), Pakistan (Torkham), Tajikistan (Sher Khan Bandar), Turkmenistan (Towraghondi) and Uzbekistan (Hairatan).

Since the introduction of the first computerized transit corridor within Afghanistan (Torkham–Jalalabad–Kabul) in May 2006, national economic operators have filled out more than 1.3 million transit declarations, and the customs department has collected more than $32 million on transit operations through the system.

In all computerized customs sites:

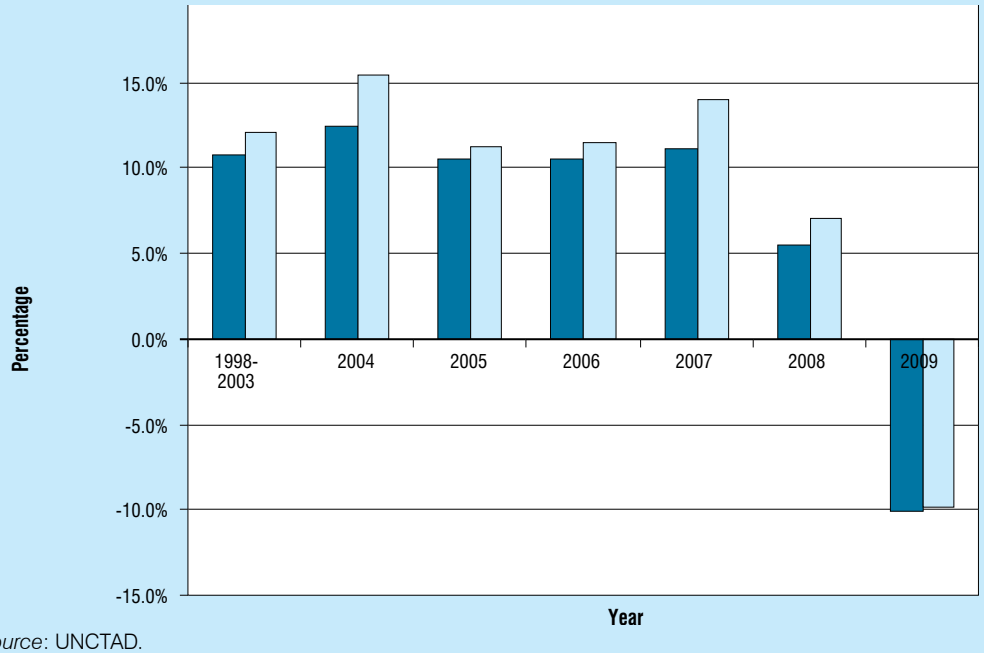
The transit customs procedures are in line with international standards and best practices. For example, they replace – with only one standard document – the numerous copies of forms and other extra papers and documents that were previously requested;

The entire process is fully automated and available electronically both for customs officers and for customs brokers/traders; all transit declarations are submitted to customs in electronic format – i.e. 100 per cent Direct Trader Input;

All payments are made at branches of the Afghan National Bank and are automatically confirmed to customs in electronic format;

All reference data updated by the customs headquarters are automatically sent to all customs sites and integrated into the ASYCUDA system; the customs data generated in the customs offices (transit/accounting) are automatically consolidated in the customs headquarters and used for control and monitoring of transit operations, and for the production of customs and trade statistics;

All customs officers and traders have been trained and are fully familiar with the operation of the Afghan ASYCUDA transit system (in both national languages – Dari and Pashto).



Source: UNCTAD.

has hit Asian countries and subregions in different ways. Asian LLDCs have been severely affected by the economic downturn, and will face even greater difficulties in returning to the growth trends that were observed in 2007 and 2008.

While the gap between stronger and weaker economies in the different subregions of Asia may have widened over the last three years, the long-term trend for the development of maritime trade and related industries is positive. Historically, several industrialized countries have been considered "maritime nations", as they have had their own shipbuilding operations and nationally flagged ships to transport their foreign trade. Throughout the twentieth century, however, developing countries – especially in Asia – have gained market share in many of these maritime industries.

Asian countries are now at the forefront of many growing maritime businesses. Three of the four largest global port operators are based in Asia, 14 of the top 20 liner operators are from Asia, and almost all shipbuilding and ship scrapping takes place in Asia. China, and potentially some other Asian economies, are in the process of becoming the only true "maritime nations", in the sense that they participate in all maritime businesses. Through a process of industry consolidation, countries have started to specialize in just some of the maritime sectors. Today, the Philippines provide one out of every five seafarers, the Republic of Korea builds the most container ships, and port operators from Hong Kong (China) and from Dubai operate many terminals on all continents. China, in particular, has established itself as a key player in all major maritime industries; during 2009, it overtook Germany as the third-largest owner of tonnage. It has overtaken Japan as the second-largest ship builder, and India as the number one ship recycling country. China also builds the most containers and specialized port cranes. Increasingly, Chinese-built, Chinese-owned and Chinese-flagged ships are transporting China's growing exports of manufactured goods. Other Asian countries, too, have a growing market share in several maritime subsectors. Indonesia, Malaysia, the Philippines and the Republic of Korea, for example, have been able to develop maritime "clusters", which benefit from synergies and economies of scale and combine with a growing foreign trade. Asian countries have been leading the global trade in goods, and are increasingly participating in maritime transport and related services.

ENDNOTES

1 *Source:* International Monetary Fund (IMF).

2 Asia" refers to emerging Asia plus industrial Asia (*IMF Regional Economic Outlook 2010*).

3 *Source:* KCIC (2010). Asymmetric recovery, Asia rises. April.

4 For more information, see UNCTAD: *Review of Maritime Transport 2007.*

5 *ESCAP Economic and Social Survey of Asia and the Pacific* (2010).

6 *ESCAP Economic and Social Survey of Asia and the Pacific* (2009 and 2010).

7 All of the worst-affected countries had shares of exports to GDP that exceeded 60 per cent (ESCAP, 2010).

8 Newly industrialized economies (NIEs) refers to Hong Kong (China), to the Republic of Korea, to Singapore, and to Taiwan Province of China. (*Source:* IMF REO, 2010).

9 The recovery is characterized by some sources as a "vigorous and balanced rebound" (*IMF Regional Economic Outlook 2010*).

10 The term "developing Asia" refers to 45 economies, namely: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, the Cook Islands, Fiji, Georgia, Hong Kong (China), India, Indonesia, Kazakhstan, Kiribati, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, Maldives, the Marshall Islands, the Federated States of Micronesia, Mongolia, Myanmar, Nauru, Nepal, Pakistan, Palau, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Singapore, the Solomon Islands, Sri Lanka, Taiwan Province of China, Tajikistan, Thailand, Timor-Leste, Tonga, Turkmenistan, Tuvalu, Uzbekistan, Vanuatu and Viet Nam.

11 *Review of Maritime Transport 2004.* Chapter 7, page 93.

12 The World Trade Organization reports that in 2008, the share of intermediate manufactured products in non-fuel world trade was around 40 per cent (WTO: *World Trade Developments 2009*).

13 Recent reports indicate that the trade exposure of the region to advanced economies may have actually augmented over time, rather than diminished (IMF REO, May 2009).

14 China, mostly through the port of Hong Kong, has become a lead importer of intermediate electronic parts and components produced in the Asia-Pacific region. In 2007, about 30 per cent of India and China's total merchandise imports were from Asian developing countries. Furthermore, it is estimated that one third of the total of Chinese imports of intermediate goods used for final Chinese exports comes from the region. (*Source:* ESCAP. *Economic and Social Survey 2010*.

15 ESCAP. *Review of Developments in Transport in Asia and the Pacific 2009.*

16 GHD estimates as contained in ESCAP's *Review of Developments in Transport in Asia and the Pacific 2009.*

17 Global Insight's World Trade Service, as reported on the daily news, 27 April 2010, at http://www.fairplay.co.uk

18 Ci online, using 2008 figures.

19 ESCAP. *Review of Developments in Transport in Asia and the Pacific 2009*; and Ci online, accessed May 2010.

20 Other important hubs serving the transhipment needs of China are the ports of Hong Kong and Shanghai, which show no better results. Estimates by *Business Monitor International,* reported on Think Marine.

21 ESCAP. *Review of Developments in Transport in Asia and the Pacific 2009.*

22 Estimates show that the ASEAN–China free trade agreement, covering 1.7 billion consumers and a two-way annual trade of $1.2 trillion, has paved the way for creating the largest free trade area in the world. The ASEAN–India free trade area covers a market of almost 1.8 billion people with a combined GDP of $2.75 trillion. The ASEAN–Australia–New Zealand agreement (AANZFTA) hopes to create a trans-Pacific free trade zone comprising a market of 600 million people with a combined GDP of $2.7 trillion.

23 Special Programme for the Economies of Central Asia (SPECA), Central Asia Regional Economic Cooperation (CAREC), Economic Cooperation Organization (ECO), Greater Mekong Subregion Economic Cooperation (GMS), Pacific Agreement on Closer Economic Relations (PACER).

24 ESCAP. *Asia-Pacific Trade and Investment Agreements Database*. Available at http://www.unescap.org/tid/aptiad.

25 WTO. Regional Trade Agreements gateway, available at http://www.wto.org/english/tratop_e/region_e/region_e.htm

26 ESCAP (2006). Trade facilitation in selected landlocked countries in Asia. *Studies in Trade and Investment.* 58.

27 The cargo being referred to is a dry cargo carried in a fully loaded twenty-foot container, and it is assumed that it is not subject to any special phytosanitary or environmental safety standards other than the accepted international standards.

28 Worley C (2010). Electronic shipping documents bring trade up to speed. *Tanker Shipping and Trade.* April/May: 71.

29 Sirimanne S and Misovicova M (2009). Towards a single window trading environment: Gaining support from senior-level policymakers. UNNExT policy brief no. 1. ESCAP. November.

30 Rajkarnikar PR et al. (2006). The need for and cost of selected trade facilitation measures relevant to the WTO trade facilitation negotiation: a case study of Nepal. ARTNeT working paper series no. 8. ESCAP.

31 The TIR system operates under the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), which permits the international carriage of goods by road from a customs office of departure in one country to a customs office of arrival in another country, through as many countries as necessary without any intermediate frontier checks on the goods carried.

32 These include Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan and Uzbekistan.

33 GMS includes Cambodia, China (Yunnan Province and Guangxi Zhuang Autonomous Region), the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam.

34 Asian Development Bank (2008). *Logistics Development Study of the Greater Mekong Subregion North–South Economic Corridor.*

35 CAREC includes Afghanistan, Azerbaijan, China, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan and Uzbekistan.

STATISTICAL ANNEX

Annex I. Classification of countries and territories [a b c d e]

I. Developed economies

Code 1	Bermuda	Saint Pierre and Miquelon
	Canada	United States of America
	Greenland	
Code 2	Austria	Latvia
	Belgium	Lithuania
	Bulgaria	Luxembourg
	Cyprus	Malta
	Czech Republic	Martinique
	Denmark	Monaco
	Estonia	Netherlands
	Faroe Islands	Norway
	Finland	Poland
	France	Portugal
	French Guiana	Réunion
	Germany	Romania
	Gibraltar	Slovakia
	Greece	Slovenia
	Guadeloupe	Spain
	Hungary	Sweden
	Iceland	Switzerland
	Ireland	United Kingdom of Great Britain and Northern Ireland
	Italy	
Code 3	Israel	Japan
Code 4	Australia	New Zealand

II. Transition economies

Code 5.1 in Europe	Albania	Russian Federation
	Belarus	Serbia
	Bosnia and Herzegovina	The former Yugoslav Republic of Macedonia
	Croatia	Ukraine
	Montenegro	
	Republic of Moldova	
Code 5.2 in Asia	Armenia	Kyrgyzstan
	Azerbaijan	Tajikistan
	Georgia	Turkmenistan
	Kazakhstan	Uzbekistan

Annex I. Classification of countries and territories [a b c d e] (continued)

III. Developing economies

Code 6.1 North Africa	Algeria Egypt Libyan Arab Jamahiriya	Morocco Tunisia
Code 6.2 Western Africa	Benin Burkina Faso Cape Verde Côte d'Ivoire Gambia Ghana Guinea Guinea-Bissau Liberia	Mali Mauritania Niger Nigeria Saint Helena Senegal Sierra Leone Togo
Code 6.3 Eastern Africa	Burundi Comoros Djibouti Ethiopia Eritrea Kenya Madagascar Malawi Mauritius	Mozambique Rwanda Seychelles Somalia Sudan Uganda United Republic of Tanzania Zambia Zimbabwe
Code 6.4 Central Africa	Angola Cameroon Central African Republic Chad Congo	Democratic Republic of the Congo Equatorial Guinea Gabon Sao Tome and Principe
Code 6.5 Southern Africa	Botswana Lesotho Namibia	South Africa Swaziland
Code 7.1 Caribbean	Anguilla Antigua and Barbuda Aruba Bahamas Barbados British Virgin Islands Cayman Islands Cuba Dominica Dominican Republic Grenada	Haiti Jamaica Montserrat Netherlands Antilles Saint Kitts and Nevis Saint Lucia Saint Vincent and the Grenadines Trinidad and Tobago Turks and Caicos Islands United States Virgin Islands

Annex I. Classification of countries and territories [a b c d e] (continued)

Code 7.2 Central America	Belize Costa Rica El Salvador Guatemala	Honduras Mexico Nicaragua Panama
Code 7.3 South America – Northern seaboard	Guyana Suriname	Venezuela (Bolivarian Republic of)
Code 7.4 South America – Western seaboard	Chile Colombia	Ecuador Peru
Code 7.5 South America – Eastern seaboard	Argentina Bolivia (Plurinational State of) Brazil	Falkland Islands (Malvinas) [e] Paraguay Uruguay
Code 8.1 Western Asia	Bahrain Iraq Jordan Kuwait Lebanon Oman	Qatar Saudi Arabia Syrian Arab Republic Turkey United Arab Emirates Yemen
Code 8.2 Southern Asia	Afghanistan Bangladesh Bhutan India Iran (Islamic Republic of)	Maldives Nepal Pakistan Sri Lanka
Code 8.3 Eastern Asia	China Democratic People's Republic of Korea Hong Kong, China	Macao, China Mongolia Republic of Korea Taiwan Province of China
Code 8.4 South-Eastern Asia	Brunei Darussalam Cambodia Indonesia Lao People's Democratic Republic Malaysia Myanmar	Philippines Thailand Timor-Leste Singapore Viet Nam
Code 9 Oceania	American Samoa Christmas Island (Australia) Fiji French Polynesia Guam Kiribati Marshall Islands Micronesia (Federated States of) Nauru	New Caledonia Papua New Guinea Samoa Solomon Islands Tonga Tuvalu Vanuatu Wake Island

Annex I. Classification of countries and territories [a b c d e] (concluded)

Notes to Annex I

[a] *This classification is for statistical purposes only and does not imply any judgement regarding the stage of development or the political situation of any country or territory.*

[b] *The following are groups of countries or territories used for presenting statistics in this review:*

Developed economies:	*Codes 1, 2, 3 and 4*	
Transition economies:	*Codes 5.1 and 5.2*	
Developing economies:	*Codes 6, 7, 8 and 9*	
of which:	*in Africa:*	*Codes 6.1, 6.2, 6.3, 6.4 and 6.5*
	in America:	*Codes 7.1, 7.2, 7.3, 7.4 and 7.5*
	in Asia:	*Codes 8.1, 8.2, 8.3 and 8.4*
	in Oceania:	*Code 9.*

[c] *In certain tables, where appropriate, open-registry countries are recorded in a separate group.*

[d] *Trade statistics are based on data recorded at the ports of loading and unloading. Trade originating in or destined for neighbouring countries is attributed to the country in which the ports are situated; for this reason, landlocked countries do not figure in these tabulations. On the other hand, statistical tabulations on merchant fleets include data for landlocked countries that possess fleets.*

[e] *A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).*

Annex II. World seaborne trade[a] by country groups *(in millions of tons)*

Area [a]	Year	Goods loaded			Total goods loaded	Goods unloaded			Total goods unloaded
		Oil		Dry cargo		Oil		Dry cargo	
		Crude	Products [b]			Crude	Products [b]		
Developed economies									
North America	2006	22.2	86.4	436.8	545.4	501.0	155.7	492.1	1 148.7
Code 1	2007	24.9	91.3	516.7	632.9	513.5	156.1	453.1	1 122.7
	2008	24.1	119.0	549.4	692.5	481.3	138.9	414.3	1 034.5
	2009	24.0	108.0	494.6	626.6	485.3	141.4	390.6	1 017.2
Europe	2006	100.9	235.8	768.6	1 105.2	535.6	281.9	1 245.2	2 062.7
Code 2	2007	96.9	253.3	776.6	1 126.8	492.2	262.2	1 154.7	1 909.2
	2008	88.2	261.5	753.1	1 102.8	487.9	273.0	1 213.1	1 974.0
	2009	77.8	236.1	698.2	1 012.1	446.7	267.0	945.4	1 659.1
Japan and Israel	2006	0.0	10.0	153.1	163.1	219.3	84.4	559.6	863.3
Code 3	2007	0.0	14.4	161.2	175.7	213.3	88.5	560.9	862.6
	2008	0.0	10.0	162.0	172.1	254.7	92.8	548.8	896.2
	2009	-	7.2	151.1	158.3	190.7	102.3	430.6	723.6
Australia and New Zealand	2006	9.9	4.2	632.7	646.8	26.2	13.5	50.2	90.0
Code 4	2007	13.3	4.0	656.3	673.6	27.0	17.3	51.7	96.0
	2008	16.7	3.8	720.5	741.1	27.3	19.2	56.7	103.2
	2009	16.7	3.8	722.6	743.1	27.1	18.8	54.0	99.9
Subtotal: Developed economies	2006	132.9	336.4	1 991.3	2 460.5	1 282.0	535.5	2 347.2	4 164.7
	2007	135.1	363.0	2 110.8	2 608.9	1 246.0	524.0	2 220.5	3 990.5
	2008	129.0	394.3	2 185.1	2 708.5	1 251.1	523.8	2 233.0	4 007.9
	2009	118.6	355.0	2 066.5	2 540.1	1 149.8	529.4	1 820.6	3 499.8
Economies in transition	2006	123.1	41.3	245.9	410.3	5.6	3.1	61.9	70.6
	2007	124.4	39.9	243.7	407.9	7.3	3.5	66.0	76.8
Codes 5.1 and 5.2	2008	138.2	36.7	256.6	431.5	6.3	3.8	79.2	89.3
	2009	151.3	41.6	309.0	501.8	6.1	3.0	51.4	60.5
Developing economies									
North Africa	2006	117.4	63.8	77.2	258.5	6.0	13.3	142.0	161.3
Code 6.1	2007	116.1	61.8	80.2	258.1	7.5	14.6	155.4	177.4
	2008	113.2	61.3	77.2	251.8	11.3	16.1	151.1	178.5
	2009	97.9	62.0	71.1	231.0	11.5	15.9	154.1	181.6
Western Africa	2006	110.6	12.6	31.1	154.3	5.4	14.2	62.4	82.0
Code 6.2	2007	110.1	10.3	33.5	154.0	7.6	17.1	55.5	80.2
	2008	111.8	9.1	40.1	161.0	6.8	13.5	41.7	62.0
	2009	91.8	9.2	38.2	139.3	6.6	13.3	40.1	60.1

Annex II. World seaborne trade[a] by country groups *(in millions of tons)* (continued)

Area [a]	Year	Goods loaded			Total goods loaded	Goods unloaded			Total goods unloaded
		Oil		Dry cargo		Oil		Dry cargo	
		Crude	Products [b]			Crude	Products [b]		
Eastern Africa	2006	11.8	1.1	19.7	32.6	1.9	8.2	25.6	35.7
Code 6.3	2007	13.6	1.2	13.2	28.0	2.0	8.9	27.7	38.5
	2008	19.7	1.0	17.0	37.6	1.6	8.7	32.5	42.8
	2009	19.0	1.0	15.0	35.0	1.9	8.8	31.4	42.1
Central Africa	2006	114.0	2.6	6.3	122.8	2.1	1.7	7.3	11.2
Code 6.4	2007	122.7	2.6	7.8	133.1	2.8	1.9	7.7	12.3
	2008	134.2	5.8	9.0	149.0	1.7	2.8	8.9	13.5
	2009	125.9	5.4	8.8	140.1	1.6	2.3	8.7	12.7
Southern Africa	2006	0.0	5.9	129.9	135.8	25.6	2.6	39.1	67.4
Code 6.5	2007	0.0	5.9	129.9	135.8	25.6	2.6	39.1	67.4
	2008	0.3	6.2	136.0	142.5	23.4	3.1	42.8	69.3
	2009	0.3	5.1	131.3	136.7	22.0	2.4	44.7	69.1
Subtotal: Developing Africa	2006	353.8	86.0	264.2	704.0	41.0	39.9	276.5	357.4
	2007	362.5	81.8	264.6	708.9	45.5	45.0	285.3	375.9
	2008	379.2	83.5	279.3	741.9	44.8	44.2	277.0	366.1
	2009	335.0	82.8	264.4	682.1	43.7	42.7	279.2	365.6
Caribbean and Central America	2006	108.4	34.6	73.5	216.6	18.5	42.1	101.5	162.2
Codes 7.1 and 7.2	2007	100.4	32.4	75.2	208.1	38.8	44.5	103.1	186.5
	2008	89.1	41.0	86.4	216.5	35.7	47.0	103.5	186.2
	2009	73.2	38.3	76.2	187.7	35.6	45.8	93.2	174.6
South America: Northern	2006	110.8	49.1	499.5	659.4	16.9	10.3	116.2	143.5
and eastern seaboards	2007	120.2	47.8	530.7	698.7	19.9	10.8	125.3	156.1
Codes 7.3 and 7.5	2008	112.6	40.5	562.2	715.2	22.7	10.9	128.3	162.0
	2009	111.8	39.8	537.1	688.7	22.7	10.9	96.5	130.1
South America:	2006	32.1	10.2	112.4	154.8	14.1	7.7	45.9	67.8
Western seaboard	2007	31.6	10.5	118.3	160.4	17.2	8.7	47.5	73.4
Code 7.4	2008	32.9	11.5	136.0	180.4	15.8	9.0	60.9	85.7
	2009	34.4	11.5	128.4	174.3	15.8	8.7	57.8	82.3
Subtotal: Developing America	2006	251.3	93.9	685.5	1 030.7	49.6	60.1	263.7	373.4
	2007	252.3	90.7	724.2	1 067.1	76.0	64.0	275.9	415.9
	2008	234.6	93.0	784.6	1 112.2	74.2	66.9	292.7	433.8
	2009	219.4	89.6	741.7	1 050.6	74.2	65.4	247.5	387.0
Western Asia	2006	729.1	158.1	151.0	1 038.2	27.0	50.3	296.5	373.8
Code 8.1	2007	753.7	155.2	152.1	1 060.9	34.4	51.2	344.4	430.0
	2008	713.9	160.4	177.2	1 051.5	30.6	54.5	349.8	434.9
	2009	716.2	159.1	154.7	1 030.0	23.0	53.3	320.2	396.4

Annex II. World seaborne trade[a] by country groups *(in millions of tons)* (concluded)

Area [a]	Year	Goods loaded			Total goods loaded	Goods unloaded			Total goods unloaded
		Oil		Dry cargo		Oil		Dry cargo	
		Crude	Products [b]			Crude	Products [b]		
Southern and Eastern Asia	2006	132.3	102.5	922.6	1 157.3	411.3	104.0	1 482.0	1 997.4
Codes 8.2 and 8.3	2007	128.1	104.7	959.7	1 192.5	455.0	106.9	1 674.7	2 236.7
	2008	130.7	103.0	943.0	1 176.7	420.5	155.8	1 779.6	2 356.0
	2009	131.4	115.7	805.5	1 052.6	464.2	151.5	2 049.6	2 665.4
South-Eastern Asia	2006	59.8	96.5	721.3	877.6	114.4	94.4	326.8	535.6
Code 8.4	2007	56.4	98.2	779.0	933.6	131.3	102.6	363.0	596.9
	2008	58.1	75.8	849.7	983.6	114.6	108.0	348.5	571.0
	2009	51.1	80.7	847.3	979.2	116.9	108.3	295.4	520.6
Subtotal: Developing Asia	2006	921.2	357.0	1 794.8	3 073.1	552.7	248.8	2 105.3	2'906.8
	2007	938.1	358.1	1 890.8	3 187.1	620.7	260.8	2 382.1	3'263.6
	2008	902.7	339.3	1 969.9	3 211.8	565.6	318.3	2 477.9	3'361.9
	2009	898.7	355.5	1 807.5	3 061.7	604.1	313.1	2 665.2	3'582.4
Developing Oceania	2006	1.2	0.1	2.5	3.8	0.0	6.7	6.2	12.9
Code 9	2007	0.9	0.1	2.5	3.5	0.0	7.0	6.5	13.5
	2008	1.5	0.1	2.6	4.2	0.0	7.1	6.7	13.8
	2009	1.5	0.2	4.6	6.3	0.0	3.6	9.5	13.1
Subtotal: Developing	2006	1 527.5	537.1	2 747.0	4 811.5	643.4	355.5	2 651.6	3 650.6
economies	2007	1 553.9	530.7	2 882.0	4 966.6	742.2	376.8	2 949.8	4 068.9
and territories	2008	1 517.9	515.9	3 036.4	5 070.2	684.7	436.5	3 054.3	4 175.5
	2009	1 454.6	528.0	2 818.2	4 800.8	721.9	424.8	3 201.3	4 348.1
World total	2006	1 783.4	914.8	4 984.1	7 682.3	1 931.0	894.2	5 060.8	7 885.9
	2007	1 813.4	933.5	5 236.6	7 983.5	1 995.5	904.3	5 236.3	8 136.1
	2008	1 785.2	946.9	5 478.0	8 210.1	1 942.1	964.1	5 366.5	8 272.7
	2009	1 724.5	924.6	5 193.6	7 842.8	1 877.8	957.3	5 073.3	7 908.4

Source: *Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and specialized sources, and as published on ports' websites. All data have been revised and updated to reflect improved reporting, including the receipt of more recent figures and detailed information regarding the breakdown by cargo type. Figures for 2009 are estimates based on preliminary data.*

[a] *See annex I for the composition of groups.*

[b] *Including LNG, LPG, naphtha, gasoline, jet fuel, kerosene, light oil, heavy fuel oil and others.*

Annex III. (a) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of GT)*

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
DEVELOPING ECONOMIES OF AFRICA						
Algeria	768	17	121	65	0	565
Angola	63	5	0	12	0	46
Benin	1	0	0	0	0	1
Cameroon	16	0	0	2	0	14
Cape Verde	32	4	0	8	0	20
Comoros	905	181	155	429	13	128
Congo	4	0	0	0	0	4
Côte d' Ivoire	9	1	0	0	0	8
Democratic Republic of the Congo	14	1	0	0	0	12
Djibouti	3	0	0	0	0	3
Egypt	1 070	218	388	215	54	194
Equatorial Guinea	27	2	0	2	0	23
Eritrea	13	2	0	10	0	1
Ethiopia	118	0	0	118	0	0
Gabon	14	1	0	5	0	9
Gambia	35	4	0	27	0	4
Ghana	116	3	0	14	0	99
Guinea	23	0	0	1	0	23
Guinea-Bissau	6	0	0	1	0	5
Kenya	14	5	0	0	0	9
Libyan Arab Jamahiriya	802	726	0	27	0	48
Madagascar	33	5	0	13	0	15
Mauritania	52	0	0	1	0	51
Mauritius	66	0	0	14	0	53
Morocco	471	14	0	23	58	377
Mozambique	41	0	0	6	0	35
Namibia	122	0	0	3	0	119
Nigeria	679	451	10	12	0	206
Sao Tome and Principe	22	1	4	14	0	4
Senegal	47	0	0	1	0	46
Seychelles	203	122	0	43	0	39
Sierra Leone	628	63	49	416	9	92
Somalia	5	1	0	1	0	4
South Africa	203	9	0	0	27	167
Saint Helena	2	0	0	0	0	2
Sudan	25	0	0	22	0	3
Togo	178	6	45	99	7	21
Tunisia	165	16	17	27	0	105
United Republic of Tanzania	89	14	12	52	0	12
DEVELOPING ECONOMIES OF AFRICA						
Total	7 087	1 871	801	1 681	167	2 567

Annex III. (a) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of GT)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
DEVELOPING ECONOMIES OF AMERICA						
Anguilla	1	0	0	1	0	0
Argentina	743	314	67	52	13	298
Aruba	0	0	0	0	0	0
Barbados	824	181	307	256	0	82
Belize	1 248	22	193	740	0	293
Bolivia (Plurinational State of)	122	16	31	61	0	15
Brazil	2 378	904	506	239	277	452
British Virgin Islands	19	0	0	1	0	19
Cayman Islands	2 912	1 292	710	658	0	252
Chile	849	239	227	63	17	303
Colombia	90	5	0	38	0	47
Costa Rica	4	0	0	0	0	4
Cuba	44	0	3	10	0	30
Dominica	913	261	532	82	0	39
Dominican Republic	10	0	0	5	0	5
Ecuador	322	190	0	6	0	125
El Salvador	11	0	0	0	0	11
Falkland Islands [d]	47	0	0	0	0	47
Grenada	2	0	0	1	0	2
Guatemala	4	0	0	0	0	4
Guyana	41	5	0	23	0	14
Haiti	2	0	0	1	0	0
Honduras	643	103	41	233	2	264
Jamaica	249	0	163	53	28	5
Mexico	1 383	681	54	50	0	598
Netherlands Antilles	1 407	99	81	1 020	6	201
Nicaragua	8	1	0	1	0	6
Paraguay	54	4	0	37	7	6
Peru	356	109	0	20	0	227
Sain Kitts and Nevis	899	82	293	417	12	95
Suriname	5	2	0	1	0	1
Trinidad and Tobago	52	4	0	0	0	48
Turks and Caicos Islands	1	0	0	0	0	1
Uruguay	109	11	2	7	0	89
Venezuela (Bolivarian Republic of)	1 021	501	133	46	0	342
DEVELOPING ECONOMIES OF AMERICA						
Total	16 773	5 026	3 341	4 119	361	3 926
DEVELOPING ECONOMIES OF ASIA						
Bahrain	518	81	58	1	247	130
Bangladesh	645	64	271	238	35	36
Brunei Darussalam	500	1	13	3	0	484

Annex III. (a) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of GT)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
Cambodia	1 964	40	250	1 494	11	169
China	30 077	5 444	13 315	4 704	4 393	2 221
China, Hong Kong	45 338	10 315	22 366	2 742	8 745	1 170
China, Macao	2	0	0	0	0	2
China, Taiwan Province of	2 636	675	1 001	117	637	206
Democratic People's Republic of Korea	871	70	96	620	22	62
India	9 027	4 971	2 377	322	254	1 102
Indonesia	8 093	2 335	1 256	2 298	630	1 574
Iran (Islamic Republic of)	988	80	260	236	187	225
Iraq	143	42	0	39	0	62
Jordan	264	137	0	50	0	77
Kuwait	2 369	1 752	23	98	269	226
Lao People's Democratic Republic	0	0	0	0	0	0
Lebanon	140	1	34	102	0	3
Malaysia	7 718	2 938	290	495	703	3 292
Maldives	141	8	1	119	0	13
Mongolia	744	11	532	178	0	23
Myanmar	183	3	14	136	0	29
Oman	27	1	0	2	0	24
Pakistan	295	158	36	75	0	26
Philippines	5 219	488	2 406	1 394	291	640
Qatar	1 016	302	70	1	365	278
Republic of Korea	12 893	1 382	7 864	1 334	688	1 625
Saudi Arabia	1 711	878	0	288	204	341
Singapore	41 047	16 709	7 808	3 928	8 894	3 707
Sri Lanka	168	15	45	86	0	22
Syrian Arab Republic	247	0	48	188	8	4
Thailand	2 526	594	538	911	232	251
Timor-Leste	1	0	0	0	0	1
Turkey	5 451	983	1 953	1 611	458	445
United Arab Emirates	1 083	387	75	75	345	202
Viet Nam	3 451	905	736	1 438	121	251
Yemen	33	13	0	6	0	13
DEVELOPING ECONOMIES OF ASIA						
Total	187 530	51 784	63 738	25 331	27 742	18 935
DEVELOPING ECONOMIES OF OCEANIA						
Fiji	35	0	0	9	0	26
French Polynesia	1	0	0	0	0	1
Kiribati	547	97	191	197	0	62
Micronesia (Federated States of)	12	0	0	6	0	5
New Caledonia	2	0	0	2	0	0
Papua New Guinea	98	4	5	71	0	18

Annex III. (a) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of GT)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
Samoa	10	0	0	8	0	2
Solomon Islands	13	0	0	2	0	10
Tonga	68	1	6	48	0	13
Tuvalu	1 098	693	200	101	11	94
Vanuatu	2 145	0	1 064	257	25	798
DEVELOPING ECONOMIES OF OCEANIA						
Total	4 030	795	1 465	702	36	1 031
DEVELOPING ECONOMIES TOTAL	215 420	59 476	69 345	31 834	28 306	26 459
DEVELOPED ECONOMIES						
Australia	1 837	227	363	144	0	1 103
Austria	10	0	0	10	0	0
Belgium	4 301	1 127	1 405	258	106	1 405
Bulgaria	523	18	289	112	54	50
Canada	2 993	601	1 151	112	16	1 113
Denmark	11 336	3 171	251	390	6 015	1 510
Estonia	375	8	0	12	0	355
Finland	1 459	363	4	496	29	567
France	6 837	3 061	179	158	1 633	1 807
French Guyana	0	0	0	0	0	0
Germany	15 157	375	418	489	13 176	698
Greece	38 911	22 637	11 482	338	2 189	2 266
Guadeloupe	1	0	0	1	0	0
Iceland	162	0	0	1	0	160
Ireland	189	13	0	99	5	72
Israel	400	3	0	4	384	9
Italy	15 531	4 821	2 686	2 387	974	4 662
Japan	14 725	2 704	3 686	2 782	114	5 439
Latvia	264	64	0	25	0	175
Lithuania	434	1	0	222	10	201
Luxembourg	935	165	112	178	186	294
Netherlands	6 966	424	43	2 887	1 613	2 000
New Zealand	363	57	14	136	7	149
Norway	16 614	5 373	2 278	4 105	5	4 853
Poland	204	5	0	38	0	161
Portugal	1 288	386	89	303	27	482
Romania	246	29	0	69	0	148
Slovakia	147	0	10	136	0	1
Slovenia	2	0	0	0	0	2
Spain	2 880	569	22	291	128	1 871
Sweden	4 045	426	26	2 367	0	1 225
Switzerland	641	59	353	82	142	4
United Kingdom	18 986	1 673	1 558	3 283	9 078	3 394

Annex III. (a) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of GT)* (concluded)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
United States	12 018	2 314	1 172	1 787	3 516	3 229
DEVELOPED ECONOMIES Total	180 779	50 674	27 590	23 701	39 408	39 406
TRANSITION ECONOMIES						
Albania	67	0	0	66	0	2
Azerbaijan	743	248	0	112	0	384
Croatia	1 390	664	531	48	0	146
Georgia	708	22	130	478	8	70
Kazakhstan	77	37	0	3	0	37
Montenegro	7	0	0	4	0	3
Republic of Moldova	351	19	76	240	4	12
Russian Federation	7 650	1 377	446	2 800	143	2 883
Turkmenistan	63	16	0	17	0	31
Ukraine	905	31	69	437	0	368
TRANSITION ECONOMIES Total	11 962	2 414	1 253	4 206	155	3 934
MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES						
Antigua and Barbuda	9 993	15	799	3 325	5 751	104
Bahamas	48 119	18 164	7 310	7 234	1 414	13 997
Bermuda	9 706	1 216	1 735	101	682	5 972
Cyprus	20 169	5 604	7 720	1 439	4 089	1 316
Isle of Man	10 194	5 719	2 155	350	112	1 857
Liberia	91 696	34 959	19 270	3 819	28 478	5 170
Malta	35 037	11 580	15 409	3 272	2 408	2 368
Marshall Islands	49 088	22 034	12 998	1 391	4 290	8 375
Panama	190 663	38 230	85 076	22 979	30 172	14 206
Saint Vincent and the Grenadines	5 152	167	1 931	2 299	120	635
MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES Total	469 817	137 688	154 404	46 209	77 515	54 000
Unknown flag	4 656	748	600	1 640	159	1 510
World total [e]	882 635	250 999	253 191	107 591	145 544	125 310

Annex III. (b) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of dwt)*

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
DEVELOPING ECONOMIES OF AFRICA						
Algeria	765	25	204	64	0	471
Angola	52	8	0	15	0	29
Benin	0	0	0	0	0	0
Cameroon	9	0	0	3	0	7
Cape Verde	23	6	0	11	0	6
Comoros	1 212	330	249	509	17	107
Congo	1	0	0	0	0	1
Côte d'Ivoire	5	1	0	0	0	4
Democratic Republic of the Congo	17	2	0	1	0	14
Djibouti	1	0	0	0	0	1
Egypt	1 518	375	679	243	63	157
Equatorial Guinea	17	4	0	2	0	11
Eritrea	14	3	0	10	0	1
Ethiopia	150	0	0	150	0	0
Gabon	9	1	0	4	0	4
Gambia	12	5	0	5	0	2
Ghana	85	5	0	18	0	62
Guinea	12	0	0	0	0	11
Guinea-Bissau	2	0	0	0	0	2
Kenya	14	8	0	0	0	6
Libyan Arab Jamahiriya	1 405	1 346	0	31	0	28
Madagascar	31	7	0	16	0	7
Mauritania	25	0	0	1	0	24
Mauritius	64	0	0	12	0	52
Morocco	332	20	0	19	69	223
Mozambique	35	0	0	11	0	24
Namibia	70	0	0	2	0	69
Nigeria	989	750	13	19	0	207
Saint Helena	1	0	0	0	0	1
Sao Tome and Principe	28	1	7	18	0	2
Senegal	19	0	0	2	0	17
Seychelles	288	201	0	56	0	31
Sierra Leone	792	102	76	557	11	45
Somalia	5	2	0	1	0	3
South Africa	126	9	0	0	30	87
Sudan	28	0	0	26	0	1
Togo	243	8	76	141	8	10
Tunisia	97	24	26	21	0	25
United Republic of Tanzania	117	25	16	71	0	5
DEVELOPING ECONOMIES OF AFRICA Total	8 611	3 268	1 347	2 040	199	1 757

Annex III. (b) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of dwt)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
DEVELOPING ECONOMIES OF AMERICA						
Anguilla	1	0	0	1	0	0
Argentina	981	537	114	70	18	241
Aruba	0	0	0	0	0	0
Barbados	1 181	282	513	327	0	59
Belize	1 451	32	297	891	0	232
Bolivia (Plurinational State of)	166	24	48	80	0	14
Brazil	3 407	1 443	863	279	358	464
British Virgin Islands	11	0	0	1	0	10
Cayman Islands	3 961	2 179	1 163	294	0	326
Chile	1 096	396	381	75	21	222
Colombia	109	8	0	54	0	47
Costa Rica	0	0	0	0	0	0
Cuba	49	1	3	14	0	31
Dominica	1 610	459	1 000	114	0	38
Dominican Republic	6	0	0	5	0	1
Ecuador	401	327	0	6	0	68
El Salvador	2	0	0	0	0	2
Falkland Islands [d]	35	0	0	0	0	35
Grenada	1	0	0	1	0	0
Guatemala	3	1	0	0	0	2
Guyana	42	7	0	28	0	7
Haiti	2	0	0	1	0	0
Honduras	702	188	71	311	2	130
Jamaica	353	0	263	55	35	1
Mexico	1 776	1 131	92	35	0	517
Netherlands Antilles	1 837	172	148	1 225	8	283
Nicaragua	3	1	0	1	0	1
Paraguay	63	7	0	47	8	2
Peru	318	177	0	30	0	111
Saint Kitts and Nevis	1 219	128	479	549	11	53
Suriname	6	3	0	2	0	1
Trinidad and Tobago	18	4	0	0	0	14
Turks and Caicos Islands	0	0	0	0	0	0
Uruguay	70	16	3	9	0	42
Venezuela (Bolivarian Republic of)	1 484	861	220	63	0	340
DEVELOPING ECONOMIES OF AMERICA Total	22 362	8 381	5 659	4 568	463	3 291
DEVELOPING ECONOMIES OF ASIA						
Bahrain	613	154	85	2	271	101
Bangladesh	975	111	462	329	48	25
Brunei	449	1	20	3	0	425
Cambodia	2 517	64	368	1 968	15	101
China	45 157	9 264	23 031	6 043	5 268	1 552
China, Hong Kong	74 513	18 550	40 958	3 754	10 160	1 092
China, Macao	2	0	0	0	0	2
China, Taiwan Province of	3 944	1 144	1 831	161	710	96

Annex III. (b) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of dwt)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
Democratic People's Republic of Korea	1 266	118	162	900	31	55
India	14 970	9 005	4 109	362	328	1 165
Indonesia	10 471	3 867	2 082	2 928	825	769
Iran	1 333	120	453	298	252	210
Iraq	180	68	0	54	0	58
Jordan	369	290	0	60	0	20
Kuwait	3 856	3 216	39	76	292	233
Laos	2	0	0	2	0	0
Lebanon	159	1	54	100	0	3
Malaysia	10 225	5 226	498	594	862	3 046
Maldive Islands	188	16	2	161	0	9
Mongolia	1 190	19	903	250	0	18
Myanmar	210	5	24	168	0	14
Oman	14	2	0	2	0	10
Pakistan	481	282	66	107	0	26
Philippines	7 033	781	3 841	1 695	348	368
Qatar	1 363	546	116	0	404	298
Republic of Korea	20 819	2 433	14 505	1 740	856	1 285
Saudi Arabia	2 319	1 511	0	295	221	292
Singapore	61 660	29 773	14 427	2 929	10 480	4 052
Sri Lanka	239	26	75	122	0	15
Syrian Arab Republic	344	0	77	258	8	1
Thailand	3 747	1 038	883	1 300	314	212
Timor-Leste	0	0	0	0	0	0
Turkey	7 878	1 694	3 358	2 011	573	242
United Arab Emirates	1 412	650	120	82	378	182
Viet Nam	5 415	1 480	1 223	2 287	162	262
Yemen	31	22	0	3	0	6
DEVELOPING ECONOMIES OF ASIA Total	285 345	91 475	113 772	31 044	32 806	16 248
DEVELOPING ECONOMIES OF OCEANIA						
Fiji	17	0	0	7	0	10
French Polynesia	1	0	0	1	0	0
Kiribati	829	163	344	276	0	46
Micronesia (Federated States of)	10	0	0	6	0	3
New Caledonia	3	0	0	3	0	0
Papua New Guinea	111	3	6	90	0	12
Samoa	10	0	0	9	0	1
Solomon Islands	8	0	0	2	0	6
Tonga	78	2	7	60	0	9
Tuvalu	1 884	1 268	363	147	15	92
Vanuatu	2 684	0	1 749	239	29	667
DEVELOPING ECONOMIES OF OCEANIA Total	5 634	1 435	2 468	840	44	847
DEVELOPING ECONOMIES Total	321 952	104 559	123 246	38 492	33 511	22 143

Annex III. (b) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of dwt)* (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
DEVELOPED ECONOMIES						
Australia	2 171	394	579	133	0	1 065
Austria	12	0	0	12	0	0
Belgium	6 575	2 169	2 731	150	131	1 394
Bulgaria	697	26	464	117	64	26
Canada	3 401	1 006	1 727	100	17	551
Denmark	13 814	5 270	512	333	6 706	993
Estonia	99	13	0	15	0	71
Finland	1 171	609	4	401	37	121
France	8 821	5 648	346	91	1 793	943
Germany	17 570	567	828	537	15 268	370
Greece	67 629	42 336	21 402	368	2 406	1 117
Guadeloupe	1	0	0	1	0	0
Iceland	69	0	1	1	0	68
Ireland	196	18	0	145	7	25
Israel	486	5	0	5	471	5
Italy	17 276	8 166	5 006	1 512	1 086	1 505
Japan	17 707	5 028	6 608	2 491	124	3 456
Latvia	180	106	0	22	0	52
Lithuania	364	2	0	274	14	75
Luxembourg	1 100	255	192	112	188	352
Netherlands	7 252	651	53	3 606	1 856	1 087
New Zealand	327	89	20	156	8	54
Norway	20 811	9 357	4 046	3 316	7	4 085
Poland	131	7	0	30	0	94
Portugal	1 288	677	147	259	35	171
Romania	244	47	0	82	0	115
Slovakia	193	0	15	178	0	0
Slovenia	0	0	0	0	0	0
Spain	2 555	1 036	35	208	165	1 112
Sweden	2 206	617	36	1 260	0	293
Switzerland	1 023	88	627	106	197	5
United Kingdom of Great Britain and Northern Ireland	20 176	2 625	2 903	2 319	10 199	2 131
United States of America	12 792	3 974	2 233	966	3 782	1 838
DEVELOPED ECONOMIES Total	228 340	90 787	50 515	19 305	44 561	23 173
TRANSITION ECONOMIES						
Albania	97	0	0	95	0	1
Azerbaijan	663	353	0	122	0	187
Croatia	2 277	1 239	948	54	0	37
Georgia	935	37	206	638	12	42

Annex III. (b) Merchant fleets of the world by flags of registration,[a] groups of countries and types of ship[b] as at 1 January 2010 *(in thousands of dwt)* (concluded)

	Total fleet	Oil tankers	Bulk carriers	General cargo [c]	Container ships	Other types
Kazakhstan	91	63	0	2	0	26
Montenegro	6	0	0	5	0	1
Republic of Moldova	460	33	119	296	6	7
Russian Federation	7 283	1 981	627	3 168	149	1 357
Turkmenistan	62	22	0	15	0	24
Ukraine	904	52	111	526	0	214
TRANSITION ECONOMIES Total	12 778	3 781	2 012	4 922	167	1 895
MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES						
Antigua and Barbuda	13 034	23	1 282	4 313	7 297	118
Bahamas	64 109	33 484	12 875	6 508	1 570	9 671
Bermuda	10 107	2 250	3 339	113	712	3 692
Cyprus	31 305	10 134	13 690	1 767	4 876	839
Isle of Man	16 711	10 239	4 078	407	147	1 840
Liberia	142 121	63 212	35 214	3 778	33 907	6 011
Malta	56 156	20 682	27 760	3 723	2 864	1 128
Marshall Islands	77 827	39 961	23 605	1 567	5 314	7 380
Panama	288 758	69 363	154 645	18 089	33 879	12 781
Saint Vincent and the Grenadines	7 329	318	3 381	2 981	156	494
MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES Total	707 457	249 665	279 869	43 247	90 722	43 954
Unknown flag	5 611	1 260	981	2 266	197	908
WORLD TOTAL [e]	**1 276 137**	**450 053**	**456 623**	**108 232**	**169 158**	**92 072**

Notes to Annex III

Source: *Lloyd's Register–Fairplay.*

[a] The designations employed and the presentation of material in this table refer to flags of registration and do not imply the expression of any opinion by the Secretariat of the United Nations concerning the legal status of any country or territory, or of its authorities, or concerning the delimitation of its frontiers.

[b] Ships of 100 GT and over, excluding the Great Lakes fleets of the United States and Canada and the United States Reserve Fleet.

[c] Including passenger/cargo.

[d] A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

[e] Excluding estimates of the United States Reserve Fleet and the United States and Canadian Great Lakes fleets.

Annex IV. UNCTAD Liner Shipping Connectivity Index

	Index points									Rank
	2004	2005	2006	2007	2008	2009	2010	Average annual growth 2004–2010	Growth 2010/ 2009	2010
Albania	0.40	0.40	0.40	2.28	1.98	2.30	4.34	0.66	2.04	128
Algeria	10.00	9.72	8.70	7.86	7.75	8.37	31.45	3.57	23.08	35
American Samoa	5.17	5.30	4.86	6.28	6.44	4.60	4.85	-0.05	0.25	123
Angola	9.67	10.46	9.46	9.90	10.22	11.31	10.71	0.17	-0.61	78
Antigua and Barbuda	2.33	2.56	2.43	3.76	3.82	2.66	2.40	0.01	-0.26	155
Argentina	20.09	24.95	25.58	25.63	25.70	25.99	27.61	1.25	1.62	42
Aruba	7.37	7.52	7.53	5.09	5.09	3.52	5.34	-0.34	1.82	118
Australia	26.58	28.02	26.96	26.77	38.21	28.80	28.11	0.25	-0.69	41
Bahamas	17.49	15.70	16.19	16.45	16.35	19.26	25.71	1.37	6.45	46
Bahrain	5.39	4.34	4.44	5.99	5.75	8.04	7.83	0.41	-0.21	99
Bangladesh	5.20	5.07	5.29	6.36	6.40	7.91	7.55	0.39	-0.36	102
Barbados	5.47	5.77	5.34	5.79	5.36	4.75	4.20	-0.21	-0.55	130
Belgium	73.16	74.17	76.15	73.93	77.98	82.80	84.00	1.81	1.20	8
Belize	2.19	2.59	2.62	2.61	2.32	2.30	3.95	0.29	1.66	135
Benin	10.13	10.23	10.99	11.16	12.02	13.52	11.51	0.23	-2.01	76
Bermuda	1.54	1.57	1.57	1.57	1.57	1.57	1.57	0.01	0.00	159
Brazil	25.83	31.49	31.61	31.64	30.87	31.08	31.65	0.97	0.58	34
Brunei Darussalam	3.91	3.46	3.26	3.70	3.68	3.94	5.12	0.20	1.18	122
Bulgaria	6.17	5.61	4.47	4.83	5.09	5.78	5.46	-0.12	-0.32	115
Cambodia	3.89	3.25	2.93	3.25	3.47	4.67	4.52	0.11	-0.15	125
Cameroon	10.46	10.62	11.41	11.65	11.05	11.60	11.34	0.15	-0.26	77
Canada	39.67	39.81	36.32	34.40	34.28	41.34	42.39	0.45	1.04	22
Cape Verde	1.90	2.28	2.76	2.45	3.63	5.13	3.69	0.30	-1.44	142
Cayman Islands	1.90	2.23	1.79	1.78	1.78	1.76	2.51	0.10	0.75	154
Chile	15.48	15.53	16.10	17.49	17.42	18.84	22.05	1.10	3.21	50
China	100.00	108.29	113.10	127.85	137.38	132.47	143.57	7.26	11.10	1
China, Hong Kong	94.42	96.78	99.31	106.20	108.78	104.47	113.60	3.20	9.12	2
China, Taiwan Province of	59.56	63.74	65.64	62.43	62.58	60.90	64.37	0.80	3.46	14
Colombia	18.61	19.20	20.49	29.13	21.64	23.18	26.13	1.25	2.96	45
Comoros	6.07	5.84	5.39	5.51	5.15	5.00	5.74	-0.06	0.74	111
Congo	8.29	9.10	9.12	9.61	11.80	11.37	10.45	0.36	-0.91	81
Costa Rica	12.59	11.12	15.08	15.34	12.78	14.61	12.77	0.03	-1.84	74
Côte d'Ivoire	14.39	14.52	12.98	14.98	16.93	19.39	17.48	0.52	-1.90	61
Croatia	8.58	12.19	10.47	12.33	15.36	8.48	8.97	0.06	0.49	88
Cuba	6.78	6.51	6.43	6.71	6.12	5.92	6.57	-0.03	0.65	104
Cyprus	14.39	18.53	17.39	18.01	11.81	13.31	16.20	0.30	2.89	64
Czech Republic	0.44	0.44	0.44	0.44	3.20	0.44	0.44	0.00	0.00	160
Democratic Republic of the Congo	3.05	3.03	2.66	2.68	3.36	3.80	5.24	0.37	1.44	119
Denmark	11.56	24.25	25.39	22.10	26.49	27.68	26.76	2.53	-0.92	43
Djibouti	6.76	7.59	7.36	10.45	10.43	17.98	19.55	2.13	1.57	55

Annex IV. UNCTAD Liner Shipping Connectivity Index (continued)

	Index points									Rank
	2004	2005	2006	2007	2008	2009	2010	Average annual growth 2004–2010	Growth 2010/ 2009	2010
Dominica	2.33	2.51	2.33	2.40	2.31	2.73	1.88	-0.07	-0.85	157
Dominican Republic	12.45	13.95	15.19	19.87	20.09	21.61	22.25	1.63	0.64	49
Ecuador	11.84	12.92	14.17	14.30	13.16	17.09	18.73	1.15	1.64	56
Egypt	42.86	49.23	50.01	45.37	52.53	51.99	47.55	0.78	-4.44	20
El Salvador	6.30	7.32	8.07	7.90	8.67	10.34	9.64	0.56	-0.71	83
Equatorial Guinea	4.04	3.87	3.76	3.36	3.86	3.73	4.37	0.06	0.64	127
Eritrea	3.36	1.58	2.23	-	3.26	3.26	0.02	-0.56	-3.24	161
Estonia	7.05	6.52	5.76	5.78	5.48	5.71	5.73	-0.22	0.02	112
Faroe Islands	4.22	4.40	4.43	4.45	4.20	4.20	4.21	0.00	0.00	129
Fiji	8.26	8.32	7.24	7.35	10.31	8.74	9.44	0.20	0.70	85
Finland	9.45	10.16	8.58	10.70	9.72	10.15	8.36	-0.18	-1.79	94
France	67.34	70.00	67.78	64.84	66.24	67.01	74.94	1.27	7.93	11
French Polynesia	10.46	11.14	8.91	8.60	9.01	8.39	8.88	-0.26	0.49	89
Gabon	8.78	8.76	8.72	8.57	8.93	9.16	8.55	-0.04	-0.62	92
Gambia	4.91	6.13	4.80	4.74	4.97	7.53	5.38	0.08	-2.15	117
Georgia	3.46	3.81	2.94	3.22	4.03	3.83	4.02	0.09	0.19	134
Germany	76.59	78.41	80.66	88.95	89.26	84.30	90.88	2.38	6.58	4
Ghana	12.48	12.64	13.80	14.99	18.13	19.33	17.28	0.80	-2.06	62
Greece	30.22	29.07	31.29	30.70	27.14	41.91	34.25	0.67	-7.65	30
Greenland	2.32	2.32	2.27	2.27	2.36	2.27	2.27	-0.01	0.00	156
Grenada	2.30	2.52	3.37	4.09	4.20	4.13	3.71	0.24	-0.42	141
Guam	10.50	10.52	9.56	8.73	8.56	8.57	8.78	-0.29	0.21	90
Guatemala	12.28	13.85	18.13	15.40	15.44	14.73	13.33	0.18	-1.39	71
Guinea	6.13	6.89	8.71	8.47	6.41	8.32	6.28	0.02	-2.04	107
Guinea-Bissau	2.12	5.19	5.03	5.14	5.34	3.54	3.50	0.23	-0.05	144
Guyana	4.54	4.37	4.60	4.28	4.36	4.34	3.95	-0.10	-0.38	136
Haiti	4.91	3.43	2.91	2.87	3.44	4.40	7.58	0.45	3.18	101
Honduras	9.11	8.64	8.29	8.76	9.26	10.68	9.09	0.00	-1.60	87
Iceland	4.72	4.88	4.75	4.72	4.72	4.73	4.70	0.00	-0.02	124
India	34.14	36.88	42.90	40.47	42.18	40.97	41.40	1.21	0.43	23
Indonesia	25.88	28.84	25.84	26.27	24.85	25.68	25.60	-0.05	-0.08	47
Iran (Islamic Republic of)	13.69	14.23	17.37	23.59	22.91	28.90	30.73	2.84	1.83	37
Iraq	1.40	1.63	4.06	2.61	1.20	5.11	4.19	0.47	-0.92	132
Ireland	8.78	9.66	8.18	8.85	7.64	7.60	8.53	-0.04	0.93	93
Israel	20.37	20.06	20.44	21.42	19.83	18.65	33.20	2.14	14.54	31
Italy	58.13	62.20	58.11	58.84	55.87	69.97	59.57	0.24	-10.40	16
Jamaica	21.32	21.99	23.02	25.50	18.23	19.56	33.09	1.96	13.53	32
Japan	69.15	66.73	64.54	62.73	66.63	66.33	67.43	-0.29	1.10	13
Jordan	11.00	13.42	12.98	16.46	16.37	23.71	17.79	1.13	-5.91	60
Kenya	8.59	8.98	9.30	10.85	10.95	12.83	13.09	0.75	0.26	72

Annex IV. UNCTAD Liner Shipping Connectivity Index (continued)

	Index points									Rank
	2004	2005	2006	2007	2008	2009	2010	Average annual growth 2004–2010	Growth 2010/ 2009	2010
Kiribati	3.06	3.28	3.05	3.06	3.06	2.85	2.86	-0.03	0.00	150
Kuwait	5.87	6.77	4.14	6.22	6.14	6.54	8.31	0.41	1.77	95
Latvia	6.37	5.82	5.10	5.87	5.52	5.18	5.98	-0.06	0.80	108
Lebanon	10.57	12.53	25.57	30.01	28.92	29.55	30.29	3.29	0.74	39
Liberia	5.29	5.95	4.55	4.50	4.25	5.49	5.95	0.11	0.46	109
Libyan Arab Jamahiriya	5.25	5.17	4.71	6.59	5.36	9.43	5.38	0.02	-4.05	116
Lithuania	5.22	5.88	5.66	6.83	7.76	8.11	9.55	0.72	1.44	84
Madagascar	6.90	6.83	8.31	7.97	7.82	8.64	7.38	0.08	-1.26	103
Malaysia	62.83	64.97	69.20	81.58	77.60	81.21	88.14	4.22	6.93	6
Maldives	4.15	4.08	3.90	4.75	5.45	5.43	1.65	-0.42	-3.78	158
Malta	27.53	25.70	30.32	29.53	29.92	37.71	37.53	1.67	-0.18	27
Marshall Islands	3.49	3.68	3.26	3.06	3.06	2.85	2.83	-0.11	-0.02	152
Mauritania	5.36	5.99	6.25	7.90	7.93	7.50	5.61	0.04	-1.88	113
Mauritius	13.13	12.26	11.53	17.17	17.43	14.76	16.68	0.59	1.92	63
Mexico	25.29	25.49	29.78	30.98	31.17	31.89	36.35	1.84	4.46	28
Micronesia (Federated States of)	2.80	2.87	1.94	3.13	3.85	3.85	3.43	0.10	-0.43	146
Montenegro	2.92	2.92	2.96	2.96	3.20	0.02	4.48	0.26	4.46	126
Morocco	9.39	8.68	8.54	9.02	29.79	38.40	49.36	6.66	10.95	18
Mozambique	6.64	6.71	6.66	7.14	8.81	9.38	8.16	0.25	-1.22	96
Myanmar	3.12	2.47	2.54	3.12	3.63	3.79	3.68	0.09	-0.11	143
Namibia	6.28	6.61	8.52	8.37	11.12	13.61	14.45	1.36	0.84	69
Netherlands	78.81	79.95	80.97	84.79	87.57	88.66	89.96	1.86	1.30	5
Netherlands Antilles	8.16	8.23	7.82	9.22	8.56	8.57	7.97	-0.03	-0.61	97
New Caledonia	9.83	10.34	9.00	8.81	9.23	8.74	9.37	-0.08	0.63	86
New Zealand	20.88	20.58	20.71	20.60	20.48	10.59	18.38	-0.42	7.79	58
Nicaragua	4.75	5.25	8.05	7.89	8.91	10.58	8.68	0.66	-1.90	91
Nigeria	12.83	12.79	13.02	13.69	18.30	19.89	18.28	0.91	-1.61	59
Northern Mariana Islands	2.17	2.20	1.85	2.86	3.76	3.76	3.43	0.21	-0.34	145
Norway	9.23	8.31	7.34	7.80	7.91	7.93	7.93	-0.22	0.00	98
Oman	23.33	23.64	20.28	28.96	30.42	45.32	48.52	4.20	3.20	19
Pakistan	20.18	21.49	21.82	24.77	24.61	26.58	29.48	1.55	2.89	40
Palau	1.04	1.04	1.87	3.07	3.79	3.79	3.43	0.40	-0.36	147
Panama	32.05	29.12	27.61	30.53	30.45	32.66	41.09	1.51	8.43	24
Papua New Guinea	6.97	6.40	4.67	6.86	6.92	6.58	6.38	-0.10	-0.20	106
Paraguay	0.53	0.53	6.32	6.25	0.65	0.00	0.00	-0.09	0.00	162
Peru	14.79	14.95	16.33	16.90	17.38	16.96	21.79	1.17	4.83	51
Philippines	15.45	15.87	16.48	18.42	30.26	15.90	15.19	-0.04	-0.71	67
Poland	7.28	7.53	7.50	7.86	9.32	9.21	26.18	3.15	16.97	44
Portugal	17.54	16.84	23.55	25.42	34.97	32.97	38.06	3.42	5.09	26
Puerto Rico	14.82	15.23	14.68	15.96	15.62	10.92	10.65	-0.69	-0.27	79

Annex IV. UNCTAD Liner Shipping Connectivity Index (concluded)

	Index points									Rank
	2004	2005	2006	2007	2008	2009	2010	Average annual growth 2004–2010	Growth 2010/ 2009	2010
Qatar	2.64	4.23	3.90	3.59	3.21	2.10	7.67	0.84	5.57	100
Republic of Korea	68.68	73.03	71.92	77.19	76.40	86.67	82.61	2.32	-4.06	10
Romania	12.02	15.37	17.61	22.47	26.35	23.34	15.48	0.58	-7.86	66
Russian Federation	11.90	12.72	12.81	14.06	15.31	20.64	20.88	1.50	0.24	53
Saint Kitts and Nevis	5.49	5.32	5.59	6.16	6.19	3.08	2.84	-0.44	-0.23	151
Saint Lucia	3.70	3.72	3.43	4.21	4.25	4.25	3.77	0.01	-0.47	137
Saint Vincent and the Grenadines	3.56	3.58	3.40	4.34	4.52	4.13	3.72	0.03	-0.40	140
Samoa	5.44	5.33	5.09	6.50	6.66	4.62	5.18	-0.04	0.56	120
Sao Tome and Principe	0.91	1.28	1.57	1.64	2.54	2.38	3.33	0.40	0.95	148
Saudi Arabia	35.83	36.24	40.66	45.04	47.44	47.30	50.43	2.43	3.13	17
Senegal	10.15	10.09	11.24	17.08	17.64	14.96	12.98	0.47	-1.98	73
Seychelles	4.88	4.93	5.27	5.29	4.49	4.90	5.16	0.05	0.26	121
Sierra Leone	5.84	6.50	5.12	5.08	4.74	5.56	5.80	-0.01	0.24	110
Singapore	81.87	83.87	86.11	87.53	94.47	99.47	103.76	3.65	4.29	3
Slovenia	13.91	13.91	11.03	12.87	15.66	19.81	20.61	1.12	0.80	54
Solomon Islands	3.62	4.29	3.97	4.13	4.16	3.96	5.57	0.33	1.61	114
Somalia	3.09	1.28	2.43	3.05	3.24	2.82	4.20	0.18	1.38	131
South Africa	23.13	25.83	26.21	27.52	28.49	32.07	32.49	1.56	0.42	33
Spain	54.44	58.16	62.29	71.26	67.67	70.22	74.32	3.31	4.10	12
Sri Lanka	34.68	33.36	37.31	42.43	46.08	34.74	40.23	0.93	5.49	25
Sudan	6.95	6.19	5.67	5.66	5.38	9.28	10.05	0.52	0.78	82
Suriname	4.77	4.16	3.90	4.29	4.26	4.16	4.12	-0.11	-0.04	133
Sweden	14.76	26.61	28.17	25.82	30.27	31.34	30.58	2.64	-0.77	38
Switzerland	3.53	3.40	3.20	3.27	3.01	2.74	2.58	-0.16	-0.16	153
Syrian Arab Republic	8.54	11.84	11.29	14.20	12.72	11.03	15.17	1.11	4.15	68
Thailand	31.01	31.92	33.89	35.31	36.48	36.78	43.76	2.12	6.98	21
Togo	10.19	10.62	11.09	10.63	12.56	14.42	14.24	0.67	-0.18	70
Tonga	3.81	4.75	4.45	4.07	4.23	3.99	3.73	-0.01	-0.26	139
Trinidad and Tobago	13.18	10.61	11.18	13.72	12.88	15.88	15.76	0.43	-0.13	65
Tunisia	8.76	7.62	7.04	7.23	6.95	6.52	6.46	-0.38	-0.05	105
Turkey	25.60	27.09	27.09	32.60	35.64	31.98	36.10	1.75	4.12	29
Ukraine	11.18	10.81	14.88	16.73	23.62	22.81	21.06	1.65	-1.75	52
United Arab Emirates	38.06	39.22	46.70	48.21	48.80	60.45	63.37	4.22	2.91	15
United Kingdom	81.69	79.58	81.53	76.77	77.99	84.82	87.53	0.97	2.71	7
United Republic of Tanzania	8.10	8.59	8.71	10.58	10.46	9.54	10.61	0.42	1.08	80
United States	83.30	87.62	85.80	83.68	82.45	82.43	83.80	0.08	1.36	9
United States Virgin Islands	1.77	3.00	3.22	3.76	3.81	3.70	3.32	0.26	-0.39	149
Uruguay	16.44	16.58	16.81	21.28	22.88	22.28	24.46	1.34	2.18	48
Vanuatu	3.92	4.48	4.41	4.34	4.36	4.22	3.75	-0.03	-0.47	138
Venezuela (Bolivarian Republic of)	18.22	19.90	18.62	20.26	20.46	20.43	18.61	0.06	-1.82	57
Viet Nam	12.86	14.30	15.14	17.59	18.73	26.39	31.36	3.08	4.98	36
Yemen	19.21	10.18	9.39	14.28	14.44	14.61	12.49	-1.12	-2.12	75

Source: UNCTAD, based on data provided by *Containerisation International Online*, www.ci-online.co.uk.

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